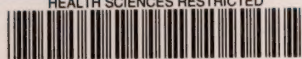
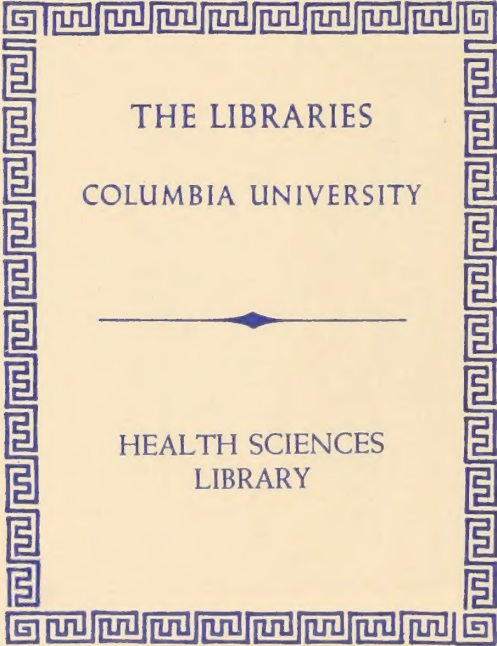


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THE TREATMENT OF OBESITY.*

BY J. M. ANDERS, M. D., LL. D.,
Philadelphia,

Professor of Medicine, Medico-Chirurgical College.

Obesity is a disorder of metabolism, caused mainly by either defective oxidation of the food stuffs or an excessive intake of food. In health the human organism appropriates only the amount of the various foods ingested that it needs for immediate purposes, and anything in excess of that quantity must be expended by increased muscular activity, otherwise it will be retained. All things being equal, excessive alimentation implies retention of energy, "and since most of such retention in the body occurs in the form of fat, excess—except under pathologic conditions—produces obesity" (Edsall).

It is a matter of common observation that many stout individuals are light eaters, and in such there is probably an abnormally active absorption of the substances that produce fat. Adiposity is often largely dependent on abnormal states of the internal secretions, particularly that of the pituitary gland. For example, Frölich's syndrome, general overfatness with sexual infantilism, may be occasioned by tumors of the pituitary or in its neighborhood. Hypopituitarism may be the sole cause of obesity, more particularly in young subjects. Says Osler: "It is not unlikely that many cases of extreme obesity in young persons are due to hypopituitarism." These subjects have an increased tolerance for carbohydrates, and often an inordinate craving for saccharine materials.

As the result of considerable experience in the treatment of obesity, I am firmly of the opinion that the majority of cases of this common condition are due to a relative excess of aliment, owing to the ridiculously small expenditure of energy. Unquestionably, the cause in those past the summit of life is often an absolute excess. Among other causative influences that furnish cardinal indications for treatment are gout and chronic articular rheumatism—conditions which are associated with a deficiency of oxidation because of lack of physical exercise on account of the suffering thereby induced. Heredity has a marked effect on the fat making tendency, having been found in sixty per cent. of 543 of my cases, which were carefully analyzed. Alcohol, which is rapidly oxidized, retards

tissue waste and thus also greatly favors obesity. Additional causative agencies which must receive consideration in the treatment of this condition are climate, occupation, temperament, age, and sex.

A division of the cases into plethoric and anemic, as well as into general and local, should be attempted in practice. The anemic form often results from periods of enforced rest, e. g., after accidents, surgical procedures, and the acute infections, such as articular rheumatism and typhoid fever. Out of a total of 543 cases, forty-three, or 7.9 per cent., followed an acute illness. As elsewhere stated, the condition assumes clinical importance when the fat deposits throughout the body become burdensome or produce impairment of the functions, as shown by disinclination to muscular exercise, palpitation, dyspnea, and other features. When, therefore, the foregoing symptoms can be, with reasonable certainty, attributed to corpulency, treatment should be begun.

In the majority of cases, obesity may be properly regarded as a symptom rather than a pathological entity, being dependent on a variety of underlying affections, as previously shown, and successful treatment demands the removal of these causative states. The problem of determining the cause in special cases is an intricate one, sometimes impossible of solution because there is no sure method of getting at the facts, but in such instances time, combined with patient and painstaking observation, may reveal the dominant etiological factors. Prophylactic measures in persons predisposed to corpulency are to be advised and encouraged. If an hereditary disposition to corpulency exists, the fat forming (farinaceous) substances must be restricted in the dietary during childhood and adolescence. The normal amount of fat and protein, however, may be allowed in young persons who take an average amount of muscular exercise. If anemia is present, suitable forms of iron should be prescribed. During middle life a tendency toward corpulency is frequently observed, when prophylaxis must have reference to the causative factors presented by individual cases. If imprudences in eating and drinking are, as often happens, the besetting sins, these must be corrected. If the occupation is a sedentary one or if the individual is indolent, loving rest, and phlegmatic, then an effort to overcome physical torpor by means of suitable forms of muscular activity must be made. If a gouty or rheumatic disposition obtains, measures preventive of these conditions must be instituted.

The treatment of confirmed obesity, to be carried out under strict surveillance in all cases, may be

*Read before the Section in General Medicine of the College of Physicians of Philadelphia, April 27, 1914.

conveniently considered under three heads: 1. The dietetic treatment; 2, the mechanical management, and, 3, the medical measures. However carefully the diet is prescribed at the outset, it may have to be varied from time to time in order to respond to indications as they arise. The solid food stuffs must be weighed and the fluids measured for a brief period, or until the patient can estimate by bulk the quantity of each article permitted. Fat reduction must be slowly progressive, and if too rapid, the dietary must be enlarged, especially with respect to the carbohydrates and fats. Broadly speaking, the principal deviation from the ordinary dietary consists in a restriction of the carbohydrates, and to a lesser extent of the hydrocarbons or fats.

It is my custom to "allow a limited proportion both of carbohydrates and fat, and thus accomplish two objects: 1. A slow consumption of the previous fat deposits; 2, maintenance of the normal metabolic processes." The carbohydrates are not to be withdrawn *in toto*, since the use of large amounts of proteins, which are difficult of complete metamorphosis, tends to excite gouty manifestations and digestive disorders and to inhibit favorable progress, or indeed to induce fresh complications that should be avoided. It is to be recollected that there is no single dietary for obesity in general, but there is for the individual case as a rule. Attention to details is vitally important, and the effect of the treatment both upon the weight of the patient and his general condition must be carefully noted at stated intervals. The principal dietetic systems are known by the names of their authors—Banting, Ebstein, and Oertel. In Banting, sugars, fats, and starches are much restricted, but water is not, and wines and spirituous liquors are allowed. Banting's heavy protein and alcoholic dietary is wholly impractical, I have found, in subjects inclined to gout or rheumatism, since it fails to secure elimination of poisonous wastes which are present in excess of the normal. In Ebstein's dietary the proteids are moderately, and carbohydrates greatly restricted, while fats are freely allowed. Saccharine materials and potatoes are not permitted. Ebstein assumes that fat does not increase stored fat, while it tends to impair the appetite; and being more readily oxidized than the carbohydrates, it interferes less with the metabolism of the proteids. My own experience of the use of his diet list has been too limited to warrant a statement of its practical value. Oertel's well known system, applied to circulatory disturbances (feeble hearts), is described in our leading textbooks of medicine, hence need not be detailed here. It has gained an enviable reputation in Europe (Germany, Austria, and Switzerland), where special sanatoria, with their "health paths" for its administration, are to be found.

I. THE DIETETIC TREATMENT.

The majority of the cases of obesity belong to the plethoric type, for which I am in the habit of ordering the following dietary, with slight modifications to suit individual cases:

Morning meal. Fruit, as an orange or two peaches or one half a grapefruit (without sugar)

or a sour apple, fine wheat bread, one and one quarter ounce (gram 0.4); a soft boiled egg; milk, one ounce (twenty-eight c. c.) saccharin, one half grain (gram 0.03); coffee, four and one quarter ounces (120 c. c.).

Noon meal or luncheon. Caviar, two drams (gram 0.8); lamb chops, sweetbread, boiled ham (cold) or fowl or game in season, three to four ounces (grams ninety to 120); salad, one ounce (grams 30) (with a small amount of French dressing); cheese, one dram (grams 4); bread, rye or bran, one half ounce (grams 15); fruit (except strawberries and bananas) or (instead of the latter), water, four ounces (125 c. c.).

Evening meal or dinner. Soup (clear) three ounces (85 c. c.); fish, two ounces (grams 60); roast or broiled beef, lamb, veal, or game or poultry, four to five ounces (grams 125 to 150); one or two of the following green vegetables: Spinach, string beans, green peas, celery (stewed), asparagus, raw sliced tomatoes, Brussels sprouts, one and one half ounces (grams 42). For desert, one may take plain rice pudding, junket, cup custards (all slightly sweetened) or fruit (except strawberries and bananas) either raw or cooked, four to five ounces (grams 125 to 150). The patients may take four to five ounces (125 to 140 c. c.) of water when fruit is not used. Additionally, a glass of water on rising and three hours after each meal is to be taken, and during the warm season from one to three glasses over this amount.

Thus the patient receives about 175 grams of carbohydrates and 250 grams of protein daily. In obesity associated with or dependent on gout, the nitrogenous elements are to be lessened to about 150 grams and forty to fifty grams of fat, principally in the form of butter and cream, as well as an additional half litre of water, are allowed. In general it may be said to be unwise to restrict too greatly the fluid intake in cases where the protein materials are prescribed in excess of the usual amounts, since it permits retention of the products of nitrogenous metabolism.

In the anemic type, which early shows hydremic or even dropsical tendency, restriction of fluids must be rigidly enforced, the total daily amount permitted not exceeding one litre. Perry has well said that there are cases in which an excessive amount of water (serum) in the tissues is practically the sole cause of the corpulency. He recommends Ranke's normal diet, meat, 280 grams, fat, 100 grams, bread, 400 grams, and the limitation of the amount of the fluid taken, allowing only 300 or 400 c. c. more of water to be ingested daily in food and drink than the daily amount of urine secreted.

These subjects require nutritious aliment, as tender meats, eggs, milk, green vegetables in normal amount, with moderate restriction of the fats and carbohydrates. A light acid wine, e. g., dry Moselle, claret or Rhine wine at dinner, is useful. The appetite shows impairment in many cases, and the patients insist often on a light lunch between meals and on retiring. In my view these should be allowed, and among the best dishes for the purpose are a cup of hot broth or bouillon with part of a French roll, a glass of milk with a graham wafer, a

thin sandwich of scraped beef or chicken, or the like.

2. THE MECHANICAL MANAGEMENT.

Muscular exercise for the purpose of accelerating oxidation is only slightly less important than an appropriate diet; it promotes destruction of the fat already warehoused in the system, and invigorates both the circulation and respiration. The particular form of exercise and its duration must be adapted to individual cases, and special care must be observed in cases manifesting feebleness of circulation. My own best results have resulted from open air walks, combined with gymnastics for the arms and trunk. The distance taken should not be less than from three to four miles daily, and should be measured by the use of a good speedometer. In the plethoric type, this distance may soon be taken on inclines of moderate degree.

In cases of the anemic type, however, the patient must begin with short walks on the level, to be increased by easy stages as the cardiac and general strength of the patient permits. Later, a like plan is to be pursued with regard to the degree of inclination, the object being to invigorate the heart muscle and improve oxidation. If cardiac dilatation is present, the Schott "resistance exercises" may be employed. Great care must be exercised in cases in which atheromatous vessels are found. Persons afflicted with the hydremic type are often lethargic and averse to using physical exercise. In such patients, deep massage and Swedish movements are the best substitute, and promote protein decomposition as well as elimination.

Balneotherapy promotes oxidation, although less actively than muscular exercise. Cold or salt water baths of brief duration, followed by active hand rubbing by the patient himself, are to be advised and encouraged. If, however, gouty manifestations or other contraindications exist, then warm baths, which aid elimination through the sweat glands, should be employed.

MEDICAL TREATMENT.

Certain spas, especially Marienbad and Carlsbad, are effective in the plethoric, but not in the anemic type of obesity. In the latter form, milder aperient waters containing iron are often useful. Again, patients presenting serious cardiovascular diseases should not visit these spas. Among watering places suitable for the moderate grades of plethoric obesity may be mentioned Kissingen and Vichy abroad, as well as Saratoga and the Virginia Hot Springs at home, the last named being especially well adapted to that large class of cases in which obesity is a consequence of gout. While the results obtained at these spas are often striking, they are rarely permanent unless the patient can be enjoined to continue certain details of treatment afterward.

The medicinal treatment of overfatness is quite unsatisfactory, although thyroid feeding has gained considerable professional favor. It may be employed in the anemic variety, more particularly if a myxedematous condition is present. The commencing dose should be small (one grain), to be slowly and gradually increased, but it is unwise to exceed three grains thrice daily, and the heart is to be guarded with small doses of strychnine or digi-

talis during its administration. I have had quite as good results from the desiccated extract of the gland as from thyroïdin or iodothylin. If symptoms of thyroïdism arise—tachycardia, restlessness, etc.—its temporary withdrawal is to be preferred to a reduction of the dose. The loss of weight, as the result of thyroid feeding, is rarely maintained after a reduction of from ten to fifteen pounds. It is all important to give the closest attention to the heart and bloodvessels. The laxative mineral waters are useful adjuncts where gormandizing has served as a cause, and to relieve constipation when present in the plethoric type. Pituitary feeding in cases with sexual infantilism (the Frœlich type) has given good results in the hands of certain observers. In circumscribed obesity, a course of local deep massage, together with mild general reducing measures, is best. Allard's method—a vibrating ball controlled by an electric motor—is also worthy of a trial.

1605 WALNUT STREET.

THE TREATMENT OF AMEBIC DYSENTERY WITH EMETINE.*

Report of Nine Cases.

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Great interest has been manifested for many years in the treatment of dysentery with ipecac. As long ago as 1649, Piso brought this drug to Europe, and gave the first distinct account of it to the world. It is also well known that Helvetius, in 1689, gained great notoriety, as well as remuneration, by effecting a cure of dysentery in the Dauphin with this remedy; he finally disposed of the drug to the French government, as a secret remedy. White, in 1712, prescribed it in large doses, i. e., in one case giving dram doses, twice, and in another a scruple, and two scruples twice; though he observed no beneficial effect in chronic dysenteries. In 1741, Geoffrey says that "ipecac often cures in the course of one day as if by enchantment. . . . It is comparatively useless unsupported in epidemics. It is better for confirmed than for commencing dysenteries. Sometimes it does not cure because the disease of the bowel has gone too far, but it never does any harm." His dose varied between ten and thirty grains. In 1785, Gibler Blanc expressed a high opinion of the efficacy of ipecac, but gave doses of but two grains and at times of only one grain.

Cullen, in 1781, did not believe that ipecac possessed any specific virtue, and asserted that "it proved useful only when so managed as to operate chiefly by stool." Farget, too, in 1832, considered this drug of slight value, and called the Spanish employment of it "incendiary." In 1817, Pelletier

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observed that ipecacuanha contained an alkaloid, which he termed emetine, but which was found to consist of a mixture of three substances, emetine, cephaelin, and psychotrin. In 1829, Bardsley described the beneficial results from the use of this drug in dysentery and chronic diarrhea. Parties, in 1846, considered the employment of ipecac in the treatment of dysentery, as of quite secondary importance, and held that the drug was most efficacious in doses of from one scruple to one dram.

Ipecac was administered in small doses by Twinning and other clinicians, but not until 1859 did Docker recommend the use of large doses (sixty grains three times daily) in the treatment of grave forms of dysentery in Mauritius, thereby reducing the mortality from ten and eighteen per cent. to two per cent. Docker's great service was rewarded by a gratuity from the English government. Maclean and Chevers, in 1886, advocated the employment of ipecac in the treatment of acute hepatitis.

During the past few years the use of ipecac has materially gained ground. The drug was often cast aside on account of the appearance of disagreeable symptoms, as nausea and vomiting, produced by large doses, and on this account it was finally administered in salol coated pills. Manson, in 1902, found ipecac most efficacious in the treatment of the cases of dysentery which he had seen in London in patients coming from the tropics. He recommended twenty to sixty grains daily for a week, and maintained that one or two doses often abort dysentery, while the acute symptoms rapidly subside.

Leonard Rogers stated, in 1907, that all cases of amebic dysentery should be treated with large and repeated doses of ipecacuanha, whenever any doubt exists as to whether suppuration in the liver has already taken place or not before exploration is practised, for this rule will constantly prevent unnecessary surgical procedures. Again, in 1910, he stated that amebic ulceration of the large bowel always precedes liver complications, and that ipecacuanha is of the greatest value in amebic dysentery. It was but a simple step forward to try the effect of full doses of ipecacuanha in the early stages of amebic hepatitis with a view of curing the exciting cause, namely, the ulcers in the large intestine. He brought forward several communications illustrating the marvellous effect of this drug in preventing acute hepatitis from passing over into liver abscess. During the last four years no patient has had amebic abscesses in the 100 beds of the Calcutta Hospital, and the mortality of liver abscesses in the English troops in India has fallen sixty per cent.

Walsh, in 1891, was the first to make note of the value of emetine in the treatment of dysentery. He combined emetine with mercuric iodide, which is not affected by acid and thus passes through the stomach unchanged. He reports thirty-four cases treated by this method with most favorable results. Vedder (1911) explains the difference in views regarding the efficacy of ipecac in the treatment of dysentery, by the fact that ipecac has been used in all cases of dysentery, irrespective of whether the dysentery was bacillary or amebic. He showed by direct experiment, that ipecac possesses no greater activity in bacillary dysentery against the bacilli

than any other drug, but that in amebic dysentery the action is much more powerful. His conclusions are as follows:

1. Ipecac is a powerful amebicide, since the weakest proportion used (with exception of demetized) killed in a dilution of one to 10,000.

2. Different preparations of ipecac on the market vary greatly in their ingredients, and in their power of killing amebas.

3. Emetine is a powerful amebicide, killing in dilutions of one to 100,000, which is double the dilution that was amebicidal when fluid extract of ipecac was used.

4. It is probable that the power of any given specimen of ipecac to kill amebas is directly dependent upon the proportion of emetine.

In 1912, Rogers brought forward the epoch making paper on *The Rapid Cure of Amebic Dysentery and Hepatitis by Hypodermic Injections of Soluble Salts of Emetine*. He tested the effect of emetine hydrochloride on *Amœba histolytica* in dysenteric stools, and found that the organism was immediately killed and altered in appearance by a one to 10,000 solution, and that it was rendered inactive in a few minutes and killed by a solution of one to 100,000. He administered the drug hypodermically to three patients who were unable to take ipecac internally, with most favorable results.

In a further communication, later in 1912, Rogers calls attention to his further experience with the specific curative action in amebic disease of hypodermic injections of soluble salts of emetine. He found it useful, in the cure, not only of intestinal conditions, but also of liver abscesses. These are cured by aspiration, followed by injections of emetine, subcutaneous or direct into the cavities. In order to decide if the abscess is completely cured, or if pus has accumulated again after apparent cures, leucocyte counts are, according to Rogers, of the greatest importance. If the original increase in the leucocytes has diminished, we have a direct evidence of the disappearance of the abscess.

The hydrochloride and hydrobromide of emetine, according to Rogers, are equally useful, the former being most soluble, while the latter requires two c. c. of sterile water or saline solution to dissolve it. He employs one half up to two thirds of a grain (equal to sixty grains of ipecac), and in very acute cases as much as one grain. He calls attention to the fact that bacillary dysenteries are not influenced by emetine, and the rapid improvement following the injections of one half grain is of the greatest diagnostic importance, as this does not occur in the bacillary forms. The failure of adequate doses of emetine to produce marked improvement in two to three days is strong evidence against the amebic origin of the disease. Recently, Rogers has employed emetine hydrochloride by mouth on an empty stomach, and found that in doses of one or two one third grain tablets nausea and vomiting are rarely produced, and that this method of administration is most efficient.

In a recent communication, Vedder comes to the following conclusions regarding the treatment of amebic dysentery by means of emetine:

1. Emetine is a true specific in amebic dysentery and hepatitis, and the results obtained by its

use compare very favorably with the results obtained with salvarsan in syphilis.

2. The hypodermic use of the hydrochloride is the preferred method of treatment.

3. A large percentage of patients so treated continue to harbor *Entamoeba histolytica* (often in the encysted and most dangerous form) in the feces for some time.

4. While in view of this fact, it is impossible to state at present that patients treated by emetine will remain permanently cured, yet the prospects are encouraging.

5. The presence of a considerable number of these chronic ameba carriers constitutes a sanitary menace to this community.

6. It is possible that the amebas may be removed from these carriers by a course of irrigations of quinine or silver nitrate.

7. Experiments have failed to show that emetine possesses any marked therapeutic virtue in bacillary dysentery, syphilis, rabies, or trypanosomiasis.

Our experience with emetine extends over a series of nine cases, seven in males and two in females, ranging in age from ten to forty-two years. The drug was employed hypodermically in the form of the hydrochloride in doses of from one third to one half grain two or three times daily and the injections were given for about a week. The drug was well borne in all instances. In a few instances a pruritus appeared, extending over the entire body; but the symptom always disappeared within a week after the treatment. Usually after the third or fourth injection the stools begin to lessen in number, from eight to ten a day to one or two, the blood and mucus disappearing, and the stools become more and more solid, and no longer contain amebas. The change for the better takes place so rapidly that the specific influence is undoubted.

The amebas were demonstrated in the rectal ulcers in every case, except Case v, before treatment, but in no instance could the histolytic amebas be observed after the first day's treatment. In Case v the constant use of argyrol injections prevented the demonstration of the organisms; but the result of the treatment was so marked that there could be no doubt as to the diagnosis. Proctoscopic examinations were made in all instances, the ulcerations observed, and scrapings were made in order to demonstrate the presence of the amebas. Blood examinations revealed in most instances a high leucocyte count, which diminished as the disease abated. The patients began to improve in all instances in general health after the first two or three injections, and the rectal ulcers soon showed signs of healing and disappeared after a week or ten days. All of the patients soon began to gain weight and before long were able to enjoy a much less restricted diet.

Although we possess in emetine a specific for the cure of amebic dysentery, it must be borne in mind that patients cannot be pronounced cured until a considerable period of time has elapsed without reappearance of the symptoms, for encysted amebas may be set free and produce a recurrence of the symptoms. It is therefore important that patients treated for amebic dysentery with emetine

should be kept under observation for some time, and at the first signs of a recurrence should again be given treatment.

The following records present brief abstracts of the histories as well as of the treatment of our nine cases.

CASE I (July 7, 1912). B. S., aged twenty-seven years, affected with abdominal distress for about two years, with pain, mainly in the suprapubic and right hypochondriac regions. The pain was sharp at times, and lancinating. Fever was present. There was diarrhea, eight to ten stools a day for periods of from six to eight weeks, after which the patient was free from trouble for a time.

The patient observed that the stools were dark in color, and contained some mucus, and at times small quantities of blood. There was great weakness, and the appetite was poor. On examination the abdomen was found tender everywhere, more marked, however, in the suprapubic and left iliac regions. The stools contained blood and mucus. On proctoscopic examination small ulcers were observed in the sigmoid and rectum and there was marked infiltration in this region, with thickening of the mucous membrane. The ulcers bled easily when touched. Smears made from the secretion of this area revealed blood, pus, and mucus, and amebas in large numbers. Red blood corpuscles, 2,650,000; white corpuscles, 11,200, hemoglobin, 40 per cent. Differential count: Polynuclears, 70 per cent.; small mononuclears, 24 per cent.; large mononuclears, 3 per cent.; eosinophiles, 3 per cent.

July 9, 1912, $\frac{1}{3}$ grain of emetine three times; eight stools, containing blood and mucus. July 10th, $\frac{1}{3}$ grain; four stools containing blood and mucus. July 11th, $\frac{1}{3}$ grain; three times; one stool, formed, contained no blood, no mucus. July 12th, $\frac{1}{3}$ grain, twice; stools formed. July 13th, $\frac{1}{3}$ grain, twice. July 14th, $\frac{1}{3}$ grain, three times; stools formed. July 15th, patient discharged as cured. Proctoscopic examination revealed no mucus and no blood; amebas not found.

CASE II (August 18, 1912). J. S., male, aged forty-two years; attacks of indigestion, at varying periods for five or six years, accompanied by pain and diarrhea, and lasting over a period of from eight to ten weeks; four to six stools daily; did not contain blood. Six weeks ago, he began to have pain in the left iliac region accompanied by marked diarrhea, which gradually increased until there were from ten to fifteen stools a day. The stools were liquid and contained blood and mucus, and when passed were accompanied by severe pain of a gripping character and with tenesmus.

Physical examination: Abdomen not tender to pressure; liver extended two fingers' breadth below the costal arch. Stools foul smelling, greenish gray in color, containing some mucus, much blood, and numerous amebas. On proctoscopic examination, the mucous membrane of the rectum found intensely reddened and edematous, with small ulcerations and punctate hemorrhages. Scrapings showed amebas, red blood cells, pus, and cercomonas. Blood examination presented the following picture: Red cells, 3,500,000; white cells, 10,000. Differential count: Polynuclears, 68 per cent.; large mononuclears, 16 per cent.; small mononuclears, 8 per cent.; eosinophiles, 8 per cent.

August 20th, $1\frac{1}{4}$ grain of emetine was injected; August 21st, $\frac{1}{4}$ grain; August 22d, $\frac{1}{2}$ grain; August 23d, $\frac{1}{2}$ grain; August 24th, $\frac{1}{2}$ grain; August 25th, $\frac{1}{2}$ grain; August 26th, $\frac{1}{2}$ grain; August 27th, $\frac{1}{4}$ grain; August 28th, $\frac{1}{4}$ grain.

After the third injection of emetine the stools began to improve, mucus, blood, and amebas disappeared. At this time marked pruritus began, but subsided after a week. Stools examined, September 2d, revealed no blood, no mucus, and no amebas. September 7th, patient discharged as cured; had gained nine pounds since August 25th.

CASE III (January 5, 1913). A. G., male, aged thirty-nine years. Present illness began June 3, 1912; diarrhea, cramps in the abdomen, and tenderness; eight to ten stools a day, bloody and containing considerable mucus. On examination, the liver was found somewhat enlarged, extending two fingers' breadth below the costal arch. On proctoscopic examination, the rectum was found reddened, and the mucous membrane edematous. It bled readily, and numerous small ulcers were revealed. Scrapings showed numerous amebas.

January 14th, patient had ten stools, containing blood and

mucus; $\frac{1}{4}$ grain of emetine was injected. January 15th, no change in condition; $\frac{1}{4}$ grain given. January 16th, no change in the stools. January 17th, $\frac{1}{4}$ grain of emetine given. January 18th, $\frac{1}{4}$ grain. January 18th, 19th, and 20th, very slight change in stools for the better. January 23d, $\frac{1}{3}$ grain of emetine, three times. January 24th, $\frac{1}{3}$ grain of emetine, four times; stools not formed. January 25th, two grains of emetine given; patient constipated, and had intense itching over entire body. February 2d, patient entirely well, and had a formed stool each day; ulcers in rectum entirely healed.

CASE IV. N. M., male, aged twenty-eight years; patient of Dr. A. C. McGlannon, admitted April 6, 1913. Norwegian, unable to converse in English; impossible to obtain clear history. Complained of pain in his right side and diarrhea, with which he had been affected for a long time. Liver enlarged and tender to pressure; sensation of fluctuation elicited. Liver abscess was suspected, and the patient was operated on by Doctor McGlannon, April 10th; a large liver abscess was found, which discharged a great amount of pus, containing numerous amebas. The stools, which numbered eight to ten a day, contained mucus and amebas. April 13th, $\frac{1}{4}$ grain of emetine hydrochloride was administered. April 14th, patient very comfortable, felt better; emetine $\frac{1}{2}$ grain. April 15th, two stools containing some pus and blood; emetine $\frac{1}{2}$ grain; patient felt comfortable. April 16th, two stools containing no blood, no mucus, no amebas. April 17th, emetine $\frac{1}{2}$ grain; patient comfortable. April 16th, one stool, no diarrhea, no blood, no mucus, no amebas. April 19th, $\frac{1}{4}$ grain; no amebas observed in pus from liver. April 20th, $\frac{1}{4}$ grain; patient very comfortable. April 21st, no amebas in stools. May 10th, drainage tube removed. May 15th, patient felt well and expressed a desire to leave hospital. May 21st, wound healed, border of liver no longer palpable. Blood examination: April 10th, red corpuscles, 4,200,000; white, 28,500; polynuclears, 88 per cent.; eosinophiles, 5 per cent. May 1st, red corpuscles, 4,810,000; white corpuscles, 8,500; polynuclears, 72 per cent.; eosinophiles, 1 per cent.

CASE V May 18, 1913. C. W., female, aged thirty years, affected with dysentery off and on for four and a half years; first attack lasted ten weeks; she recovered, and was well for three weeks; she suffered a relapse, which lasted six weeks. Entirely free of trouble of this character until eighteen months ago, when she had another attack lasting seven weeks. Present attack began five weeks ago with diarrhea, much mucus and blood, accompanied by considerable tenesmus and pain in the abdomen; stools small in amount, but very frequent. She had lost weight and was quite weak. The patient began at the very outset of the attack to irrigate the bowels daily with four ounces of a five per cent. solution of argyrol. This treatment failed to control the condition. Temperature between 101° and 104° F.

Examination: Marked muscle spasm in the region of the epigastrium, with tenderness in the left iliac region over the descending colon and the sigmoid. May 21st, stool did not reveal amebas. Same condition on May 31st. The blood examination presented 17,500 leucocytes. Differential count: Polynuclears, 57 per cent.; small mononuclears, 40 per cent.; large mononuclears, one per cent.; eosinophiles, 2 per cent.

On proctoscopic examination, the mucous membrane of the rectum was found markedly inflamed and reddened, and numerous small ulcers were revealed in the rectum and sigmoid. Mucous membrane bled readily, and was covered with blood and mucus. Scrapings did not reveal amebas, probably because patient had used argyrol injections for a month. On account of the character of the stools, the fever, and the ulcerations in the rectum, a diagnosis of amebic dysentery was made. June 15, 1913, $\frac{1}{4}$ grain of emetine was administered; stools bloody and contained mucus and shreds. There were sixteen stools. June 14th, $\frac{1}{4}$ grain of emetine given; stools of the same character. June 15th and 16th, $\frac{1}{4}$ grain. June 17th, no blood in stools. June 18th, $\frac{1}{4}$ grain; patient had first formed stool in four and a half years. Emetine administered up to June 20th; patient well, and gained fourteen pounds.

CASE VI (June 2, 1913). L. G., male, aged ten years, sailed for England June 1, 1912, and remained abroad about five months. Returned to America in November of the same year, and went to live in Newport News. He was accustomed to swim in the river while in Virginia, and

after indulging in this sport for a few times, he became jaundiced, and was attacked with diarrhea. He lost much flesh. The diarrhea became more persistent, lasting two weeks or more at a time. He was compelled to go to stool eight or ten times a day, and several times at night. The passage of the stool was accompanied by marked pain and tenesmus. On physical examination some tenderness was observed in the right iliac fossa, and over the left rectus muscle; the patient was tender in the gallbladder region, and the liver was palpable.

The stools were watery, contained blood, mucus, and particles of undigested food. On proctoscopic examination, the mucous membrane of the rectum was reddened and edematous; it bled easily, a number of small moon-shaped ulcers were observed in the lower rectum, which also bled easily and was covered with mucus. Scrapings obtained from the ulcers showed numerous amebas and cercomonas. Blood examination: Red blood corpuscles, 2,400,000; white corpuscles, 16,250; hemoglobin, 65 per cent. Differential count: Polynuclears, 49 per cent.; large mononuclears, 8 per cent.; small mononuclears, 31 per cent.; eosinophiles, 11 per cent.; basophiles, one per cent.

June 4th, the patient was given $\frac{1}{4}$ grain of emetine hydrochloride; stools watery, much blood and mucus. June 5th, stools frequent, of same character as day before. June 6th, emetine $\frac{1}{2}$ grain; no change in stools. June 7th, $\frac{1}{4}$ grain; stools formed, no blood, no mucus, no pain. June 8th, $\frac{1}{4}$ grain; stools more normal, with some formation. June 9th, stools nearly formed, no blood, no mucus, no amebas. June 11th, stools normal, patient much improved. Patient gained five pounds in weight from the 12th to the 19th and was discharged on the 19th.

Blood examination, June 19th: Polynuclears, 68 per cent.; large mononuclears, 9 per cent.; small mononuclears, 21 per cent.; eosinophiles, 2 per cent.

CASE VII (June 25, 1913). G. B., aged thirty-nine years, present illness began about three weeks ago with diarrhea and pain after bowel movements; stools contained some blood and mucus. On examination, abdomen found especially tender to pressure everywhere. The stools contained blood, mucus, some pus, and undigested food particles. On proctoscopic examination, a number of small elevated ulcers were revealed. These ulcers bled easily, and were surrounded with much mucus; numerous amebas found in the scrapings of the ulcers. Blood examination: Red blood cells, 3,750,000; white, 9,600; hemoglobin, 70 per cent. Differential count: Polynuclears, 74 per cent.; large mononuclears, 13 per cent.; small mononuclears, 6 per cent.; eosinophiles, 2 per cent.

July 1st, $\frac{1}{4}$ grain emetine hydrochloride given. July 2d, $\frac{1}{4}$ grain; stools still abundant, containing mucus, pus, and amebas. July 3d, $\frac{1}{3}$ grain; stools formed. July 4th and 5th, $\frac{1}{2}$ grain; no blood, no mucus, no amebas revealed in the stools; stools formed. July 20th, left hospital, perfectly well. July 20th, proctoscopic examination showed the bowel normal, no evidence of ulceration.

CASE VIII (October 25, 1913). D. A. E., male, aged twenty-seven years, more or less digestive disturbances for the past two years; present illness began, five months ago, with feelings of weight and discomfort in the abdomen, accompanied by eructations of gas, especially marked after the ingestion of food. Pain and burning in the abdomen at times, and frequently severe diarrhea, followed by pain in the rectum and tenesmus. Stools always liquid and contained some mucus and at times small amounts of blood. Peculiar sensation of a boring character along the coccyx and sacrum, extending as high as the first lumbar vertebra.

Examination of abdomen, nothing abnormal. Proctoscopic examination presented a highly inflamed mucous membrane, containing numerous small superficial ulcerations, somewhat elevated above the surface, and covered with mucus and blood. The ulcers were curetted and the scrapings revealed large number of amebas and cercomonas. The gastric contents presented a total acidity of 50, free acid 20, leucocyte count 16,000. Differential count: Polynuclears, 84 per cent.; small mononuclears, 12 per cent.; large mononuclears, 4 per cent.

October 31st, $\frac{1}{2}$ grain of emetine hydrochloride was administered hyperdermically. The patient was having ten to twelve small liquid stools a day. November 1st $\frac{2}{3}$ grain of same drug; rectal pain had disappeared, the stools were still liquid. November 2nd, $\frac{2}{3}$ grain given, stools formed, no pain, no tenesmus, no mucus. November 4th, one grain

given; patient well enough to be about; considerable itching, over the entire body. November 5th, $\frac{3}{8}$ grain administered; patient well. November 6th and 7th, $\frac{3}{8}$ grain given. November 8th, patient discharged, no further discomfort, stools normal. Leucocyte count, 9,000.

CASE IX. January 24, 1914. Patient of Dr. Harvey Stone, who has kindly allowed us to use this history. H. G. G., male, aged thirty-seven years, ascribed onset of his disturbance to an attack of pneumonia which he had seven years ago. He had had occasional mild attacks of diarrhea, but only in the past two years had the condition become aggravated. There were from four to ten stools a day, small, of a fluid consistence, and at times containing blood and mucus, brown in color, and their passage was usually preceded by abdominal cramps. On examination of the abdomen tenderness was nowhere observed. On microscopic examination, feces were found to contain mucus, blood and amebas. Examination of blood revealed red corpuscles, 4,750,000; white corpuscles, 8,300; hemoglobin, 55 per cent.

January 23d and 24th, $\frac{1}{3}$ grain of emetine given three times daily. January 25th, very few amebas observed; stools still contained blood and mucus; emetine continued. January 26th, one stool; still taking $\frac{1}{3}$ grain emetine, three times daily. January 27th, only one stool containing still a slight amount of mucus and blood, but no amebas. January 28th, 29th, and 30th, only one stool a day, normal in appearance, free from blood, mucus, and amebas. January 3d, only one stool; no blood, no mucus, no amebas. Discharged as cured; proctoscopic examination presented rectum in almost normal condition; ulcerations not present, either in rectum or sigmoid.

From our observations, as well as those of Rogers and others, we believe we may safely conclude that:

1. Emetine is a specific in the treatment of amebic dysentery.
2. It is quickly absorbed and its effect is rapid and striking.
3. It produces no unfavorable symptoms such as nausea, vomiting, and depression.
4. Other forms of dysentery are not favorably influenced by this remedy, so that its employment as a diagnostic measure is of the greatest value.
5. Recurrences after apparent cure are not infrequent. It is therefore best to treat all cases showing a tendency to relapse intermittently with emetine.

1013 NORTH CHARLES STREET.
1622 LINDEN AVENUE.

RADIUM IN MIDDLE EAR DEAFNESS CAUSED BY CHRONIC SUPPURATION.

BY W. SOHIER BRYANT, A. M., M. D., F. A. C. S.,
New York.

CASE. The patient, a Jewish woman, aged fifty-four years, had been in this country for thirty years, but because of her dull intellect, knew only a few words of English. She had been under my observation for ten years. Before she was under my care, she was operated upon several times for pansinusitis, double recurrent mastoiditis, and chronic middle ear suppuration. I succeeded in curing the pansinusitis and persistent middle ear suppuration, which, in spite of the operations, had continued. The patient suffered from a very loud and persistent tinnitus. There was destruction of the contents of both middle ear spaces. In order to keep the exposed air sinuses clean, continuous attention was necessary. Tympanic prostheses did not improve the hearing. The patient was dull of understanding and almost totally deaf. In the left ear, words shouted in the concha were unintelligible. In the right ear, the Politzer acoumeter was heard at two inches, and a loud voice at six inches.

TREATMENT.

In order to exclude the possibility of suggestion, the patient was given no knowledge of the treatment nor of what was being attempted. The mind of the patient was so dull that she was most unobserving. Radiation with mesothorium bromide was used at intervals of six days, five days, and six days. An applicator of five milligrams of mesothorium bromide was used; 262 milligram minutes of mesothorium bromide was used in the right ear, and 420 milligram minutes in the left ear. The radiation was the only treatment used.

Results of the radiation.—After the first radiation, the tinnitus was relieved; after the last application, it stopped and it has never returned. After radiation, the Politzer acoumeter was heard by the left ear at eleven inches; in the right ear, the acoumeter was heard at twelve inches. The patient now hears the voice proportionately well.

These measured tests of hearing are a gauge of her improvement in only one way. The radiation seemed to clear her mind to such an extent that she can now talk intelligently and she has a vivid interest in her surroundings. From a person almost totally deaf, inaccessible, and indifferent, she became observing and responsive.

19 WEST FIFTY-FOURTH STREET.

CARDIAC HYPOCHONDRIACS.

BY ROBERT H. BABCOCK, M. D., LL. D.,
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Whether this appellation meets with the approval of our neurological friends or not, it fitly designates a not inconsiderable class of impressionable individuals who seek medical aid for a fancied disease of the heart. They may try our patience sorely, but they are to be pitied because they suffer more from their subjective symptoms of palpitation, precordial pain, etc., than does many a patient with veritable organic heart disease. They are hypochondriacs because they fix their attention on their bodily sensations with such tenacity that these dominate their thoughts almost to the point of an obsession. Notwithstanding the disposition on the part of some authors to regard hypochondriasis as a subvariety of melancholia, as is done by Rayner in Allbutt's *System of Medicine*, the hypochondriacs who have consulted the writer for imaginary disease of the heart or circulation, have not displayed sufficient emotional depression to merit the term melancholia. That their hypochondriasis might in some instances go on to the development of the more serious mental disorder may be possible, but in the class of sufferers here considered, appropriate management generally succeeds in their restoration to a normal condition. In elucidation of this subject may be narrated the two following typical instances:

CASE I. G. E., druggist, aged thirty-two years, weight 162 pounds, height 5 feet 10 inches, was first seen by my assistant in July, 1913. His complaint was of an aching pain in the region of the heart and of a too rapid action of the heart, which symptoms had first been noticed three years before, after unusually violent exertion. Family history was unimportant. He had had a severe attack of typhoid fever at the age of twenty-one years, which illness led to hemorrhages and an abscess and had left him weak

for a long time. He denied venereal or other infections, but admitted the excessive use of tobacco and coffee. A careful examination of thoracic and abdominal organs disclosed no signs of disease, but the pulse rate was 120 and blood pressure readings were, systolic 160 mm. Hg. and diastolic 100 mm. Hg., giving a pulse pressure of 60. He was assured that there was no disease of his heart, but he was advised to give up tobacco and coffee, to take a saline cathartic once a week, and a dose of bromide three times daily. He subsequently reported that his pain in the heart had disappeared and his rapid heart action on excitement was less.

In January of this year this patient appeared again for examination because he had noticed some dizziness and feared it was due to weakness of his heart. My examination confirmed in every particular the findings of my assistant in July previous. The apex beat was distinct, well inside the left nipple, and deep cardiac dullness stopped also inside the left mammillary line, four inches from the midsternal line. The heart tones were normal in every respect. The pulse rate was 100 and blood pressure was 138 mm. Hg. maximum, and minimum 85 mm. Hg., the greater pressure readings in the summer having been due probably to his great nervous excitement and hence greater pulse rate. There were no murmurs and the vessel coats were soft.

Careful inquiry into this man's history brought out the following facts: His pharmacy is so situated that, three years ago or so, high water in the valley threatened rapidly to inundate his store. He therefore ran upstairs and worked hard to move his supplies out of reach of the flood, then ran down and up another flight of stairs into his home, where he hastily swallowed a cup of strong coffee and again ran down into his store. He was, of course, greatly excited over the situation, and on entering his shop happened to observe that his heart was pounding so violently as to be visible through his clothing. This frightened him and he sent at once for a neighboring physician. The doctor told him his "heart was weak" and advised him to lie down for an hour or two. From that time on he was worried in regard to his heart, and some months subsequently consulted another physician who told him he had hypertrophy of the heart. Henceforth he always became much disturbed whenever on excitement or hurry his heart became rapid and violent in action. In short, from that time forward he was not able to get his mind off his heart, and of course was greatly disturbed by any sensation connected with his heart, as pain or palpitation.

The profound psychical impression made upon this naturally nervous and at the time overwrought man by the discovery of his strongly thumping heart was unfortunately strengthened by the injudicious remark of the physician who first examined him, and when later on he was told he had a hypertrophied heart, he naturally had his attention so fastened on his heart that he was unable to get it out of his mind.

Unfortunately, in cases like the foregoing one generally learns that the patient has been alarmed or at least greatly impressed by some indiscreet remark or chance look on the part of the physician who is called in during an attack of palpitation, precordial pain, vertigo, or what not. The individual is impressionable and perhaps introspective, and all that is required to rivet his attention on his heart or some other organ is a chance remark by physician or friend to the effect that the organ in question must be diseased. The cure, as will be

shown, is to be achieved in a similar way, that is, by psychotherapy as well as by remedies that allay disturbing symptoms. Thus in the case just narrated, it was painstakingly explained that the violent action of the heart was perfectly natural and that he had not been able to throw off the unfortunate impression made upon him by the two doctors. He was also assured in the most positive manner that precordial pain and dizziness might both be due to conditions wholly independent of the heart and in his case were not symptoms of heart disease, since physical examination and blood pressure failed to disclose any signs of cardiac disease. As nothing has been heard from this man up to the present writing, March 15th, it is hoped that he was convinced and is no longer disturbed unduly if some of his symptoms do recur.

CASE II. H. W., real estate agent, aged forty years, tall and rather slender, had been under observation since April, 1913. His complaint was of rapid action of his heart, a feeling of pressure in his head, and a tightness or fullness of the ankles. The palpitation was particularly noticed after retiring for the night, and at such times he could hear his heart beat in his left ear. This man's father had died of degeneration of the heart, late in life, hence the son was alarmed lest he had inherited heart disease. There was no history of illnesses or habits that appeared of moment in explanation of his symptoms. He smoked very moderately, but ate relatively too much meat and drank several cups of coffee daily. He was conscious of some indigestion and was inclined to constipation. He was a hustler in business and admitted that he had always been of a nervous temperament.

Subsequently it was learned that, two or three years before coming to the writer, he had been worried lest he had contracted tuberculosis from an office associate and had sought medical opinion. From that physician he had been assured of his freedom from tuberculosis, but on seeking opinion because of some symptoms by him believed to be due to his heart, had been told his "heart and bloodvessels showed wear." Thenceforth he was much concerned lest he might meet with the same fate as his father, and on noticing the disturbed action of his heart had sought opinion and treatment by the writer.

Physical examination disclosed a somewhat increased area of deep cardiac dullness, together with a soft systolic murmur at the apex and a pulse rate of about 120 a minute. Blood examination showed a moderate anemia with leucocytes of about 13,000. There was also an increase of temperature of about a degree. It may be here stated that on a subsequent examination, McBurney's point was sensitive to pressure, and it was thought that a chronic appendicitis might have been responsible for the leucocytosis and slight rise of temperature, but more acute symptoms have not developed and the condition of the appendix is still a mooted point.

Unfortunately for this neurotic and apprehensive man, he overheard my assistant and myself discussing the significance of the mitral murmur in its relation to the leucocytosis. Consequently, despite the fact of the subsequent disappearance of the murmur and the assurance of his freedom from heart disease, he was so disturbed and alarmed by his consciousness of the heart's action that at length he was advised to enter a hospital for treatment. This he did and for the first three days was confined strictly to bed, being given nothing but water, and a bromide preparation three times daily. His bowels were well emptied by means of oil enemata and colonic irrigation with normal salt solution. Needless to add, he was not permitted to smoke or take coffee. Under this simple régime he promptly lost his sensation of pressure in the head and was not disturbed by palpitation. Nev-

ertheless, he was possessed to talk about his heart to his nurse until finally forbidden in emphatic terms to do so.

The subsequent treatment does not need to be detailed, but included a careful diet, daily salt rubs, a few Nauheim baths for their psychical effect, hypodermic injections of iron with arsenic for their general tonic effect, but, above all, every possible mental impression that could convince him of his freedom from organic disease. The nurses and interns were instructed to tell him how well he was and whenever he mentioned any symptom, to make light of it. The frequent analyses of urine and blood pressure reports were always read off in his presence with emphatic comments on their normal character. The limits of deep cardiac dullness were carefully outlined with an indelible pencil and then accurately measured, so that he might be convinced by ocular demonstration of the normal size of this organ. This procedure apparently did more than anything else, except daily talks, to instill into his mind the conviction that he had no disease of the heart. He was scolded, laughed at, and encouraged by turns, and whenever he questioned in regard to the significance of some symptom, satisfactory explanations were given and arguments employed to convince him that they did not possess any serious significance. Thus his complaint of hearing the heart beat in his left ear was explained as due to the retraction and atrophy of his membrana tympani, which inspection had previously revealed. And apropos of this not infrequent sensation on the part of patients, it may be stated that, when the beating of the heart is perceived in only one and not both ears, the cause will usually be found in some local defect, as chronic catarrh of the middle ear or stiffness and retraction of the drum-head as in this man. At length after a month of this sort of psychotherapy, the man apparently regained enough self control to be permitted to return to work. He has been seen twice since, and, although not entirely free from some of his subjective sensations, seems to have recovered from his alarm and to be on the road to recovery from the panic into which he had fallen prior to his sojourn in the hospital.

From the foregoing, as well as from other cases that might be narrated, it is found that however neurotic or impressionable the cardiac hypochondriac may be, the foundation of his fear was laid, not in the primary attack of palpitation or precordial pain *per se*, but in the behavior of the physician or friend who suggested the likelihood of a serious heart disorder. The doctor on being hurriedly summoned finds the individual per chance pale, with cold hands and feet, a rapid, feeble pulse and without pausing to examine the heart or ascertain the previous history, at once hastens to administer a hypodermic injection of strychnine, nitroglycerin, or morphine. He very likely shows by his face or even by some indiscreet remark, that he thinks the patient in collapse and therefore in grave danger. This attitude on the part of the physician is due to the fact that he is dominated by the sufferer's symptoms without stopping to consider their pathological significance. He has

been called to afford relief from what is regarded by the patient or family as a dangerous condition, and he does right to administer a hypodermic injection of morphine or strychnine at once. Nevertheless he should be on his guard not to betray by look or act any apprehension on his part as to the outcome.

In a majority of cases the subcutaneous injection of an eighth of a grain of morphine together with a two hundredth of atropine will promptly arrest the attack and reassure the patient; but an injudicious exclamation or expression as to the danger of the patient, may not only tend to counteract the effect of the remedy, but is likely to fix in the patient's mind the idea that a subsequent attack may prove fatal before help can be obtained. A reassuring word and manner often will of themselves do much to calm the individual and mitigate the severity of the symptoms. At all events it can do no good for the doctor to manifest apprehension, and besides it is likely to impair his judgment. Let him in every case, whether he thinks the patient is in actual danger or not, display a calm demeanor and speak a reassuring word while hastening to prepare his hypodermic injection. After this has been administered time will be afforded in these cases of functional disturbance for a careful investigation of the exact state of the heart and the factors that have induced the attack.

Very many physicians seem to view all cases of disordered heart action purely from the standpoint of the organ itself, without considering the extraneous factors serving to disturb the cardiac function. In this respect they are like those inexperienced practitioners who prescribe digitalis or some allied remedy whenever they detect a heart murmur, without pausing to consider whether or not the symptoms complained of are due to decompensation. It is this injudicious procedure on the part of the practitioner that is often responsible for the fact that many a victim of organic heart disease becomes a veritable hypochondriac in attributing to his cardiac lesion every sort of sensation or perversion of function of other organs.

It is just this unwise or overzealous behavior on the part of the general practitioner that strengthens the hands of the so called Christian scientist. The cardiac hypochondriac, whether having only a functional disturbance of circulation or a veritable cardiopathy is likely to be benefited by the consoling ministrations of the Christian science healer, and we practitioners of medicine would do well to imitate the example of these non-medical healers.

Psychotherapy is indispensable in the treatment of the imaginary or real cardiopath, for without it one cannot hope to relieve his mind of the cardiophobia that makes life a torment. At the same time proper symptomatic treatment should be instituted, since so long as troublesome symptoms recur, a beneficial psychical impression is difficult. Without this latter the individual may so concentrate his attention on himself as to exaggerate or even evoke symptoms, and when palpitation or other annoyance, as pain, does occur it serves

to keep alive the apprehension which aggravates his condition. Thus a vicious circle is established which can rarely be broken without a judicious combination of both psychical and symptomatic treatment. But above all and over all, physicians should realize that they may be, and often are responsible for the state of fear and introspection into which the cardiac hypochondriac has fallen, and that therefore they should prevent any expression on their part that may unduly alarm the impressionable patient. In a word let it be remembered that "an ounce of prevention is worth a pound of cure."

It should not be inferred that the cardiac hypochondriac imagines his symptoms. He only exaggerates their importance and by his apprehension or actual fear intensifies their severity. This is true in particular of an attack of palpitation or intermittence. Ordinarily unconscious of the working of his heart, he gets into a panic on being awakened perchance out of sleep by the violent beating of his heart, and if, as is not uncommon, he feels a stab or shoot of pain in the heart region, his alarm becomes the greater. His countenance pales and assumes a terrified expression, while the hands and feet become cold and possibly cyanotic from vasomotor disturbance. To the uninitiated or inexperienced doctor the picture is more or less unnerving, especially if he has had no previous acquaintance with the sufferer. He is very likely to consider the seizure as angina pectoris or an impending dissolution from collapse.

There are some features of the attack which should enable him to interpret its real nature. The sufferer is quite likely to be a young adult and more often than not a female, and in them grave angina is not so apt to occur as in a middle aged or elderly man. In most instances the individual is found lying in bed and perhaps groaning with pain instead of sitting or standing as is the rule with cases of organic angina pectoris. There may be a history of previous attacks or it may be the first, and for this reason all the more terrifying to the patient and family. Furthermore, it is learned on inquiry that between the seizures, provided others have occurred, or previous to the one observed, if it happens to be the first, the individual has been free from symptoms referable to cardiac incompetence. Moreover, a true anginal seizure rarely occurs at night or when a person is quiet in the house or bed, without a history of pain in the chest upon exertion, as in walking. With these points borne in mind the physician may generally obtain a correct if hastily formed opinion as to the nature of the attack and hence its immediate prognosis.

Having calmed the patient's fear by his demeanor or by reassuring words, and having administered a suitable hypodermic injection, it now becomes the doctor's duty to ascertain, if possible, the cause of the attack and to remove this by subsequent treatment. The factors concerned in the production of precordial pain that is in reality intercostal neuralgia, or of palpitation of the generally transient kind here considered (not paroxysmal tachycardia of the recurring type whose pathogenesis is not yet well known), are most commonly

to be sought in some derangement of digestion or in intestinal intoxication and constipation. In more than one instance the recurring and usually nocturnal attacks of palpitation have been referable to chronic cholecystitis and have been relieved by drainage of the gallbladder. In others a chronic appendicitis has appeared to be responsible for the disordered action of the heart, probably through the disturbance of digestion occasioned by the focus of irritation. In still other instances the individual has been greatly disturbed by intermittence of the pulse or fluttering without actual periods of rapid or violent action of the heart, and in these cases the symptoms seemed traceable to derangement of stomach or bowels without infection of neighboring structures, or to the abuse of tea, coffee, or tobacco. Finally, a few patients complaining of palpitation without showing at the time of examination any appreciable evidence of cardiac inflammation, have been found, months or years subsequently, to present signs of valvular disease or of dilatation. So that one must not too hastily conclude that nothing is going wrong in the heart because he cannot obtain evidence of anything more than a deranged action. Yet in the majority of cases there is only a disorder of function to explain the symptoms that are frightening these cardiac hypochondriacs.

However, the purpose of this paper is not to call attention to the aftertreatment of these cases, since that must be left to the judgment and skill of the attending physician. It is to caution physicians against doing aught that may contribute to the alarm already felt by the sufferer. The doctor should not only prescribe remedies, but his should be visits of comfort and consolation. He should carry into the sick room a reassuring presence and a confident manner, for no matter how ill a person may be, he is, if conscious, either depressed or buoyed up by the demeanor and words of the physician. Fear or worry is demoralizing and depressing to the vital functions, whereas hopefulness is often of more real benefit to the patient than are remedies. Consequently it may be better treatment to dismiss a patient from the office with words of cheer than with prescriptions.

311 BELDEN AVENUE.

THE CONTROL OF PULMONARY CONSUMPTION.

By THOMAS J. MAYS, M. D.,
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One of the most important duties of the medical practitioner is to distinguish properly between those diseases which are, and those which are not contagious or communicable from the sick to the well. Regarding this question it must be borne in mind, however, that the communicability of consumption varies with the angle of vision that is applied to it, in different localities and at different times in the same locality. Thus, about a century ago, in southern Europe the conviction that this disease was contagious became so powerful that it was legally recognized as contagious, and its victims were subjected to harsh measures; while in the north of

Europe, little attention was paid to this aspect of the disease. In America no serious thought was expended on this subject until within the last ten or fifteen years, when through private and public agitation a powerful crusade was inaugurated for the prevention of the disease on the score of its contagiousness, on which millions upon millions of dollars were lavished by a grateful people who were given every assurance that in less than a score of years this dreadful monster would be wiped out of existence.

The seriousness of the contagion question becomes apparent at once when, for example, one says to another, "you have a cough, you are a consumptive and a dangerous person, and you ought to be placed under quarantine restriction, such as is meted out to those who suffer from other contagious diseases like smallpox." If this charge is true, the proposed remedy is justifiable beyond doubt. If not true, it will inflict incalculable harm on the accused, not only from a medical standpoint, but from that of an American citizen. For when a consumptive is adjudged to have contracted his disease from another consumptive through contagion, and to be a menace to society on this account, he must receive different care and treatment than if not so adjudged. This principle further illustrates how disastrous a blow it would be to the scientific elucidation of the origin of this disease, if its source was charged to contagion or infection, when really it depends on other causes. As a rule, however, there is no difficulty in establishing the contagious or the noncontagious nature of any disease, and pulmonary consumption is no exception. Its foundation rests on the principle of experience, viz., Are those who are exposed to a disease more liable to contract it than those not so exposed? This is an infallible criterion, for its converse implies that the less exposed are more liable. What, then, are the practical effects when nonconsumptives are brought into contact with consumptives? Do they contract the disease or do they not?

Let us appeal to the facts of experience in regard to this matter, as we would in the case of smallpox or any other contagious disease. Without detailing the multitude of data on which the noncontagious character of consumption is based, it may, in strict accordance with facts, be said that there is no evidence of contagion among physicians, nurses, and other attachés of consumption hospitals, nor among the members and servants of families who lodge and care for consumptives in mountain and health resorts, either in this country or in Europe, nor among married people when either husband or wife is affected, nor among inhabitants of towns in which consumption hospitals are situated. Furthermore, with a very few unimportant exceptions, there is not a physician who has made a lifelong study of consumption, and who has written a special work on this subject, either in English or German, who indorses the contagion theory. With equal truth may it be said that, so far as statistics show, consumption on the whole is not treated as successfully as it was thirty or forty years ago.

Reference has already been made to the fact that the contagion doctrine of consumption was appar-

ently so popular in Italy in the eighteenth century that the King of Naples and the Grand Duke of Tuscany issued rigorous laws in their respective dominions for the enforced care and isolation of all consumptives, rich and poor, by the public authorities. The expectoration of the afflicted was carefully guarded and disinfected, houses in which they lived or died were renovated and forbidden to be occupied for a year, and the greatest precautions were taken to prevent them and their belongings from coming in contact with the well. In the course of fifty years these laws were found so oppressive and became so strongly opposed by the people and the medical profession, that they were abandoned "as causes of much bitterness, dissatisfaction, and vexation."

Moreover, the freedom from consumption among our colored population during the slavery period, is another demonstration on a large scale that this disease does not depend on contagion. These people were the house servants and the only caretakers and nurses of the white consumptives. They washed the clothing of the latter, made their beds, lived with them day and night, and yet with all this exposure they remained practically free from the disease, while at present they are one of the most consumptive races of the world. This sudden transformation is due to the fact that the food, clothing, shelter, and general care and supervision are no longer provided; they are thrown on their own resources and forced into a struggle for living which is as unequal as it is tragic. They fall victims to the disease, not because they come in contact with it, but because their constitution is undermined by an environment to which they are not yet fully adapted. On the other hand, there are strong reasons for believing that if these people were transplanted to a soil where they would receive the same sanitary superintendence as was given them during slavery days, they would revert to their former condition of immunity. This opinion is confirmed by the experience of the Spaniards, who, in 1860, brought 250,000 coolies under contract from China to Cuba, as plantation laborers, among whom were quite a number of consumptives. Being under contract all their physical and sanitary necessities were supplied by their overseers, and it is said that within the first few years consumption was eliminated through death or cure, and never reappeared among them.

Perhaps the most striking evidence that consumption is dependent on general unhealthy surroundings and not on exposure to other cases, was brought out indirectly by the American occupation of Santiago de Cuba in 1898, through the efforts of the army officers of our government in getting rid of yellow fever in that city, which was said to have been the filthiest in the world. The foci of fever were cleaned and disinfected, cesspools, latrines, man-holes, and wells were emptied with force pumps; floors, ceilings, and the walls of cellars and houses were drenched and scrubbed, and the throwing of filth and excretions into the streets and alleys was stringently forbidden. In 1897, yellow fever claimed 325 deaths, and consumption 410. By 1900, i. e., in three years, the general death rate had fallen from 133.71 to six in a thousand living, that

of yellow fever (from January to October of the latter year) to zero, and the consumption mortality was reduced sixty-seven per cent. This is a fitting and a forceful example of how consumption may be reduced by measures that really prevent, or merely improve the general unhygienic conditions, and without resorting to measures like disinfection, registration, forced isolation, etc.

We hear a good deal nowadays about what the editor of the *Journal of the American Medical Association* calls the "enormous reduction in the tuberculosis mortality throughout the civilized world following the public health methods for the restriction of this disease," and the burden of the story is that all of the decrease which has occurred took place in the last ten or fifteen years or during the time of the prevention crusade. It is strange how few of those who took up this work have evidenced any conception of what the ultimate demands of the problem are. For instance, it has been stated by one of the leading spirits of this movement that the decline of the consumption rate in Philadelphia, Boston, and New York "is largely proportionate to the activity and energy with which the campaign of prevention has been carried out." It is true that the number of deaths decreased in these cities between 1900 and 1911, as is stated by this authority, but it is also true that in a like number of years immediately preceding the period just mentioned, i. e., from 1887 to 1899 the decrease was greater by 5.88 per cent. This does not appear as though "the activity and energy" of the campaign had anything to do with the decrease.

The same is also true of the composite consumption statistics of seventeen of the largest American cities: Philadelphia, New York, Boston, Reading, Worcester, Cleveland, Providence, Pittsburgh, Washington, D. C., New Orleans, New Haven, Hartford, Haverhill, St. Louis, Milwaukee, Nashville, Cambridge, and Jersey City, when we compare their death rate between the periods 1887-1899, and 1900-1911. The total average decrease from 1887 to 1911 is 37.23 per cent., of which 19.13 per cent. belongs to the former and only 17.19 per cent. to the latter, or a difference of a decrease of 1.16 per cent. in favor of the former period.

The statistics of four cities—Chicago, Buffalo, Cincinnati, and Richmond—show almost as great an increase in the death rate from 1900-1911 (20.12 per cent.), as they give a decrease from 1887-1899 (26.10 per cent.). This is a remarkable exhibition of the helplessness on the part of the prevention movement, for in Buffalo and Chicago this measure has been in full activity since 1900 and 1902, respectively, while in the case of the others it was introduced later—a pure example in which the object of destruction defied the aim of the grim destroyer.

On the other hand, Worcester, Nashville, St. Louis, Providence, and New Orleans give a greater reduction from 1900-1911 (14.40 per cent.) than from 1887-1899. Was this greater decrease due to the efficacy of the prevention movement? Hardly. A cause cannot act before it comes into existence. The greater decline began in 1899, while the prevention law did not go into effect until 1902 in Worcester, 1905 in St. Louis and Providence, 1906 in Nashville, and later in New Orleans. Moreover,

figures show that the decrease was greater in St. Louis than it was in Worcester, although the law did not go into effect in the former city until three years after it did in the latter, and not until seven years after the decline began in 1899. The influence of this prevention movement on the greater decrease of the disease in these cities is just as transparent as that which it manifested in keeping down the death rate in Buffalo, Chicago, Cincinnati, and Richmond.

In connection with the statistics afforded by these figures, it is a great pleasure to find that the cardinal contention in regard to the futility of the prevention crusade is confirmed by one of the foremost biometricians in the world, if not indeed the very foremost. I refer to Karl Pearson, professor of eugenics in the Galton laboratory of the University of London, England, who in his work, *The Fight against Tuberculosis and the Death Rate from Phthisis*, has compared the death rate of general diseases with that of phthisis, or consumption, in England and Wales for a period of seventy-five years up to 1910, and found that in general diseases the death rate from 1890 to 1910 fell faster than it did from 1870 to 1890; while in the case of the deaths from phthisis, the decrease was much less from 1890 to 1910 than it was from 1870 to 1890. Professor Pearson's statistics are of much greater significance than mine, inasmuch as they show the remarkable fact that, while the death rate from general diseases greatly hastened its fall during the last twenty years from the previous twenty years, the death rate of phthisis or consumption decreased less or really increased relatively during the last twenty years, when the crusade was in full action.

There is no question that the farther this movement is investigated, the darker and the more hideous its career looms up. Neither in this country nor in Italy could it ever have risen to such formidable proportions, if it had not allied itself with petty politics. It would have been far better in the long run if the prevention of consumption had remained chiefly in the hands of the medical profession, until all its fundamental bearings had been fully and incontrovertibly established. But the love of exercising power offered an opportunity too attractive to be resisted. A problem of this kind demands creative genius of the highest order, and the medical profession is specially trained and endowed to furnish these essential qualities, while politicians are not specially blessed with that sort of temperament. To prove this, it is only necessary to refer to the stern historical fact that no great or beneficial reform has ever been originated by any ruler or politician in any country. The genius of such impelling forces comes from the intellectual classes of the common people, and politicians and rulers generally ridicule such proposals for fear they will shear them of power and pelf. After this political alliance was consummated, consumption was to be annihilated according to the dictates of legislation. It was fated to go now in a few years whether it was ready to depart or not.

The final aim of the course which is outlined by these Solons is to separate all consumptives, high or low, in closed institutions in order to protect the well—a measure that bears every mark of having

originated in a semicivilized age, when life was made intolerable by the yoke of the political oppressor. Who would ever think of inventing anew a system in our age that makes pariahs of, and ostracizes thousands and hundreds of thousands of our innocent fellow citizens? Yet this is the exact effect which this plagiarized measure is producing on us at present. It causes every consumptive to stand pilloried before the world as a menace to the public health. Every family with a consumptive in its midst is circumspectly avoided. Persons who cough are refused employment and fellow employees refuse to work alongside of them. Hotels, boarding houses, general hospitals, and health resorts close their doors against them. Is there any wonder that under such conditions, consumption is increasing? Add grief, worry, disappointment, wounded love and affection to the natural burden of the disease, and the downward trend of the patient will be unquestionably hastened. This is one of the reasons why more consumptives die today than formerly.

These, then, are some of the disastrous results which have been incurred by rushing recklessly into a movement without giving the least concern to its possible consequences. That consumption is contagious or infectious is refuted, not only by the history and clinical experience of this disease, but by the cold, solid facts of figures. A great calamity would have been averted if this proof had not been turned ruthlessly aside by bold and adventurous schemers. No other conclusion can be drawn from the history of a theory whose only claim to a pedigree rests on its having been abstracted from the refuse pile of the effete sanitary laws of Naples and Tuscany, and which, with the assistance of questionable logic and worse mathematics, is now foisted on us as the only method that will cure and prevent a stubborn and most rebellious disease. The feeling grows, however, that its devious and angular ways are being found out, and that its flight in the future will be briefer and less flamboyant than it was a century and a half ago.

What of the future? Is there no other balm in Gilead to heal this disease? Did it not diminish nearly twenty per cent. in thirteen years before the advent of this crusade? Cannot this method, which accomplished so much, be improved? Will any one say, in the light of previous evidence, that it would not have decreased in similar proportions during the last thirteen years (instead of increasing two per cent.) if the crusade had never been heard of.

What, then, is the nature of the silent forces which, without directing any specific efforts against the extermination of this disease, reduced its death rate to such a surprising degree before the crusade's career began? These forces are no more or less than such as wrought a general improvement in the physical and mental hygiene of the people—a betterment of general living conditions. On the whole there were more food and better shelter and greater comforts, increased remuneration for labor, less poverty, and a somewhat more softened struggle in the battle for existence than there was before. As the late philanthropist, Mr. Joseph

Fels, tersely stated, pulmonary consumption is largely a question of "conditions under which the poor live and work, and which inevitably breed both consumption and poverty." More specifically, the prevention of consumption should consist of efforts to change the slum districts of every city, town and hamlet in our country; of work which enforces the laws of general, personal, domestic, and public sanitation, such as are the bounden duty of every community to enact, and incumbent on every human being that lays claim to decency, to respect and to uphold. Shacks and hovels, misnamed homes, but unfit for human habitation, should be torn down; people should be prevented from living in cellars or so called basements or in overcrowded, poorly lighted and ill ventilated houses; means should be provided for obtaining properly prepared food, shelter, clothing for the invalids, and the poorer working classes; and convalescence from serious illness or accidents or from what seems a trivial cold or cough, should be supervised by careful medical skill.

The prevention of consumption is, therefore, a tremendous problem, and it is clear that if we pay more attention to curing poverty, and less to the swatting of bugs, the sooner will the object of extermination be accomplished. No more practical evidence of the feasibility of this has ever been afforded than that furnished by the history of stamping out yellow fever by the American army officers in Santiago de Cuba, to which reference has already been made. No other than simple, general measures were employed to enforce the severest cleanliness. No attention was paid to the extermination of tubercle bacilli nor to the expectoration of consumptives, yet during three years the consumption rate fell sixty-seven per cent. No one would be rash enough to believe that the same results can be achieved in civil life as under military rule, yet it is a forceful demonstration of what can be accomplished by preventive measures that prevent—and measures, too, which are not surrounded by mystery and which instil no terror, no demoralization, and no feeling of persecution.

In conclusion, I think it may be said of the present crusade for the prevention of consumption that it is a base blunder—a fossil which has sunk through the mire of past political ages and is wholly foreign to the sentiments of a community which reveres the instincts of humanity and magnanimity; that it does not decrease, but actually increases the mortality of the disease, and that it is quite probable that the longer the crusade lasts, the greater will be the proportionate increase; that such a crude and threadworn measure should never have supplanted the efficient sanitary measures in vogue then, which had greatly reduced the death rate. Finally, it is to be hoped that the medicopolitical tyranny which, under the guise of the goddess of Hygiene, has monopolized the whole movement and forged a chain of ignominy around the necks of hundreds of thousands of our suffering countrymen, among whom are many of our most intellectual citizens, will be so speedily and so effectually crushed, that it will never raise its insolent head again.

1829 SPRUCE STREET.

A SENSIBLE DIET FOR THE AVERAGE MAN AND WOMAN.*

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New York,

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This is a title under which one may write either an encyclopedia or an epigram. Why does the average man or woman need any advice regarding diet? Why not eat what we want when we want it, so long as we feel well and maintain a respectable weight? The reply is, How are we to know that our particular standards of feeling well are the best possible standards? How are we to judge what our feelings will be ten years hence when the cumulative results of an ill spent dietetic life may be registered in our blood pressure, in our hearts, brains, livers, or kidneys? Assuming that the average individual is not an expression of the highest possible average that the race can attain, we may properly consider whether there is any room for improvement in our dietetic habits, as there is certainly room for improvement in most of our other living habits.

Many dietetic errors so long sanctioned by custom were until recently sanctioned also by science, because the eating *habits* of the average individual were accepted as an index of the average individual's *requirements*. The older scientific standards of feeding were based upon the observed habits of fifteen thousand people in the United States and numerous classes abroad, including laborers, soldiers, and professional men. Present scientific dietetic standards are based, not upon the habits of man, but upon exact and tested observations of the needs of his body.

In a brief paper such as this, two courses are open: First, to outline a dietary and to ask its acceptance on faith; second, to outline a few important dietetic principles and then set up a few beacon lights that will enable the average individual to keep off the more serious dietetic rocks and shoals. The latter plan seems preferable, as any intelligent housewife is better able to make up a bill of fare than I am, and can steer a fairly safe and sane dietetic course with a few beacon lights to guide her.

The practical questions that confront the housewife are: What is the cheapest palatable and digestible dietary that will keep a family in the highest state of physical and mental efficiency? What are the most important food requirements? What are the least important? With these questions fairly well answered, the housewife can place her arms akimbo and exclude the diet faddists of all nations from that most important laboratory in the world—her kitchen.

What is the most important food requirement of the human body? Unquestionably it is energy food. No cell in the human body can live for one instant of time without fuel. What are the energy foods? The carbonaceous foods. Just as coal, the simplest form of carbon, is fuel for a steam engine, so are the carbonaceous foods fuel for the human engine. Examples of carbonaceous foods are sugar,

starches, and fats. The sugars and starches are called carbohydrates; the fats, hydrocarbons; but the single term, carbonaceous, covers all. For the average human body about six tenths of the heat or fuel units supplied to the body should come from carbohydrates, namely, sugars, potatoes, bread, cereals, and vegetables. Three tenths should come from fats, butter, oils, milk or cream, and animal body fats, the last the least desirable. These energy or fuel foods should be increased in quantity with increase in exercise and hard work.

The less important food elements are the building and repair elements. These are the nitrogenous or protein foods. About one tenth of the heat units should come from this source. Examples are the lean of meat, fish, fowl, game, all flesh foods, white of eggs, and cheese. Certain vegetables are also rich in protein, namely, peas, beans, and lentils; also nuts, cereals, and bread. These latter foods may be termed carbonitrogenous, as they contain both elements. Vegetable proteins are not so readily utilized as animal proteins.

Now, after a skyscraper has been built, we do not keep piling brick and mortar and steel girders into it. A certain amount of wear and tear occurs and a limited amount of repair material is needed right along. So it is with the human body. The structure having been built, these protein materials or building stones are needed in limited quantities for maintenance, probably not more than five per cent.; for growth, not more than seven per cent. of available calories, contrary to long established scientific opinion, provided the building stones are perfect, as in the protein of human milk. These proteins can also be used for energy, but they are an expensive source of energy, just as the oak or mahogany trimmings for a business office would be expensive fuel to burn in the furnace. Furthermore, these repair materials are very complex, and if we use them for fuel, the ashes are acid wastes that burden the vital organs, and in excess may constitute real body poisons, especially when acted upon by bacteria in the intestine and converted into certain aminobases.

The dietetic mistakes of the past have arisen from overestimating the amount of growth and repair material required by the body. Careful experiments by widely separated investigators, Chittenden, Fisher, Mendel, Osborne, in this country, Hindede, in Denmark, Heubner and Rubner, of Germany, and others, support the view that sound health can be maintained and physical endurance increased on about half the quantity of protein fixed by the older scientific standards and much less than half of that fixed by custom. Increased muscular work does not call for more nitrogen, but for more carbon. "More work—more meat" is a fallacy. It is true that a man engaged in hard outdoor exercise can burn up greater quantities of meat or protein food than a sedentary worker, but the risk of damage from ashes is still there and the fuel is inordinately expensive from a financial as well as a physiological standpoint. The housewife, for these reasons, should school herself and her family to keep this class of foods down to the natural limit. There is less risk of injury from peas, beans, lentils, eggs,

*Read at a meeting of the New York County Medical Society.

cheese, and nuts than from flesh foods, and such foods are likewise cheaper, so a goodly portion of the protein ration should be derived from such sources. Furthermore, flesh food is concentrated, and its small bulk and the lack of cellulose waste does not provide the normal stimulus to the digestive tract, so that such a diet catches you "going and coming." The nature of the food itself favors putrefaction in the intestines, and inactivity of the intestines, through lack of stimulus, increases the degree of absorption and poisoning. Meat, fish, or eggs, once a day, will keep one automatically within fairly safe limits, as an excess of vegetable protein is not likely to be taken. Many people exist in good health without any meat, but until we know more, it may be well to retain meat in our dietary so long as it is used in small quantities, because its protein is readily available and gives assurance of maintaining our nitrogen balance.

Other important elements in our foods are the fruit and vegetable acids and alkaline salts, and other inorganic material such as phosphorus and iron. These elements are not exactly foods, as they do not supply energy and are little needed for repairs, although they enter into the composition of the skeleton, teeth, and other tissues, and are needed for growth and to maintain a certain chemical balance in the blood and other tissues. Lack of these elements, especially lime, may cause serious disease. For this reason, an abundance of fruit and green vegetables in the dietary is advisable for the average individual. In addition to the fruit acids and inorganic salts, there are other recently discovered substances, vitamins, that prevent the development of such diseases as beriberi, scurvy, and possibly pellagra. These substances are found in the layers of cereal seeds, such as rice, also in the yolk of egg, raw milk, fresh fruit, and fresh vegetables, especially peas and beans. This is an added reason for a mixed diet in order to cover substances which may as yet be unknown to science.

As to arranging a dietary on the basis of the above outlined principles, it is necessary to have at least a rough idea of the energy requirements of the body. This is measured in calories. A large calorie is the amount of heat required to raise one kilogram (2.20 lbs.) of water one degree C. There is no more need to be afraid of this word calorie than of the word tango—perhaps less. Calorie means a definite, easily understandable unit of measure. Just as a scuttle of coal will produce a certain amount of steam pressure, so will a definite quantity of food produce a certain amount of available heat or energy when burned in the body—in other words, when digested and absorbed. The body is losing heat constantly, and this heat must be replaced or the body would grow cold and the internal activities would cease.

The average individual weighing 155 pounds requires certainly not more than 2,800 calories per diem, though old standards called for 3,500 and upward, depending upon bodily activity. Professor Mendel, weighing 154 pounds, got along very well on 2,500 calories. The numbers of available calories in the various foods have been determined by experiments in the calorimeter. These food values are set forth in *Bulletin 28* issued by the

Department of Agriculture. Nuts are high in protein and calorific value and can be profitably substituted for meat and other protein foods, but they should not be added to a meal already rich in protein, such as an ordinary Christmas or Thanksgiving dinner. Peanuts, or peanut butter, and apples, form a well balanced ration that would supply the body's needs indefinitely at small expense. Macaroni and cheese also form a well balanced ration of protein, carbohydrate, and fat. Needless to say, foods must be digestible or their theoretic calorific value is not available.

It is not so difficult to think in calories as one might imagine. Take the principal meal of the day and analyze it: Roast beef, 100 calories, bread 150, butter 150, rice croquettes 128, baked potatoes 100, bread pudding 128, sugar (two lumps) in coffee 100, total 956, about one third of the day's requirements in calories. This meal is overrich in protein, but the balance would be restored by lack of protein and an excess of green vegetables and fruit at the other meals. Note that ordinary portions of these substantial foods average about 100 calories.

Under heavy work the portions of bread, potatoes, butter, and rice could be increased and easily raise the meal to the energy requirement, without adding to the main protein ration, whatever it may be, meat, cheese, chicken, fish, etc. If your man has worked hard and is hungry, let him fill up on nonprotein elements in the meal; help him to more potatoes and vegetables or simple pudding, but do not increase the meat portions. Corn bread and syrup will carry him far on a cold day, and if he works hard he will burn it up completely; there will be no ashes as in the case of meat or other protein. Recent evidence tends to show that the protein elements can be stored, at least temporarily, in the tissues, but there is always the danger of strain on the liver and kidneys which must take care of an excess. Carbonaceous food can be stored in the form of tissue fats, but you cannot force the permanent growth of muscle by feeding proteins.

The beacon lights I would hang up are as follows: To keep you warm and give you energy for work, eat energy or fuel foods, potatoes, bread, cereals, corn bread, syrup, and other sugars. To keep your muscles and organs in repair, eat a limited and fixed amount of repair foods, meat, eggs, cheese, nuts, flesh foods, peas, beans, and lentils. Do not increase the repair foods with increase in work or exposure to cold; increase the fuel foods for further energy.

Eat fruit every day. Canned fruits are good. Cooked fruit is often better than dubious fresh fruit, but some fresh fruit is essential. Eat fresh, green vegetables whenever you can get them. Thoroughly wash all raw foods. Eat some of bulky vegetables of low food value, like carrots, parsnips, spinach, turnip, squash, and cabbage to stimulate the bowels and give flavor to the diet and prevent overnourishment. Eat slowly and taste your food well and it will slide down at the proper time. Do not nibble your food timorously; eat it boldly and confidently. A glass or two of water at

meals is not harmful if you do not wash your food down with it.

What about alcohol? This lecture is about foods, not about narcotics, so we will place alcohol where it belongs—on the drug shelf. You can get the equivalent of its vaunted energy and so called food value without any of its poison value out of a little sugar and water.

Do not let anyone bring a grouch to the dinner table; it will upset all the food values.

First, last and all the time, be moderate; avoid overnourishment and overweight. Restrict your fuel foods and burn up your own fat if you are tending toward stoutness.

35 NASSAU STREET.

CUTANEA LUES INSOLITA.

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The development of a typical case of lues is one of the commonplaces of pathology. The chancre with its two or three weeks' incubation, the roseola following in six or eight weeks, the mucous patches, and general adenitis make a clinical combination absolutely distinctive. There is little chance of error under these circumstances. Even if the dermal manifestations are not profuse or unusual, the association of signs will be conclusive. Such cases might properly be called routine, as adhering to the road ordinarily followed by the disease. Unfortunately, however, it frequently deviates from this road and then it is apt to play pathological pranks that are disconcerting and bewildering. It shares with hysteria the palm of nosological mimicry. It may hide its identity in a dozen different disguises so cunningly contrived as to deceive the keenest eye. Its resemblance to other dermatoses is on many occasions so remarkable that only the Wassermann reaction will prevent a serious blunder. But the Wassermann is sometimes unavailable, or, in the confidence of our smug conceit, is deliberately disregarded, and only the hand of Providence can save the patient from disaster. If the expert clinician is convinced that he has made a clever differential diagnosis by the aid of signs inappreciable to a duller eye, he will, with the self assurance born of long success, send that subject on his way without appeal to complement fixation. If he has hit it right, well and good. If he has missed his guess, one of two baleful results will follow: The victim will be crushed by the mental agony of a supposititious infection, or will wander in a fool's paradise of fancied security. And it is a question which of these states is the more destructive: whether the fixed idea of an imaginary evil does not play more havoc than the actual ravages of the unsuspected malady. It is no easy matter to rid the mind of an impression that has struck with such paralyzing violence as a diagnosis of syphilis. It seems next to impossible to reassure that demoralized spirit. The most convincing arguments have no permanent effect. Doubt has become an obsession and will not relax its clutch. Even repeated blood examinations are inconclusive, for the skeptic

will discredit the correctness of the findings or the motives of his comforters. He has become a syphilophobe, and may bring his career to a violent end in order to forestall the dreaded assaults of his obscene incubus. This is no overdrawn picture. I have seen just this eventuality. And I have seen many minds hopelessly depressed, even where the suicidal tendency has not developed. Men thus afflicted shun women, shun social gatherings, obliquely search the eyes of chance observers for glances of suspicion, piteously invoke the doctor's aid for each recurrent acne papule, in short are reduced to a degree of terror comparable only to that of the persecuted paranoiac. It would be preferable, by far, actually to have the disease, than to be thus haunted by its phantom. In the one case the physical condition of the patient may be so improved as to vivify his mind and activate his energy, in the other, his mind is so harassed by groundless foreboding as to bring about complete moral and somatic collapse. All this is trite and true and would hardly seem to call for such a dissertation. Nevertheless it is often overlooked in practice and a hurried ill considered opinion may work incalculable injury.

The temptation to make a diagnosis, in order to impress the patient may incline the physician to form a judgment on incomplete or incompletely understood phenomena. It is mandatory, therefore, that the physician familiarize himself, not only with the typical, but as far as may be with the atypical manifestations of protean lues. These have to do with every organ and system of the human economy, but especially with the skin, where they are blazoned earlier and often clearer than on the deeper structures. Unquestionably an iritis will be referred at once to its obvious cause. Perforation of the palate will receive as speedy classification. Apoplectic seizures in the immature, aneurysm and angina pectoris will be recognized as legitimate offspring of the *treponema pallidum*. The Argyll Robertson pupil and the lost patella reflex of tabes are as significant as the fibrillary tremor and failing memory of paresis. All these evidences are clean cut and decisive, and he who runs may read. Unfortunately, however, the trail left by this hydra-headed monster is often indistinct or whimsical, and then its recognition depends on the skill and experience of the hunter. The trail occurs oftener on the skin than elsewhere, and it is the purpose of this paper to deal with these erratic cutaneous manifestations. *Originem rerum quaerentes*, let us consider unusual chancres.

Chancres may be unusual in appearance, in density, and location. The type of chancre is a round cell infiltration practically painless, giving a sense of gristly resistance on palpation, ulcerating superficially if at all, and flourishing most abundantly upon the genital organs of both sexes. Exceptionally, but frequently enough to be a matter of serious import, the chancre will lack every one of these distinguishing marks, and present nothing but a superficial erosion. Any abrasion, therefore, upon the genitals which persists in remaining open for several weeks should be classed as a possible chancre and examined for spirochetes, or observed for confirmatory sequelae. Transfer this abrasion

to an extragenital situation and the chances of mistaking it are immensely increased. Locate it on the lip, and it will pass as a herpes under the scrutiny of most observers. An error of this sort would be obviated by the mere consideration of its possibility. If a "fever sore" persists upon the lip beyond the natural term of such a lesion, search for a satellite gland in the neck and keep in touch with the patient for the detection of secondaries. A small ulceration on the eyelid has been mistaken for a hordeolum. The enlargement of the preauricular gland should have prevented the mistake. A typical chancre may develop in either of these situations and then there is a liability of confounding it with epithelioma if the patient happens to be in the so called cancer zone. Suddenness of appearance, rapidity of growth, the satellite gland, absence of pain, all tell against epithelioma. The development of a roseola, and the involvement of the mouth settle the diagnosis. An examination for spirochetes, if available, may hasten the conclusion. Unfortunately in the chancre stage the Wassermann reaction is of no assistance.

Chancres may occur at the angle of the nose, on the tongue, on the tonsil, on the cheek, on the nipple, at the anus, within the urethra, on the finger, in short anywhere on the mucous or cutaneous surface exposed to contact with the infective agent. If these lesions present the typical traits of the disease, the discrimination can be made; as they are one sided, indurated, painless, persistent, and accompanied by a satellite gland. If they are erratic in development careful observation with the knowledge of their possibility, will eventually discover confirmatory symptoms. They are overlooked as a rule because they are not thought of at all. If the idea of chancre comes to the mind of the clinician, no herpes or sty or whitlow, or chronic tonsillitis will long becloud the issue. An error in the primary stage may be checked and corrected by the developments of the secondary stage. An error in the secondary stage may never be corrected, at least until some serious complication obtrudes itself upon our notice. Undetected and untreated, the whole cutaneous picture may fade away and nothing more occur to arouse suspicion until the sudden and hopeless involvement of brain, cord, or special sense. Instances of this sort are not far to seek. I knew one man who carried about an unsuspected infection for seventeen years. Fortunately for him when the blow fell, it was expended on his skin and a correct diagnosis was established before more serious mischief was inflicted.

The usual secondary manifestation consists of a roseola with mucous patches and a general adenopathy. Some fever attends this outbreak. Instead of the roseola there may be a papular eruption, or the two may be combined. The papular eruption may be miliary, small papular, or large papular. The miliary may be capped by minute vesicles, which quickly dry down into scales. The small papular, or lenticular, so called from its fancied resemblance to the classical lentil, with which it seems obligatory to make comparisons in dermatological literature, may be extremely scaly. In fact it may desquamate profusely and convey the impression of a complicating seborrhea. Probably

because of this peculiarity it is prone to itch. Itching is unusual in syphilodermata, and its occasional occurrence may mislead the diagnostician. I have seen the eruption just described, confined to the trunk, thighs, and arms, and never a speck upon the face. There was no corona Veneris, although there was a luxuriant chancre upon the corona penis.

The large papular syphilide may be quite scaly at times and consist of only a few circular or oval spots, varying in size from that of a dime to lesions several square inches in area. If they are scaly the exfoliating epidermis never extends to the periphery of the infiltration. This is a valuable differential point between lues and psoriasis. In the latter the scales cover the whole involved area. The papular eruptions of lues are apt to be later than the roseola, although exceptionally they are synchronous or even antecedent. All the lesions of lues except the roseola give the impression on palpation of "*something solid in the skin.*" Remembering that they are round celled infiltrations about the bloodvessels and pilosebaceous glands, this impression is readily explained. And this is an opportune point at which to emphasize two distinguishing qualities in all luetic dermatoses subsequent to the roseola. The one already mentioned will bear repetition, as it is of vast importance. On palpation you appreciate that you are manipulating a solid papule; not something "on" the skin, but something "in" the skin. Further, because of the deposit of the adventitious cells about the pilosebaceous glands and small bloodvessels the resulting lesions take a curvilinear configuration. They may be round, oval, crescentic, or serpiginous. These individual lesions tend to arrange themselves into groups following the same order. In a sparse eruption little clusters will be found, here and there, suggesting the segments of circles. For example, three or four papules circling the angle of the mouth would be practically conclusive. In the colored race frequently and in the white race occasionally, annular lesions, single, multiple, complete, and partial, are found in this locality. The rings are clean cut, dime sized or larger, with a perfectly clear centre, and look as if drawn with a heavy pencil on the skin.

The lesion consists of a narrow rim of minute papules. In the negro it comes out grayish; in the white patient, red. The eruption of lues may be vesicular, pustular, or ulcerative, and it may present at one time all the variations hitherto mentioned. Polymorphism is a dominant characteristic of this versatile disease. It may imitate acne, psoriasis, lichen, impetigo, eczema, seborrheic dermatitis, pityriasis rosea, variola, lupus erythematosus, lupus vulgaris, and epithelioma. The resemblance to psoriasis and seborrheic dermatitis has already been commented on. I have seen an expert diagnostician confound a case of pityriasis rosea with lues and actually force the girl into a confirmatory confession of amorous indiscretion, whereas the progress of the eruption toward recovery and the negative result of a Wassermann examination, demonstrated that her candor was entirely supererogatory. Had she maintained her denial, she would have retained her character. After a few days, it was possible to make the distinction, even without the Wassermann,

as the peculiar powdery desquamation and epidermal cuff of pityriasis rosea came into evidence. This case is especially instructive in revealing the close resemblance possible between such a trivial condition as pityriasis rosea and such a serious one as syphilis.

An impressive diagnosis of a large scaling papular syphilide was recently made by a dermatologist of note and concurred in by his associates. The lesions were on the neck and trunk, and were round and oval papules, fairly firm, and somewhat scaly. A blood examination was negative. Reinvestigation after a week disclosed the presence of new lesions, grouped and vesicular on an inflammatory base, and no one could gainsay the diagnosis of Dühring's disease. A man presented himself at a dermatological clinic with a purplish papulotubercular eruption, thickly studded over his face and trunk. The individual lesions were resistant and gristly to the touch. There was no pruritus. No history of luetic infection was elicited. It was agreed that it was a drug eruption, probably due to bromide. Two weeks later, the condition being unchanged, the suspicion of lues reasserted itself and a positive Wassermann confirmed it. These two cases are noteworthy for the reason that they illustrate extremes to which lues can go in counterfeiting other dermatoses.

A pustular syphiloderm has been mistaken for variola and vice versa within my own experience. I have seen capable diagnosticians in the public employ at variance over such a case. There were umbilicated pustules on the wrists, on the forehead, about the mouth, and over the trunk and limbs. The shotty feel was there. Fever coincided with the secondary fever of maturation. While the history was not determinable with exactness, it did not preclude either diagnosis. Finally the demonstration of lesions in different stages of development disproved the variola contention and established that of syphilis. When I was taking a postgraduate course in dissecting, a body was sent from the almshouse for anatomical distribution. It was covered with small shotty pustules which looked very significant. The cause of death was given on an accompanying card as alcoholism and syphilis. The demonstrator of anatomy no sooner saw the body than he closed and locked the doors and sent for the representatives of the health department. The condition was recognized at once as smallpox, and the situation handled accordingly. The amazing thing about all this is that that man had been two weeks sick in the almshouse. His case was misunderstood because of the close similarity of the two eruptions. Today the Wassermann reaction could prevent such a blunder. But now a word in passing about the practical application of the blood examination in dubious cases. It is easy to say, "Oh, make a Wassermann." The moment that you propose such a procedure, you fix suspicion on the patient or arouse suspicion in him. This may be considered an insult, or under given circumstances create a terrific family row. It will not require a very lively imagination to picture the conditions leading to either dénouement. So in private practice, it will not be advisable to resort to the Wassermann at once in every perplexity. It will be best to stop and consider the likely effect of the suggestion on the domestic felicity of the household.

For even where the findings are negative, a misgiving has been aroused which may never be allayed. A deadly wound may be inflicted on the sensibilities of a perfectly innocent person that nothing will heal. Where you are reasonably sure of your ground and where the exigencies of the case demand a clearing up of uncertainty no matter who may be hit, then wisdom and duty unite to urge strongly the use of this test.

Palmar syphilis, while common enough in the experience of the dermatologist, is rare enough in general practice to warrant its discussion. It is usually mistaken for eczema. It bears a pronounced resemblance to the latter. The distinction is frequently made with considerable difficulty. Both produce a squamous dermatitis. Both split the epidermis into deep rhagades. Eczema itches. Syphilis should not itch. But unluckily, this peculiarity of the disease is not absolute, as we have already seen, and in those of an eczematous tendency any disturbance in the skin will itch. Eczema affects the thenar and hypothenar eminences, and extends around the sides of the hand. Syphilis is expected to keep to the centre. One authority declares that it never extends to the sides of the hands. I have just cleaned up a palm where the lesion (a large circinate one) steadily advanced from an individual papule until it produced a ring, curving up on the ulnar and radial borders and involving an area of three or four inches. If you can find papules in your palmar lesion, it is syphilis. If you find nothing but thickened epidermis with fissures, then location, absence of itching, and reaction to water may assist in the discrimination, but should not be relied on absolutely. Sabouraud asserts that there are cases of palmar syphilis, psoriasis, and eczema so absolutely alike that it is impossible to differentiate them. The Wassermann may clear up the case, as may also the therapeutic test. The unilateral development of lues is sometimes the deciding feature, but it is not uncommon to find unilateral eczema in the palms of certain workmen where the incidence of irritation is all on one hand. Furthermore furniture polishers, furriers who work on poorly dyed cheap furs, sweatshop operators on trashy black cloth, pressmen in printing establishments who handle inks and crude oils, are often afflicted by a one sided eczema, whose limitation is hard to explain. A thickened, fissured dermatitis limited to the centre of one palm and nonpruritic, should instantly suggest lues, but it is prudent to recall the possible exceptions and not express too decided an opinion without careful deliberation. The Wassermann, if negative, may not be decisive, as in tertiary lesions there is a certain percentage of failures to respond. The anomalous outbreaks of tertiary lues on the skin are many and various. We are all competent to recognize the gumma, with its clean cut ulceration, and narrow area of inflammatory infiltration. The appearance of having been punched out by an instrument is characteristic. The absence of pain is usually remarkable. But at times the gumma appears under circumstances that obscure its identity. Its situation may cause considerable pain, thus eliminating one of its dominant characteristics, beneath the periosteum, let us say, of the tibia or the frontal bone. In another way its peculiar situation may create an erroneous opinion. For in-

stance a small gumma at the scrotopenile junction might easily be mistaken for a chancroid, and a larger one on the glans penis for an initial lesion. A gumma in the vicinity of the eye has been curetted and cauterized as epithelioma. Gumma of the ala nasi has been zealously ill treated as lupus vulgaris. Gumma of the external auditory canal has resulted in bony destruction and permanent occlusion, owing to a failure to recognize the cause of the purulent otitis. Gumma of the sole in the vicinity of the great toe has been pronounced perforating ulcer with a gloomy prognosis substantiated by ineffective treatment. A gumma below the inferior maxilla has passed for scrofuloderma, the external manifestation of a tuberculous adenitis. Multiple gummata of the calf have been treated with codliver oil and hypophosphites under the delusion that the victim was afflicted with Bazin's disease. A gumma in the ischio-rectal fossa has been probed and incised in a fruitless effort to clean up a fistula. It is obvious then that even such an easily recognized lesion as a gumma may, by its appearance in unusual situations, be confounded with pathological conditions ordinarily appertaining thereunto.

The tubercular, ulcerating syphiloderm, another revelation of the tertiary stage, is a greater source of confusion than the gumma. Histologically the same, it is frequently so eccentric in configuration and so haphazard in localization, as to mislead the maturest judgment. A little chaplet may form on the forehead, its components being no larger than punctate acne lesions, and it will be disregarded by the patient for a long time and pooh poohed by the doctor for a longer time as an insignificant reaction to hatband irritation. There are minute central depressions that will be considered traumatic. It is a peculiarity of human nature that trifling annoyances by prolonged persistence become magnified into positive obsessions. So, little by little, the patient's irritation grows, until finally his determination to be rid of his slight disfigurement will brook no evasion. Then comes a change of doctors and brisker medication. Short trials are all the skeptic will accord to any experimenter, until, in his eager quest for satisfaction, his orbit crosses that of some one better versed in dermatology. The situation is explained with the decision born of experience and the indicated treatment applied. That is one development from such a dermatosis. Here is another: Some practitioners, deceived on a previous occasion by a simulating lesion, will pronounce the minute centrally depressed papules luetic. He will stun the patient with this unexpected revelation, and apparently prove his contention by curing him with iodide of potassium and white precipitate ointment. The patient will gloom along the rest of his career under the impression that, in the language of the lay press, "he has a loathsome disease," when as a matter of fact he had an outbreak of acne varioliformis, a picturesque tuberculide of very little practical moment. The ammoniated mercury, externally aided and abetted perhaps by the iodide of potassium, will react favorably on this lesion as well as on the syphilide. A rational method of distinguishing them is to apply the treatment for acne, as the tuberculide will respond to that and the syphilide will not. If your papules are arranged in groups suggesting the

segments of a circle, or if they are limited to one side of the head, the probability points to lues. A positive Wassermann will settle the case; a negative will leave it in doubt.

Upon the ala nasi of a young woman appears a slightly elevated, sharply limited, dark red succulent lesion, slowly spreading, ulcerating, and scabbing. Lupus is diagnosed on account of the youth and evident respectability of the winsome sufferer, and all sorts of applications are made and all sorts of rays are shot at it, in a vain attempt to halt its progress. Finally when a crescent has been eaten out of the nose and the disease has invaded and perforated the cartilage, the hideous misconception is corrected and a dose of salvarsan promptly arrests the devastation. At this point the remains of the organ are about as presentable as the fair one's reputation. A lupus should show through the diascope little yellow nodules that are inexpressible. It advances with much less celerity than lues. It does not give the same sensation of solid resistance to the palpat- ing finger. In the offing, as the seaman would say, are sometimes seen little individual nodules that are pathognomonic of lupus. Where scarring has occurred the pliability in lues and the density in lupus are *ex post facto* evidence. Any sharply defined redness of the nose, especially if more marked on one side or crusting in spots, should arouse suspicion of tardy lues. The elbow and knee are sites of predilection for tertiary eruptions. They are apt to be overlooked because they are so exposed to trauma. Crescentic scars hereabout are often eloquent witnesses of an antecedent under- terred infection. These can hardly be classed as unusual manifestations of the disease, *but they are so frequently ignored* that they come fairly within our scope.

Kidney shaped lesions, wherever situated, are in the vast majority of instances luetic. I saw a small ulceration of this sort on the penis of a patient who vehemently denied any indiscretion bringing it within the chancre term, and who as positively denied any knowledge of previous syphilization. The absence of local adenitis supported his disavowal of recent exposure to contamination. The induration surrounding the peculiar ulceration demonstrated its luetic character. The compelling inference was tertiary lues. Treatment subsequently sustained this view. Specific leucoderma is a curious phenomenon. It occurs in the late secondary or early tertiary stage and is found on the back of the neck. Negroes are more prone to it than whites. A number of blanched spots in a area varying from an inch or two to several inches stand out from the surrounding skin, producing an effect characterized as polka dot. There is an absorption of pigment as in ordinary leucoderma.

Dark red or purplish nodules of various sizes may invade the skin and subcutaneous tissue, producing a lumpy area analogous to that of erythema induratum, and involving a whole forearm or calf or a large part of the thigh. There will be little or no pain, only a vague sense of uneasiness. This may drag along for months or it may break down into a number of gummatus ulcerations, advancing at the periphery and receding in the centre. In the preulcerative stage it is rather a puzzling problem,

susceptible of many misconceptions. Its unilateral limitation, its looped or oval outline, its freedom from marked subjective disturbance should intimate the correct solution.

Cutaneous evidences of hereditary syphilis are plain enough to be recognized at once if taken in connection with the other startling conditions, such as coryza, emaciation, and hoarseness. To describe all the vagaries of cutaneous lues would fill quite a pretentious volume. Their consideration in a paper of this size must be limited to the barest mention of the most conspicuous. In truth we can do little more than recall the fact of their occurrence and caution the practitioner to be on his guard. That in itself is something, for if we do not scent the quarry, we shall not be in the hunt. Fortunately in these days science has supplied us with two arms of precision whereby we may bring home the "brush." Adroitly employed, complement fixation and dark field illumination will give us early information practically unattainable by our more rudely equipped ancestors. I say "adroitly employed," because if gratuitous offence is given, or innocence accused, or the imagination impregnated with a fancied infection, such grievous evil may result as to nullify all the possible good. It is splendid indeed to be able to say, "Here is the proof of your condition, get busy with the remedy"; it is woful indeed to have to say, "I aroused a doubt in that man's mind which has unsettled his whole future. No assurances will ever convince him that I did not see enough to warrant a diagnosis of lues. Else why was a blood examination requested?" Caution, prudence, and discretion will render the manipulation of these arms of precision safe and serviceable; maladroitness will render them about as safe as a magazine gun in the hands of a blind man.

323 WEST FOURTEENTH STREET.

THE EFFECTS OF NARCOTIC DRUG ADDICTION.*

By FOSTER KENNEDY, M. D.,
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The title of my communication has been made so far reaching that it becomes no easy task to know which part of the subject should be first approached. However, lay conversations reveal that the popular conception of the results of some drug addictions is extraordinarily erroneous, and by the medical profession but scant attention has been given to questions which have been at once the despair of ministers of finance and commissioners of public health. Prevailing professional ignorance regarding the administration of vegetable poisons and the profound changes in the physiological balance in the organism produced thereby, has contributed more than any one factor to the manufacture of the disease of morphine addiction.

For too long has the sufferer from this disaster been made the object of pitying contempt on the part of well meaning but muddled moralists, in

whose eyes these victims are but weak and besotted creatures, willing to make a compact with the powers of evil that they may snatch for a space visions of dream delights in an atmosphere of debauched sensuousness. The protests of the sufferers that such are far from the facts, have fallen for the most part on deaf ears or have simply been added to the general weight of moral evidence against them, in that, so far are they from repenting of their sin, they would deny their dallies on the Venusberg and seek to walk shoulder to shoulder with the worthy of the world.

Morphinism is a disease, in the majority of cases, initiated, sustained, and left uncured by members of the medical profession. A small number of cases only take origin in a love of a new sensation, a novel adventure, and in these morphinism is but a byproduct in an individual innately perverted, whose heredity is most frequently of the poorest, and the salvage of whom, apart from his acquired disease, is an affair of doubtful benefit to society. The majority of morphine patients have made their first acquaintance with the drug at the hands of the medical practitioner, who has been ignorant in most cases of the ill seeds he sows, ignorant of the necessity of seeing that proper elimination of the poison is provided for, and blind to everything but the immediate satisfaction of his patient; ignorant, too, of the symptoms of morphine need, he is all too ready to adopt a moral attitude in the face of physical distress and seek to exorcise a poison by a belated bolstering up of the patient's morale.

For such individuals there has been practically no psychical satisfaction, which is, at the most, only a side result of the action of morphine, and one which, if ever present, speedily disappears. The drug has soothed the higher nervous centres, however, and dulled to complete inactivity the lower centres, on which depend the patient's power to get rid of waste material from the body. The drainage system of the organism becomes blocked, locked, and barred, and a flood of chemical waste is rushed back to saturate cells already vitiated by an external agent. Further, it is highly probable that to combat the drug the body secretes part of it in the liver, and attempts to antagonize the portion not thus disposed of by the development of an antibody, a substance in itself poisonous, both to the organism and to the invading toxin. When the drug has been cut off—often summarily—this antibody, only partly combated by the residue in the liver, produces in the unfortunate individual, not discomfort, as the symptoms are often naively described in medical textbooks, but acute physical distress, characterized by intense pain in the arms and legs, grinding agony in the abdomen, accompanied by profuse sweating, the face being ashen gray in color, the heart irregular in its action, and the pulse feeble and of poor volume; in some few cases collapse and death may end the scene. It is these withdrawal symptoms which cause the continuance of the drug, and its use, far from enhancing the patient's consciousness and joy in living, only helps him to approach normality and comfort.

Against such collapse and pain the unaided will is as powerless as it is to control the amount of air entering the lungs. The analogy is perhaps com-

*Read by request of the Public Health Education Committee, New York County Medical Society.

pletely sound, for the deprivation of oxygen results also in the rapid accumulation of poisonous waste, against the onslaught of which we have only an acutely limited voluntary control. We have been accustomed to view the morphine addict as a hopeless liar, a moral wreck, a creature sunk in vice, and lost to all sense of decency and honor. He *will* lie as to the dose necessary to sustain moderately comfortable existence, he will stoop to subterfuge and theft to achieve delivery from his bodily agonies, but there is nothing inherent in the drug to cause his moral degradation in those activities of life in which his addiction has no part. There can be no telling how many sad victims of this disease there may be among people who are of the highest qualities, morally and intellectually, and of the greatest value to their communities, who, if driven by sudden deprivation of their drug and by morphine hunger, might be led to felony or violence to rid themselves of a distress, of the intensity of which there can be no adequate description.

Such deterioration as sometimes occurs in the morphine addict *malgré lui*, is partly the result of his chronic autointoxication, of which I have just spoken, and largely the reaction to the attitude of his fellows which confounds disease with viciousness and makes of the confessed morphinist a social pariah. Furthermore, this type of patient—who, as has been said, constitutes the vast majority of his species—does not nestle with his vice in secret as has too often been imagined. He seeks aid and cure, and only in despair gives up the struggle, afflicted and misunderstood by his fellows, who, appropriating the functions of a priesthood, look on him, not as a physically diseased entity, but as a moral problem—a brand to be snatched from the flame. Thus morphinism is not an unmoral or a demented, but a physical condition, a diseased state, of the inception of which the sufferer is usually innocent; its symptomatology is exact, and of a constancy not always found in much more clearly understood ailments. Though treatment is beyond the scope of this paper, the majority of cases can be cured, though to the furtherance of this end our attitude must be, not that of parsons, but of physicians.

Of late, considerable publicity has been given to the use of heroine, a morphine derivative, and in the daily press there have appeared suggestions of the sinister role it plays, usually among the very foolish and the very young. This poison has recently acquired a vogue in a certain class of society, and several cases of heroinism have appeared for treatment in the Neurological Clinic of Cornell University Medical College. One typical patient, a stage hand, aged twenty-two years, told me how he had been taught to swallow heroine pills, how he had not wished to refuse them, lest he should be thought to lack sporting instinct, how for the first day or two he was filled with a feeling of lightness and happiness which, however, lasted but a very little time and was followed by profound nausea and depression, to allay which more heroine was taken, so that, when I saw him, his daily amount was little short of twenty grains, almost one hundred and fifty times the medicinal dose. His face was blotched and gray, his body

emaciated, and the eyes were of a leaden dullness; his spirit was broken, all joy gone from his life, and in its stead, pain was his master. This boy was not yet insane, though distinctly deteriorated in his efficiency and desire for thought or action, but he was very ill physically, struggling blindly with an entirely altered physiological mechanism, and doubly poisoned by waste products of the chemical action of his body and the constantly increased quantity of his drug.

Heroine is begun usually as a vice and continued as a physical need. The case is far otherwise with cocaine, the constant use of which is sheer debauchery. The early effects of this devilish agent are apparently delightful, conferring on the user a sense of power and efficiency for both mental and physical work. Its use produces no bodily craving, as do the opium derivatives, and by the exercise of the will can be stopped more readily by far than can the use of alcohol. Its ultimate effects, however, are more terrible than those of any other drug—the power of decision goes, morality is dead; and, long before the stage of madness has been reached, with its morbid suspicions, its sense of persecution ending so often in acts of violence and murder, the man is sunk below the level of his fellow creatures, unspeakably degraded, perverted, lost.

To most of us, these poisons are unfamiliar and bizarre, their victims are perhaps unknown to us, and indeed their sum of misery, looked at in the mass, is small enough compared with that produced by alcohol, the vice of the Anglo-Saxon world. The public is all too well aware of the symptoms of acute alcoholic mania, but it hardly knows that a careful authority (F. W. Mott) has found that over twenty per cent. of asylum patients have a marked alcoholic history and that, in at least one half of these, alcohol can be set down as the efficient cause of their mental condition.

Time is too short to allow me to treat adequately of the results of alcoholic immoderation; they are so widely known as to have bred in many of us an inability to be surprised at their number and immensity. The constant drinker, passing into a chronically toxic state, inefficient, without grasp, with dulled perceptions and defective memory, is a picture sufficiently usual indeed, but, owing perhaps to the absence of acute maniacal symptoms, the cause of his deterioration may be hidden, not only from his friends, but from himself. When the dose is greater than in such a case, fabrications and hallucinations occur, based on ill received and poorly judged sensations of physical distress, delusions of a morbidly jealous or persecutory character may precipitate violence or homicide, and when the vital centres for the heart and lungs are overcome, alcoholic coma may preface ignoble death. Such are the effects on the brain of constant overdoses of alcohol. Its effects on almost all the organs of the body are perhaps not equally appreciated; destruction of digestion, paralysis of all the limbs through a widely spread neuritis, and sudden blindness through death of the nerves of sight. Opium smoking, as generally practised in Mohammedan countries, and in China, carries no such toll of death and defectiveness as is borne here by

whisky; and as, through our social customs, excessive drinking habits may be almost insensibly acquired, we would do well to make more widely known their ultimate results.

Such, briefly, are the effects of almost all narcotizing agents on the human body; to understand a disease is to be a little further on the way to healing, and with this aim, let us cast forth ignorance, that some may be saved.

20 WEST FIFTIETH STREET.

A COMMISSIONED VETERINARY CORPS FOR THE ARMY.

BY GARRISON STEELE, M. D. (UNIVERSITY OF
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Thomas Babington Macaulay, the brilliant English essayist, in order to give his statements a show of familiarity, was wont to say that such and such a fact "is known to every schoolboy." In like manner, though more truthfully, it may be said that the struggle of the medical profession in the army for recognition and appreciation, and its success within recent years, is known to every physician in America. Were it not for the action of the surgeon general of the army of the United States, there would be no place here, perhaps, for reference to so cheerless a topic as a similar struggle to bring into being a commissioned veterinary corps in the army. For thirty-five years, with regular bills in Congress, that profession had been unremittingly struggling toward that end, without tangible result and almost without visible effect. On January 6, 1913, in the Sixty-second Congress, in the debate in the House of Representatives on a like measure, which went unanimously through the House, though there was no action in the Senate, Mr. Tillson, of Connecticut, evidently expressing the thought of the surgeon general, asked why the proposed veterinary corps should not be placed in the medical department. Up to that time there had never been a hint that such a proposal would be advanced, much less entertained; indeed, the leaders of the movement for a commissioned veterinary corps apparently were taken by surprise. Yet this should not have been so, because in a number of the smaller nations of Europe, notably Sweden, army veterinarians all belong to the medical department and have commissioned standing.

The true attitude of the medical department of the United States army toward the veterinary service came out clearly in the first session of the present Sixty-third Congress. On May 1st of last year Mr. James Hay, of Virginia, chairman of the House Committee on Military Affairs, himself reintroduced the bill, To Consolidate the Veterinary Service, U. S. Army, and Increase Its Efficiency (now known as H. R. 4,541), and it was, according to custom, turned over to his committee for the first reading. It was sent for recommendation to the War Department. When it was returned to Mr. Hay, a number of highly important letters were attached; one from the Secretary of War; another

from the chief of the quartermaster corps. The third and most important of all, as far as this article is concerned, was from the surgeon general of the army, which we reprint verbatim:

WAR DEPARTMENT,
OFFICE OF THE SURGEON GENERAL,
WASHINGTON, June 12, 1913.

Memorandum for the Chief of Staff:

Subject: Bill H. R. 4541, to consolidate the veterinary service of the Army and increase its efficiency.

Veterinary medicine is a learned profession, with a voluminous periodical and permanent literature of its own. For efficiency, there is the same necessity that the horse doctor should be learned as for the man doctor, and as his patients are not able to speak and describe their symptoms, a greater amount of scientific accuracy and acumen is necessary for a correct diagnosis. The therapeutics and pharmacy of veterinary medicine are largely the same as for the medical service, and in Europe, where veterinary medicine has the dignity and standing of a learned profession, it has made valuable contributions to our knowledge of the causation of diseases. It is believed that it can not be placed on a high standard of efficiency without long continued application of the same agencies which have raised the medical corps of the army to its present standard. Conspicuous among these is the system of examination for admission to the service and for promotion. Others which may be mentioned are the liberal supply of literature and appliances and a close touch maintained with the progress of the profession in civil life.

It is believed that these things can be accomplished for the veterinary service only by making it a part of the medical department and permitting it to share the administrative machinery of the medical corps. This would not only conduce to the elevation and efficiency of the veterinary service, but would also be in the interest of economy, as all of its supplies could be most advantageously purchased, cared for, and issued through the machinery of the medical department. As regards the administrative question of supplying veterinary surgeons to the quartermaster department, it is believed that no difficulty would arise, as the veterinary officers needed for that service could be placed under the orders of the quartermasters at depots, etc., where their services were needed, or ordered to report to the chief of the quartermaster corps for such service and duty as he might desire to assign them. The establishment of the veterinary service as a corps of the medical department, like the dental corps and the army nurse corps, is not proposed for the aggrandizement of the medical department, but because it is believed to be the only way in which that service can be raised to a fitting plane of dignity and efficiency such as it has reached in European countries and in the armies of the great military nations.

For these reasons the draft of the bill submitted by the War Department on January 6, 1913, a copy of which is attached to the General Staff Report No. 8443, herewith, is believed to be much better calculated to increase the efficiency of the sanitary service of the army than the bill H. R. 4541 herewith.

GEORGE H. TORNEY, *Surgeon General.*

Since this policy is adhered to in the *Report of the Surgeon General, United States Army, to the Secretary of War for the year 1913*, in which, on p. 169, we find a repetition of the language of the letter, we may take it seriously as the undoubted attitude of the medical department toward the veterinary service, and may examine the statements in the surgeon general's letter. This can be done with sanity and modesty; for the statements are not ours—they emanate from a high ranking medical authority whose words are indisputable.

At the outset the letter says: "Veterinary medicine is a learned profession, with a voluminous periodical and permanent literature of its own." Of inestimable value are the words of the surgeon general on this subject at this time. The medical department is the only department which could and

does appreciate this point—a point which has been entirely lost sight of in the army for the reason that heretofore no one with knowledge of the fact, and authority enough in the army to back up such a statement, has been frank enough to admit it, nor firm enough to take a stand upon it. Whether one considers the veterinary profession in the old world or the new, a learned profession it certainly is. In Europe, in continental Europe especially, veterinary medicine is part of the national educational system, provided for and endowed by the State, where the purpose is to train men as a national asset for public service in the army or in civil life. National veterinary colleges, like those of Berlin in Germany, Budapest in Austria, Alfort near Paris in France, and the veterinary college of Milan in Italy, are thus linked to the national government, and the products, the aspirations, the standards, the ideals of these old world institutions are known and venerated wherever the tenets of medicine are fostered and cherished. In America also, more and more, the veterinary colleges are becoming part of the State system of education, as at Cornell University and the University of Pennsylvania, and the pattern is derived from the old world. Neither this, nor a knowledge of the voluminous periodical and permanent literature of veterinary medicine is known to the army, other than by the medical department. Veterinary medicine is a technical branch removed from military men's ken of thought. The periodical literature is in many languages—richest in German, French, and Italian; while the permanent literature, on established scientific fact and practice, though not so voluminous as that of human medicine, is at once the delight and despair of its students.

Next the surgeon general in his letter states why, for efficiency, the doctor who treats animals should be perhaps more a man of learning than he who treats man. It is certain that the medical sciences in which each must be grounded are the same for the veterinarian as for the physician. Whatever groups of studies, in the veterinary and medical curricula, are compared, the foundation and superstructure are similar. Besides, as the surgeon general's letter says, difficulties beset the path of the practice of the veterinarian that are unknown to the physician. Diagnoses of lameness in the horse, for example, are fraught with numerous perplexities. The difficulties increase with the complications of diseases; because, as the surgeon general reminds us, the animal is dumb, and greater acumen is necessary for correct diagnoses.

Continuing, the surgeon general says that the therapeutics and pharmacy of veterinary medicine are largely the same as for the medical service. This is true. The drugs are mostly the same, though the doses and effects, especially the latter, are very different. The difficulties, moreover, arising from the varied posology for the different domesticated animals, the various species, are at least equal to those that arise in the treatment of human beings. The surgical principles are the same; though comparative anatomy is fraught with far greater difficulties than human anatomy.

Further the letter says that, in Europe, where veterinary medicine has the dignity and standing

of a learned profession, it has made valuable contributions to our knowledge of the causation of disease. A large proportion of the men who in Europe have been in veterinary work all their lives and have become distinguished as investigators, teachers, even as practitioners, have the degree of M. D. Such men, working exclusively in the field of veterinary science, have added glory to veterinary medicine. Koch, Schütz, von Behring, von Ostertag, Pasteur, are names to which probably the letter refers, for all have contributed knowledge of the etiology of veterinary disease. Similar conditions have prevailed in America; witness the work of Theobald Smith, who discovered the cause of Texas fever in cattle and thereby suggested the danger from insects as carriers of disease, which led to the discovery of the means of propagation of malaria and yellow fever. De Schweinitz, Marion Dorset, and V. A. Moore are other Americans renowned in the same field.

Furthermore, says the document we are quoting, the application of the agencies which have raised the army medical corps to its present high standard of efficiency will also raise the veterinary corps. This means the entrance examinations, work in the army medical school, promotional examinations, and the rigorous surveillance of the work of medical officers. The framers of the veterinary bill had in mind all these things. What better model, aiming to produce efficiency in the veterinary service, could there be than that of the medical corps? A liberal supply of literature and appliances in the veterinary corps, as in the medical corps, is certainly necessary. This means power to learn and power to apply what is learned. Such an opulence in the furnishing of means of acquisition of knowledge and work would contrast with the stinted supplies at present furnished to veterinarians. The keeping in close touch with the progress of the profession in civil life has been the making of the medical corps and it will be the making of the veterinary service.

There are also mentioned the administrative advantages to the Government to be brought about by the proposed attachment of the commissioned veterinary corps to the medical department; the economical purchase of veterinary supplies, their care and distribution through the machinery of the medical department. These are medicines, instruments and material, appliances, and biological products, all of which, with due regard to the needs of the veterinary corps as indicated by the veterinarians themselves, can be attended to very well through the medical department. Detailing veterinary officers of the medical department to the quartermaster corps is a mere administrative point which can be attended to without friction.

Finally, the surgeon general's letter states that the plan of attaching the veterinary corps is not proposed for the aggrandizement of the medical department; that would be saying that the medical department believes that coal ought to be carried to Newcastle. The medical department is big enough, important enough, and influential enough to be under no necessity of aggrandizing itself by absorption of other services or parts of services. It simply invites the veterinary corps to share in its

sanitary and medicochirurgical work. The letter closes with the statement that the attachment proposed is the only way to give dignity and efficiency to the veterinary service as in Europe. There the efficiency and concomitant dignity of the veterinary services is due to the commissioned standing—rank, which there signifies advancing knowledge, is attested by promotional examinations from grade to grade. The medical department knows that until this is done for the United States army veterinary service, there is no possibility of raising its standards.

The astonishing achievements of the medical department of the army, since it has been given power and reward for its service, are known to the whole world. Press despatches from London¹ speak of the dinner given in honor of Surgeon General Gorgas on March 23rd by the medical profession of the British capital, at which were present Sir Thomas Barlow, president of the Royal College of Physicians; Viscount Bryce, Sir William Osler, Arthur William May, medical director of the Royal navy; Francis N. Champneys, president of the Royal Society of Medicine; Sir Rickman Godlee, president of the Royal College of Surgeons; and Sir William Launcelot Gubbins, director of the British army medical service. This tribute to General Gorgas was in recognition of his brilliant achievements in the field of preventive medicine. He had just returned from South Africa, whither he had gone by invitation of the British Government to investigate problems in sanitation amongst the 200,000 Kaffirs employed in the Rand gold mines. His suggestions for prevention of pneumonia there, and of malaria in Rhodesia, will be of lasting benefit. Coming to him at the very summit of his fame, the recognition of his extraordinary professional judgment points to what has preceded. His work in Cuba, later in the sanitation of the Canal Zone, where yellow fever was banished from the isthmus and malaria kept in almost complete restraint, made possible the building of the Panama canal, and caused his services to be sought by the government of Ecuador in its sanitary problems.

Of similar value to the Government, the medical department informs Congress, will be recognition of the veterinary service. It advises that the veterinarians of the army be formed into a corps under the provisions of a statute which will standardize the work. The veterinarians in the service at present are just so many units; the medical department has declared most emphatically that only just recognition of a commissioned veterinary corps can overcome the dissipation of energy and bring proper returns of economy and efficiency in advanced veterinary work. Mr. Hay, chairman of the House Committee on Military Affairs, voicing the same thought when the bill unanimously passed his Committee on February 2nd, said: "The veterinarians of this country are a body of highly trained and intelligent men who have made and are making great strides toward progress in their pro-

fession; and it is not reasonable to expect that the Government can secure the best talent of the profession unless some fitting and substantial recognition is given it."

Such are the views of the medical department of the United States army. This article is meant as an examination and exposition of the letter of the surgeon general, and is not a piece of special pleading. The plan was proposed by the medical department itself, for reasons which it gives, and because of statements for the truth of which it vouches. Let Congress listen if it will.

10,521 LONGWOOD DRIVE.

CIRCUMTONSILLAR ABSCESS.

A Case with Fatal Hemorrhage.

BY D. NATHAN, M. D.,
Norristown, Pa.

While many cases of fatal hemorrhage associated with circumtonsillar abscess have been recorded, most of the textbooks credit it with being a benign affection, with much associated discomfort. I thought the following case of sufficient interest to report:

CASE. C. R., aged twenty-one years, baker, was taken ill with sore throat, loss of appetite, and general malaise, April 25, 1914, but continued to work until April 28th, when he stayed home. I saw him May 1st, a slim man with sharp features, breathing through the mouth and talking with a nasal voice. His breath was bad, temperature 103° F., pulse 115, respiration 24. Throat examination revealed both tonsils enlarged and reddened, their follicles exuding cheesy masses; submaxillary glands enlarged.

The whole picture was one of acute lacunar tonsillitis. Chest examination was negative. Urine had faint trace of albumin. The following day the tonsils had enlarged until they met, the soft palate and uvula were edematous and reddened. There was pain in both jaws and down the neck and it was impossible to open the mouth more than one third of an inch between upper and lower teeth. May 5th, the jaws relaxed somewhat and I succeeded in getting pus from the left circumtonsillar space, but could locate none in the right. The next day the patient began, as it were, to shed his right tonsil in the form of dirty black sloughs. This continued day by day, his general condition going from bad to worse until May 11th, when he contracted bronchopneumonia (aspiration?); respiration 45, temperature varying between 101.2 to 103.4° F.; pulse 135. May 12th, he spat up what remained of the right tonsil. May 13th at 3:15 p. m. he had a hemorrhage, which was sudden in onset and when I saw him, at 4:45 p. m., he was almost bloodless. In his weakened condition, he had finally aspirated the blood and was dying from asphyxia.

Examination showed two bleeding spots in right tonsillar sinus, the one spurting, the other pouring out blood. Attempts to clamp the artery resulted in tearing off more of the vessel, as it seemed to be of the consistence of wet blotting paper. I plugged the sinus. Here there seemed to be little tendency for the blood to clot. The patient died at 6.15, three hours after the initial hemorrhage.

615 WEST MARSHALL STREET.

Gallbladder Infections.—Dr. J. H. Gibbon (*Journal A. M. A.*, June 13, 1914) advocates operative treatment in every case in which one feels warranted in making a diagnosis of gallstones or gallbladder infection, provided there is no definite contraindication.

¹The *London Daily Mail*, eulogizing Brigadier General William C. Gorgas, Surgeon General, U. S. A., says: "Perhaps of all living Americans, he has conferred the greatest benefit to the human race. The whole world, particularly the British Empire with its large tropical possessions, owes him a debt which Britons are proud to acknowledge."

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXLVII.—How do you treat tetanus? (Closed.)

CXLVIII.—How do you treat sunstroke and heat exhaustion? (Answers due not later than July 15th.)

CXLIX.—How do you treat the opium habit, viewed as a neurosis? (Answers due not later than August 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best essay submitted in answer to Question CXLVI was awarded to Dr. William C. Calhoun, of New York, whose article appears below.

PRIZE QUESTION NO. CXLVI.

THE TREATMENT OF SCARLET FEVER.

BY WILLIAM C. CALHOUN, M. D.,
New York.

My first principle on assuming the care of a scarlet fever patient is to consider the disease one of the most dangerous of the infectious diseases, because of its frequent insidious damage to the hidden organs, especially the kidneys. Another rule is to call the condition scarlet fever and not scarlatina, no matter how apparently mild the infection may be, because of the tendency of the laity, not necessarily of the unintelligent class, to assume from the term, scarlatina, a mild disease and one that may be lightly regarded. An early report of the case to the department of health, and immediate isolation of the patient, are essential for the prompt limitation of contagion.

The patient should be put to bed immediately in a room as isolated from those of the rest of the household as possible, with the desired ventilation, light, and quiet. Procure a competent nurse; if this is not possible, have one person among the family of friends elected to care for the patient. His food utensils should be kept separate and cleansed very thoroughly. The bed linen from the sick room and clothing from the patient should be boiled after having been immersed in a one to 2,000 bichloride solution for one hour. No visitors should be allowed in the sick room, and a strict quarantine must be directed, not only to the children, but to the adult members of the household as well.

At the outset a very complete physical examination of the patient should be made, special attention being directed to the ears, nose, throat, and heart, and daily examinations of the throat and chest should be made until convalescence is established. If anything at all resembling a membrane is discovered in the throat, or a marked nasal discharge, possibly bloody, is present, a culture should at once

be made for possible diphtheria. A specimen of urine should be promptly obtained and examined for albumin and casts. A complete uranalysis is best. The urine should be measured daily as to quantity in the twenty-four hours, and qualitatively every second day. In all cases, whether mild, severe, or malignant, watch the kidney action, and attempt to increase the urine when scanty, whether the condition is considered to be one of acute hyperemia or an actual kidney inflammation. It is usually after the subsidence of the acute symptoms that signs of edema denoting kidney damage show themselves, and indeed long after convalescence is over and the patient is apparently well again, we must keep up our watch for signs of a postscarlatinal nephritis and examine the urine at frequent intervals.

In all cases a fluid diet should be ordered, preferably milk because of its nutritive qualities, and because it is usually well borne. Should any marked idiosyncrasy to milk be present, matzoon, zoolak, or malted milk may be substituted, or oatmeal gruel may be given. Sometimes orange albumin, which is nutritious and easily digested, is very acceptable to the patient. The concentrated meat broths are contraindicated because of their highly nitrogenous character. Water should be given liberally throughout the course of the disease.

For mild cases of scarlet fever with a moderate rise of temperature and no apparent complications, I order a cleansing warm bath each morning, with sponging of the whole body once or twice a day with either tepid water alone or equal parts of water and alcohol.

My medication in these cases consists of a course of calomel at the outset, followed by a saline, and if the bowels show signs of sluggishness I give an enema every second day, omitting it on any day during which there has been a satisfactory evacuation. Occasionally during the course of the disease I order a liquorice powder or citrate of magnesia. I usually give liquor ammonii acetatis in doses of four drams every four hours for an adult, proportionately for a child, for its diuretic effect. A gargle of liquor antisepticus alkalinus properly diluted, or a simple warm salt solution used at least three times in the day, about completes the medicinal treatment.

The severe types of scarlet fever are of two kinds: Those with complications, usually a cardiac, renal, middle ear, or glandular involvement; and, second, the fulminating or malignant type where the patient is apparently from the first overwhelmed with the poison of the infection. The first of these severe types where complications are likely to arise I should treat as follows. At the first sign of an endocarditis an ice bag should be placed over the precordial area and the least exertion on the part of the patient must be discouraged. Signs of pericarditis should be watched for, or an involvement of pleura or lung. A severe adenitis is best treated with ice bags or cold compresses, and the nose and throat irrigated with a hot saline solution every three or four hours. Should middle ear inflammation come on, the membrana tympani must be incised at the first sign of bulging. The high temperature and delirium that usually accompany these severe cases is best com-

bated by the cold pack or sponging. Antipyretic drugs should not be used. Of course an escape of pus from the ear will be followed usually by some cessation of the acute symptoms and a drop in temperature and pulse rate. I would continue the spirit of Mindererus throughout these severe cases for its diuretic effect. Urinary suppression would call for counterirritation over the kidneys, or diaphoresis by means of the hot pack, or possibly some active medicament such as pilocarpine or caffeine. I do not think we are called upon very often to use stimulants in these cases. I should choose strychnine in moderate doses, and rather for its general tonic effect than for active stimulation.

In the so called malignant cases we of necessity must make use of stimulants freely. Strychnine, in doses of at least one thirtieth of a grain, every four hours for adults, and proportionate doses for children, and whiskey in full doses, but given well diluted. We are justified in attempting anything which may possibly aid, and I should in these extremely sick cases use a serum, such as the leucocytic serum of Hiss, or give a mixed infection vaccine.

Desquamation is usually complete about five weeks from the onset of the disease, and the quarantine should be continued strictly all this time. Sweet oil may be applied to the skin to limit the scattering of the flakes of epidermis.

The return to solid diet may be begun within two or three days after the temperature has become normal; but meat should not be taken for at least a week after convalescence has been established, and then only after a thorough test of the urine has shown the kidney function to be normal. The time for getting out of bed depends upon how severe the infection has been, but at least a week after temperature and pulse are normal is a good rule.

Dr. William Brady, of Elmira, N. Y., writes:

Medical asepsis is the first essential in the treatment of scarlet fever. If the rules of asepsis were as rigidly followed by the physician at the bedside as they are by the modern operator there would be far less scarlet fever in the community. Not that the physician himself spreads infection frequently, but his example at the bedside becomes the pattern for others who do carry contagion.

When a trained nurse is not available, the patient's attendant must be explicitly instructed regarding the importance of *contact* as that word is now understood by sanitarians. And here is where the value of example is seen.

At present it is believed that scarlet fever is not spread through the air and it is not spread through desquamation. It is spread through contact with the secretions from nose or throat, and with discharges during any complication. Hence, if all discharges and secretions, together with personal objects soiled thereby, are properly disinfected or destroyed before they are taken from the patient's room, there will be no possibility of infecting other persons. This precaution obviates the need of terminal disinfection or fumigation of the apartment. Fumigation is unnecessary, in the first place, because asepsis preserves the furniture, floor, walls, and draperies from contamination; and in the second place, because the usual methods of fumigating

apartments fail to destroy bacteria known to be present in the apartments. If we may still add arguments against the rite of fumigation, in the third place the return cases in cities which have abandoned the practice are no more numerous than they are or were in cities where fumigation is still carried out.

If the French can care for scarlet fever in the same hospital building with, and under the charge of the same nurses as those who care for other infectious and eruptive diseases, then we can do so too. The Pasteur Hospital, the Hôpital des Enfants and other institutions where medical asepsis is practised and all sorts of contagious disease treated under one roof, have little or no cross infection. This being true, we are scarcely justified in imprisoning the patient, and worse still the nurse, in one room for several weeks on end. If the doctor does not carry the disease, then why should he suspect his nurse of doing so?

Of course we have long since dispensed with that ancient delusion and snare known as the antiseptic sheet, because it won't stop insect, animal, and human carriers from paying occasional surreptitious visits to the patient.

The physician should wear a gown when he visits his patient—more for its psychic effect upon the family—and rubber gloves if he touches the patient. He should make a great deal about scrubbing his hands with soap and water on leaving the patient. This, too, impresses the family with the necessity of asepsis.

The patient should have a daily warm bath. If oil relieves the itching, well and good, but I find a one per cent. phenol solution more grateful for occasional use.

Tepid packs are invaluable for the feverishness, restlessness, and sleeplessness in the febrile stage. When there is much pharyngitis or tonsillitis the frequent irrigation of the nasal cavity with warm normal salt solution or a very dilute solution of some alkaline antiseptic does good. The little patient resists the first few irrigations, but soon learns to take them willingly. He should be placed on one side at the edge of the bed with head hanging over, so that the outflow from the lower nostril may run into a basin.

Hexamethylenamine in pretty full doses—twenty to thirty grains daily for three year old children, given in drinking water, seems to me to ward off threatened complications in mucous and serous membranes.

For symptoms of endocarditis, or at least to relieve the precordial distress, tachycardia, and sudden rise of temperature observed in some cases, full doses of tincture of aconite internally and an ice bag locally will serve well.

The patient's appetite is a safe guide as for diet. One should urge free use of orange juice, lemonade, buttermilk, and sweet milk, as well as plenty of drinking water.

Sunshine, if obtainable, especially on a porch, is the best all around remedial agent we can employ.

There is no danger to the patient nor to other persons in keeping the windows open. The patient's surface warmth and skin activity are to be maintained by suitable clothing and bedclothes and

baths, rather than by a hot, vitiating room temperature.

"All danger of spreading the disease" is *not* past until every abnormal discharge or secretion is stopped, and skin desquamation is no criterion except in a diagnostic way. Healthy children or non-immunes should be kept from intimate contact with convalescents who have ear or other complications.

Dr. Harry B. Gudgel, of Hazleton, Ind., observes:

Scarlet fever is an acute, specific, infectious, and contagious disease, occurring in early and middle childhood. It is to be taken for granted that there will be complete isolation of the patient in a well ventilated apartment, that the ordinary rules governing disinfectants will be borne in mind, that squares of white tissue paper will be substituted for cloths and sputum cups.

In beginning treatment the bowels and kidneys should first receive attention, and be kept free throughout the disease, e. g., by calomel grain 1/5, ipecac grain 1/10, repeated every hour for five or ten doses (age considered), followed by ounces one or two of the citrate of magnesia every three hours. Elimination through the bowels and kidneys is certainly conducive of good results.

The irrigation of the colon with two to four pints of normal salt solution from one to three times in twenty-four hours is not only cleansing, but of great benefit in reducing the fever and nervousness. The fever is best controlled by sponging in cold water or the cold pack. If the fever and nervous symptoms are extreme, pour cold water from a pitcher over the body and continue until the fever and delirium are reduced.

Internally the following may be used:

R	Tincturæ aconiti, ...	℥15
	Spiritus Mindereri, ...	3i;
	Aquæ menthæ piperitæ, q. s.	3ii.

M. Sig.: One half teaspoonful every half hour until sweating is produced (age considered).

The nervousness may be met by two to three grain doses of sodium bromide every one to three hours. The throat should be frequently sprayed or swabbed with mild antiseptic solutions, five per cent. boric acid, twenty per cent. hydrogen peroxide, or normal salt solution. The cleansing of the throat and irrigation of the nasopharynx is very helpful and grateful to the patient. In adult patients the swabbing of the throat with a two to four per cent. solution of one of the albuminates of silver is worthy of more frequent use. Externally, the application of hot bran poultice or glycerinated muds is very helpful in all cases.

Internally, the child patient may be benefited by tincture of iron chloride, two to four drops every four hours. Antistreptococcic serum is of service in a number of cases. The heart should be guarded throughout by grain 1/300 to 1/100 strychnine nitrate every four to six hours. If heart weakness appears, tincture of strophanthus, nitroglycerin, whisky, or the hypodermic injection of camphor in proportionate doses is very satisfactory. The kidneys should be given watchful attention with an occasional diuretic and antiseptic as a safeguard. In an ear showing symptoms of otitis with pus, a slight puncture of the eardrum will often prevent distressing complica-

tions. The irritation of the eruption may be often relieved by carbolated or mentholated petrolatum or olive oil. This also prevents the spread of the disease and should be used until desquamation has taken place.

The diet should be liquid; milk, oatmeal, or barley water with the use of lithiated water for thirst is best during the fever stage. After the acute symptoms have subsided, gruels, milk toast, buttermilk, lemonade, and orangeade may be admitted. However, too much caution cannot be exercised in the selection of food. During convalescence, iron or malt with strychnine is useful. Finally, the physician may overcome a multitude of sins by carefully making known that the condition is threatened with many serious complications, especially of the heart, kidney, and ear. He may be able by such explanation in advance to clear himself of blame. Use caution in every case and insist that the patient remain under observation for two or three weeks after complete desquamation has taken place

(To be continued.)

Correspondence.

THE ARMY IN MEXICO.

VERA CRUZ, MEXICO, June 8, 1914.

Forces at Vera Cruz.—Rise in morbidity rate, due mainly to diarrhea and dysentery.—Crusade against flies and mosquitoes.—Vaccination of 20,000 residents.—The water supply.—Field hospitals, Evacuation hospitals, Dressing stations, Stations for the slightly wounded.—Field hospital companies and ambulance companies.—Changes in case the army advances toward Mexico City.

The American forces have now occupied Vera Cruz for six weeks. Approximately there are 20,000 sailors aboard ships in the harbor and 8,000 soldiers and marines ashore. An increase in amount of sickness is already in evidence among the troops on land. The proportion of sick at Galveston and Texas City has been one per cent. all the year round, whereas here at Vera Cruz it has already reached two per cent. This increase has been caused by diarrhea and dysentery almost exclusively. The type of dysentery encountered here is principally the bacillary, caused by the Shiga bacillus and its allied strains. The disease being transmitted by flies, a crusade is being waged by the Public Health Department under Major Lyster and Major Noble against the fly and a noticeable diminution in their number has been apparent in the last ten days. The dry season is now over and the rainy season is commencing. At present it rains in the early morning hours for one, two, or three hours. A few of the rainfalls have been heavy, but mostly the rains have not differed very greatly from rains occurring in temperate climates excepting as to periodicity. With the rainy season come mosquitoes and with mosquitoes comes malaria. Only a few cases of malaria proved to have been contracted here, have so far occurred among the American forces, and these cases were of the nonmalignant variety.

The Public Health Department under the direction of Major Lyster, of the Medical Corps of the Army, are making an active campaign against breeding places for mosquitoes. This work is directly under Major Noble, of the medical corps. He will have with him 300 laborers, and where practicable will drain all places of stagnant water. Where it cannot be drained, all stagnant pools will be covered with oil to prevent mosquito breeding.

The native physicians have been busy during the past two weeks under the direction of the Public Health Department in vaccinating the residents of Vera Cruz, 20,000 persons having been vaccinated up to date. Only one case of smallpox has occurred in troops occupying Vera Cruz, a mild case (discrete) in an enlisted man of the marines.

Major Frederick F. Russell, medical corps, has arrived at Vera Cruz, reported to the Chief Surgeon, and has been placed in charge of the bacteriological and pathological laboratory at Field Hospital No. 3, which is situated in the Collegio Preparatorio. Major Russell has begun an active investigation into the causes of dysentery among the troops. Two cases have been found to have *Amoeba histolytica*, but most of the cases are apparently bacillary in type. On account of the severity of the toxemia with nervous manifestations, it appears that they are caused by the *Shiga bacillus*.

The question of the quality of water supplied through the city mains to the troops is now under investigation by the Bureau of Public Health, assisted by Major Russell. From investigation thus far completed, it appears that the water supply is safe for drinking purposes, etc. Captain John M. Cabell, medical corps, recently arrived from Washington, has been placed in charge of the civil hospitals under the direction of the Bureau of Public Health. In the event that the troops move out of Vera Cruz toward Mexico City, the field hospitals which are now fixed institutions in Vera Cruz would be rapidly loaded on to eight four mule wagons and accompany the troops, turning over their patients and equipment to an "Evacuation Hospital." The lines of assistance rendered by the sanitary troops would be as outlined in the schematic drawing. The regimental aid stations are the first line of organized institutions and in charge of the regimental surgeons. (Each soldier, however, carries his individual first aid packet and is instructed in its application to himself or his comrade.)

The regimental aid station is established as near the firing line as possible, and is the place where all the wounded of a regiment or independent battalion are carried by its sanitary personnel for administration of emergency treatment. This station will, however, often be but little more than a place for assembling the wounded, as the personnel belongs to the organization establishing the aid station and must be prepared to move with it.

Dressing stations, which are established during combats by ambulance companies, are immediately in the rear of the line of regimental aid stations and are the places where all the wounded unable to walk are collected. From these stations the wounded are transported back to the field hospitals.

The equipment of dressing stations is more elaborate than that of regimental aid stations. It provides light nourishment and stimulants for the wounded and affords facilities for more elaborate dressings and for emergency surgery.

"A Station for the Slightly Wounded" is established when combat is imminent to relieve dressing stations and field hospitals of slightly wounded who can walk and require but little attention. It is conspicuously marked so that it can readily be found. Its position is fixed in division orders, and is operated by personnel detailed for that purpose from personnel of sanitary train.

Field Hospital Companies, one for each brigade, are set up ordinarily from three to four miles from the battlefield and to them are transported the wounded by ambulance companies. Field Hospital Companies have a personnel of six medical officers and sixty-seven hospital corps men, have their own transportation consisting of eight four mule wagons, mounts for officers, noncommissioned officers, and orderlies, and are provided with shelter (canvas tents) and equipment for the care of 216 sick. The wounded are transported to field hospitals by ambulance companies. Canvas is pitched only when buildings cannot be had or are inadequate for housing the wounded. As these institutions must be maintained mobile, the sick and wounded are cared for only temporarily (twenty-four to forty-eight hours), pending their transportation to the rear to evacuation hospitals. The position of a field hospital must be such as to make it accessible both to the front and rear by good roads. In addition to providing shelter and food, emergency surgical work can be done in field hospitals and the sick given more extended care and comfort.

Ambulance Companies push up close to the rear of the fighting troops, as near the line of regimental aid stations as is possible. They are charged with carrying the wounded back to the field hospitals, or, when field hospitals have not been set up and when railway hospital trains are reasonably accessible, ambulance companies transfer the wounded directly to them. If an advance was made toward Mexico City, evacuation hospitals would be established in permanent buildings in Vera Cruz. The sick and wounded would come under the chief surgeon of the line of communications on entering the evacuation hospitals. As these hospitals would be situated at a port town, they would be transferred by hospital ships to base hospitals, situated at the larger port cities in the United States.

Therapeutic Notes.

Removal of Foreign Bodies from the Air Passages.—Sir Rickman J. Godlee, in the *Dominion Medical Monthly* for March, 1914, reports the case of a man, sixty-five years of age, suffering from severe cough due to inhalation of a green pea three days previously. Upon passage of the bronchoscope, the pea was seen, apparently firmly impacted in the right bronchus. Since, after its three days'

sojourn, disintegration of the pea seemed likely if an attempt was made to seize it with forceps, with probable septic pneumonia upon penetration of the fragments into the smaller bronchi, the author was led to adopt a novel expedient for removing the foreign body intact. The end of the bronchoscope tube was placed firmly against the pea, and an improvised piston of compressed wool, moistened with liquid paraffin, passed slowly down the tube until in contact with the foreign body. The piston was then slightly but suddenly withdrawn. This had the desired effect of sucking the pea into the lower end of the tube, so that piston, pea, and bronchoscope could be withdrawn together. This method appears to introduce a new principle in the removal of (rounded) soft foreign bodies, in the presence of which, because of their dangerous nature, it has hitherto been almost universally the custom to perform a low tracheotomy and approach the obstruction through the wound, either with a short tube or by means of hooks, sharp spoons, etc.

Inhalation Treatment in Laryngeal Tuberculosis.—F. J. Collet, in *Journal de médecine de Paris* for October 11, 1913, is credited with the statement that inhalation of one of the following preparations may be expected to afford some degree of subjective relief in tuberculosis of the larynx:

I.

R Balsami peruviani, ...5i (4 grams);
Tincturæ opii, ...mxxvi (1 gram);
Talci, ...5ii (60 grams).
Misce.

II.

R Mentholi, ...gr. xv (1 gram);
Balsami peruviani, ...5i (4 grams);
Talci, ...3ii (60 grams).
Misce.

III.

R Mentholi, ...gr. xv-5i (1-4 grams);
Balsami peruviani, ...5i (4 grams);
Fluidextracti eucalypti, ...5ss (2 grams);
Alcoholi, ...5vi (150 grams).
Misce.

A teaspoonful of one of the foregoing mixtures should be placed in a pint of boiling water and the vapors deeply inhaled by the patient for five to ten minutes. A cooling sensation and even some degree of analgesia will result at the seat of the disease. The patient should remain in the room in which the inhalation has been practised for at least half an hour thereafter.

Treatment of Chronic Leg Ulcer.—A. Winkelried Williams, in the *British Medical Journal* for October 18, 1913, states that in the few cases of leg ulcers in which iodides and mercury given internally fail, usually present a history of attacks of rheumatism, and are relieved by salicylates. He usually administers the sodium salt, with sodium bicarbonate, and gives directions to the patient as to cleanliness of the teeth and mouth. In a few cases of callous ulcer with extreme brawny condition extending far beyond the lesion itself, he has found large doses of citric acid, given for four days, followed by the application of Bier's suction cups, of benefit. In occasional cases of edematous ulcer with much discharge, calcium iodide proved useful. Small doses of magnesium sulphate several times daily are of marked value where consti-

pation and a freely discharging ulcer coexist. Iron, quinine, and digitalis are also often required in cases of leg ulcer.

As for local treatment, when eczema rubrum complicates the ulcers, but the latter are not markedly inflamed, Williams wraps the entire part in lint soaked in a one in 3,000 solution of mercury bichloride. A few days later, this is replaced by a mixture of three parts of thick calamine lotion (without lime water) with one part of one in 1,000 mercury bichloride solution. The lint is changed twice daily, being carefully soaked off if adherent. Among other valuable topical preparations are a weak boric acid lotion and the two following, recommended by Schaffer:

I.

R Resorcinolis, ...gr. v-xxv (0.3-1.5 gram);
Aquæ, ...5i (30 c. c.).
Solve.

II.

R Thymolis, ...gr. iii (0.2 gram);
Linimenti calcis, ...5i (30 c. c.).
Solve.

Later, when scales and redness have subsided, the author uses the following paste:

R Pastæ zinci, Lassar (N. F.), }
Unguenti acidi borici, ... } ...ãã 5ss (15 grams).
Petrolati, ... }

Misce.

If any pustules exist, five to eight grains (0.3 to 0.5 gram) of ammonium chloride should be incorporated in the foregoing or a similar paste. Still later, he fills up the ulcer with weak iodoform, starch, and zinc powder, covers with gauze, and applies zinc gelatin (glycerogelatinum zinci molle, N. F.) and bandages.

In treating a sloughing leg ulcer, the author first applies one of the less soluble local analgesics, dissolved in alcohol, douches the lesion well with a deodorizing suspension of terebene in water, rubs down the surface of the ulcer with rags soaked in kerosene—cleansing also the skin around it—and fills the ulcer with the following iodide of starch paste:

R Starch, ...5iiss (10.5 grams);
Glycerin, ...5v (20 c. c.);
Water, ...5ii (60 c. c.).
Boil, and when nearly cold add the following solution:
R Iodine, ...gr. iv (0.25 gram);
Potassium iodide, ...gr. vi (0.36 gram);
Water, ...m℥xxx (5 grams).

This is to be applied very thickly on and around the ulcer, and covered with linen and a bandage. The dressing is to be renewed twice daily. Under this treatment the pain is lessened or renewed in a few days, the hard borders of the ulcer soften, the surface is cleansed, and granulations form with but little discharge. In a few cases the iodine starch paste is not suitable: Patients with an idiosyncrasy to iodine, occasional cases of intensely inflamed ulcers, cases of irritable ulcers about the malleolus in neurotic women, and cases in which the discharge from the ulcers is very profuse.

Tuberculous ulcers and those of Bazin's disease yield to the application of a one in eight potassium permanganate solution, followed by dressing with the starch iodide paste.

NEW YORK MEDICAL JOURNAL

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and The Medical News.*A Weekly Review of Medicine.*

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TAKING PAINS WITH PAINLESS
CHILDBIRTH.

In our issue for May 23d, we animadverted with more or less playful irony upon an article in *McClure's Magazine* for June entitled Painless Childbirth, written, we thought, in a spirit of girlish enthusiasm which would probably amuse rather than annoy the hitherto highly respected physicians of the Freiburg Frauenklinik, wherein the so called painless method is in vogue. Our comments apparently started an investigation by our two most prominent contemporaries into the statements made in *McClure's Magazine*, and numerous letters of inquiry testify to the puzzled attitude of our readers, who wonder how for ten years so satisfactory an obstetrical aid can have eluded their attention.

The misguided enthusiasm of the McClure publications is made manifest in what would be known to the advertising fraternity as a "full page spread" if it did not bear the earmarks of an editorial comment, which appears in the *Ladies' World* for July. Taken in connection with the written acknowledgment of the owners of the aforesaid publications to the *Journal A. M. A.*, this superb reading notice makes further doubt impossible of the complicity of Herren Krönig and Gauss in what is to them and all

other physicians a bald and shameless piece of advertising, however innocent such exploitation may seem to business laymen. The corroboration of a three page advertisement in *Printers' Ink* for June 18th is hardly required; this contains a typically hysterical letter from one of the earliest victims of the ingenious bait thrown out in the first McClure article.

It is hard to find words to characterize properly what we formerly mistook for the youthful naiveté of two advertising copy writers. Professor Krönig describing himself as "so adequate" and Doctor Gauss writing himself down as "so wistful and sympathetic" and quoting his own words to his lady patients, "I have come to comfort you," are no longer subjects for professional sympathy as victims of a write-up, but assume the aspect of a pair of undignified and unethical doctors for revenue only, meriting banishment from decent medical company.

Like all quack schemes, this one is based on a method thoroughly tried out by the regulars and found wanting. Its plan of exploitation is one of the boldest ever conceived; it was embodied in the Friedmann scheme, but not so well managed. Soon we shall have the pupils of the "masters" over here, we suppose, ready to "teach" the method to a select few among American physicians. Sanatoriums or Frauenkliniks will rise in various parts of the land and the latest appeal to nervous and idle women will run its merry course until the inevitable percentages of mortality and morbidity bring it to a close. With inspired foresight, the fact was duly emphasized in advertisement No. 1, that this painless labor is "very expensive."

THE BOYLAN ANTINARCOTIC LAW.

The Boylan antinarcotic law, which was passed at the last session of the New York State legislature and became effective on July 1st, differs widely from the bill originally introduced. We summarize such of its provisions as affect physicians, veterinarians, and dentists. No person is allowed to sell or give away any chloral, opium, or derivatives or preparations thereof, except upon the written prescription of a licensed physician, veterinarian, or dentist. This prescription must contain the full name of the prescriber, his office address, office hours and telephone number, the name, age, and address of the person for whom intended, and the date. No person may be prescribed for except after a physical examination. The dispenser is prohibited from compounding any prescription containing more than thirty grains of opium, four grains of morphine, two grains of heroine, six grains of codeine, or four drams of chloral, without first verifying the prescription through consultation with the

prescriber, either by telephone or otherwise. Such prescription may not be filled more than ten days after it is written, and must be retained by the dispenser, who is prohibited from giving a copy or refilling.

Physicians, dentists, or veterinarians who wish to purchase these drugs must write their orders on official order blanks furnished through the local or State board of health and may administer these drugs in person, provided a record is kept of the name and address of each person, the quantity of the drug given, and the date, this record to be preserved for five years. The special order blanks are not required for prescriptions, but only for purchases of the drugs named, but the prescription must bear the name, address, office hours, and telephone number of the physician, as stated above. Hospitals and colleges are also required to use official order blanks for the purchase of the drugs named.

Druggists are prohibited from selling hypodermic syringes and needles, except on the order of registered physicians and veterinarians (not dentists), and are required to keep a record of all such sales.

The bill also provides that, upon complaint to any magistrate, any person addicted to the use of any habit forming drug may be committed to a State, county, or city hospital, or to an institution licensed under the State Lunacy Commission, but not to an ordinary prison.

The State board of health has had printed the blanks prescribed by law, but some days may elapse before these can be distributed through the local boards of health. Meanwhile we are informed that no prosecutions will be instituted for failure to comply with the laws regarding the use of the prescribed order blanks until they have been supplied, provided applications for the blanks have been filed with the local board of health.

An exception which perhaps does not interest physicians, but which, in our opinion, nullifies the value of the law, permits the unrestricted sale of "popular" remedies containing small doses of the drugs in question. The law regarding cocaine stands and is unaffected by the Boylan law.

EDUCATION OF THE PUBLIC IN MEDICAL MATTERS.

In our last issue we referred to the fact that over fifty eminent physicians from various parts of the country occupied, on the previous Sunday, as many pulpits in Philadelphia, to instruct the public in medical matters. This campaign under the auspices of the American Medical Association is on a high plane of altruism, having for its purpose to instruct laymen how to avoid many of the causes of disease. Were the advice and admonitions thus dealt

out to the public thoroughly apprehended and carefully followed, it is not merely fifteen years that life would be prolonged through the scientific information available, as President Vaughan stated in his recent address before the American Medical Association, but many more. Man is the creator of most of his ills; through the light the medical sciences have cast upon the prevention of disease, he could, if he preserved the integrity of his body, insure for it a lease of life exceeding considerably the biblical three score and ten years.

The Philadelphia County Medical Society is at present conducting a campaign, having much the same end in view, but calculated as well to protect the public against the charlatan who, owing to the restraint imposed upon the legitimate physician by the code of ethics, has had full opportunity to advertise his wares and exploit the sick. The society recognized the great harm to sufferers that such a situation entailed and decided to offset its effects by furnishing the public authoritative information on medical subjects, embodying the prevention and cure of disease. An arrangement was made with a Philadelphia daily journal for the publication of "lessons" written by men of the highest professional standing, but whose names, in order to avoid the slightest suggestion of personal advantage, do not appear. We must admit that we prefer this plan to that of the American Medical Association, which does not as efficiently protect its public lecturers.

The lessons published so far, include, for example: As to Motherhood, What is Required; Just how Vaccination has Routed Smallpox; The Nursing Mother, What She Should Know; Prevention of the Unfit, the Problem of the Day; Tuberculosis at Home—Conditions that Make for Its Cure; How Animal Experiments Save Human Lives; The Securing of Clean Milk a Problem for Experts; The Disturbed Conditions that Give Rise to Cancer; The Outlook Hopeful for the Afflicted—which shows how the little ones may be saved the menace of affliction—and other treasures of information, all in plain words, within the grasp of all. Not even a shadow of selfishness hovers over the whole undertaking. The articles should be reproduced complete, therefore, to avoid the misleading publication of excerpts for sensational or advertising purposes, "every reputable nonmedical publication is solicited to republish the lessons in full." If our readers in the various cities, great and small, induced the local editors of lay papers to publish these lessons, they would contribute materially to the extension of a great good.

The Philadelphia County Medical Society is entitled to the highest appreciation for its humane initiative.

HABIT PRODUCING DRUGS AND CRIME.

The prevailing theory of the law in this country and in England on mental unsoundness as a defense to criminal prosecution, is that capacity to know the nature and quality, and the right and wrong of the act committed is the only test as to responsibility, and if a person answers this test in such a way as to be responsible by its terms, he is held responsible, though of unsound mind in other respects. Loss of control of the will or morbid impulse is no defense unless it demonstrates mental unsoundness of such character as to destroy the power of distinguishing between right and wrong as to the particular act. The mental unsoundness must be of such character or degree as to deprive the person's mind of the ability to know the quality and consequences of the act committed, and that it was wrong, to establish legal responsibility. In regard to intoxication by alcohol, the New York Penal Law prescribes that no act committed by a person in a state of voluntary intoxication shall be deemed less criminal by reason of his having been in such condition; but whenever the actual existence of any particular purpose, motive, or intent is necessary to constitute a particular species or degree of crime, the jury may take into consideration the fact that the accused was intoxicated at the time. Moral degradation, eroticism, bestiality, degeneracy, and ungovernable passion are not themselves excuses for crime. Alcoholic intoxication not resulting in mental unsoundness does not incapacitate. Drunkenness does not necessarily determine that a person is incompetent to make a contract or will or to commit a crime, even though he is drunk at the time. The condition and extent of his mentality at the time are the determining factors. Drunkenness, therefore, does not relieve from crime.

Mental unsoundness caused by addiction to drugs, it is certainly reasonable to consider, should be subjected to the same legal test as unsoundness otherwise produced, and this is the opinion expressed by Dr. Reynold Webb Wilcox, of this city, in a valuable contribution on the relation of habit-producing drugs to crime (*Bulletin of the American Academy of Medicine*, June, 1914). "It is clear," he says, "that in criminal prosecutions justice to the individual and to the State demands that a most careful presentment, both as to the nature of the drug addiction and to its demonstrable effect upon mental processes, should be made by experts. The character of the mental unsoundness produced by the particular habit, and all facts as to the capacity of the individual to know the nature and quality of his act and whether or not he knew, at the time of its commission, that it was wrong, must be impartially set forth in the interests of justice." Doctor

Wilcox describes succinctly the effects, so far as they lead to crime, of opium and its alkaloids, cocaine, chloral, paraldehyde, and other drugs, such as sulphonal, trional, and veronal, and calls attention to the fact that cannabis indica intoxication has marked symptoms; that under its influence, hallucinations and delusions even going on to mania may be produced and may result in acts of violence against persons and property, though rarely melancholia leading to dementia may be observed. He also points out that, with the exception of cannabis indica and rarely cocaine, all the drugs are in contrast to alcohol in that the symptoms which might indicate their predisposing to crime are produced by abstinence or deprivation, and not from ingestion.

THE NEW DEAN OF MCGILL MEDICAL SCHOOL.

The colleagues and numerous friends of Dr. Herbert Stanley Birkett will learn of his appointment as dean of the medical school of McGill University with unalloyed pleasure. A distinguished specialist for many years in diseases of the nose, throat, and ear, he has been a close student ever since his graduation at McGill in 1886 as Holmes gold medallist of his class, and has held numerous important positions in various countries, among them that of vice-president of the American Laryngological Association. Born in 1864, Doctor Birkett is a young man to occupy so prominent a place, but his abilities will have a wider scope and he will doubtless add further achievements to an already crowded career.

THE PAN-AMERICAN SURGICAL AND MEDICAL JOURNAL.

The first issue of this handsome new medical monthly, published at New Orleans, contains 112 pages of reading matter and numerous appropriate illustrations. The editors in chief are Dr. Walde-mar T. Richards and Dr. Adolph O. Hoefeld; the associate editor in chief is Dr. Merrick W. Swords, and the editorial representative of Louisiana medical societies is Dr. L. R. DeBuys; there is a staff of no less than 191 assistant or associate editors representing the various departments of medicine and surgery, most of them naturally from Louisiana, but a fair representation from other States and a notable contingent from Central America. The journal opens with an account of the thirty-fifth annual meeting of the Louisiana State Medical Society, giving in full the oration in medicine by Dr. M. L. Graves. Other contributions, read at the meeting, are by Dr. George S. Bell, Dr. Isaac Ivan Lemann, Dr. Charles V. Unsworth, Dr. Clarence Pierson, Dr. E. H. Martin, Dr. J. A. Storck, Dr. E. L. Henry, Dr. J. M. Batchelor, Dr. Philip Asher, Dr. J. T. Halsey, Dr. Jerome E. Landry, and Dr. Robert E. Strong. There are twelve columns of excellent editorial matter, beside news, miscellany, etc. We wish this new contemporary every success.

Biographical Records.

DR. WILLIAM LOUIS RODMAN, PRESIDENT-ELECT OF THE AMERICAN MEDICAL ASSOCIATION.

Dr. William Louis Rodman is a son of General John Rodman, a distinguished lawyer, attorney general for many years of the State of Kentucky, and was born at its capital, Frankfort, September 7, 1858. He graduated from the Kentucky Military Institute with the degree of Master of Arts; the same institution later conferred upon him the degree of LL. D. Subsequently he studied medicine with his uncle, Dr. James Rodman, and his cousin, Dr. W. B. Rodman, both men of unusual attainments, as preceptors, and graduated from Jefferson Medical College in 1879. Doctor Rodman served as intern in Jefferson Hospital during 1879-80; in the latter year he entered the medical corps of the United States army stationed in the Department of Missouri at Fort Sill, Indian Territory, where he served for nearly two years. In 1882 he married Bettie C. Stewart, daughter of Dr. J. Q. A. Stewart, a distinguished alienist of Kentucky and ex-president of the State medical society. The day he was married he went to Abilene, Texas, where he engaged in private practice for two years; then, determining to limit his work to surgery, he removed to Louisville. He was at once appointed demonstrator of surgery in the medical department of the University of Louisville, and clinical assistant to Dr. David W. Yandell, a most brilliant teacher and surgeon of the South. In 1893 he left the university to assume the professorship of surgery in the Kentucky School of Medicine, which position he held until his removal to Philadelphia in September, 1898, to accept the chair of surgery in Medico-Chirurgical College.

In 1897 Doctor Rodman was elected chairman of the surgical section of the American Medical Association, presiding at the meeting in Denver in 1898. In 1900 he delivered the Oration in Surgery, the subject of his address being Gastric Ulcer, for which he advocated the then seemingly radical procedure of pylorotomy or excision of the ulcer bearing area. At the Atlantic City meeting of the association in 1900 he was elected a trustee, which

position he filled for three years, declining reelection. For seven years he was chairman of the Committee on Reciprocity, but at the meeting in Boston, advised that this committee be discontinued and its work turned over to the Council on Medical Education, which was done. For about ten years he was a member of the Committee on National Legislation and, having been a member of the medical corps of the army, he appeared, in 1905, at the request of the chairman of the committee, C. A. L. Reed, Surgeon General O'Reilly, and Secretary of War Taft, before the House Military Committee to urge the importance of the Army Reorganization Bill. At the Saratoga meeting, in 1902, he was elected president of the Association of American Medical Colleges, presiding the following year at



Wm. L. Rodman

New Orleans. In his address he strongly urged that the association require a four year high school diploma as a prerequisite to the study of medicine. The suggestion was adopted, to take effect in 1905. In 1908, his monograph on Diseases of the Mammary Gland appeared; a second edition will soon be issued by Messrs P. Blakiston Sons & Co. He contributed a chapter to the International Textbook of Surgery; Keen's *System of Surgery*; and Bryant and Bush's *Practice of Surgery*, the latter having been written in collaboration with his son, J. S. Rodman.

In 1910 Doctor Rodman was elected president of the Philadelphia Medical Club. On May 4, 1911, he secured President William H. Taft as the guest of the club, the first time that a President of the United States had been exclusively the guest of a

medical association. President Taft on this occasion made a notable address. His experience as Governor of Cuba, Governor General of the Philippines, Secretary of War, and President had brought him into intimate relations with Gorgas, Reed, Keen, Bashford, and other able and efficient executives and sanitarians.

Doctor Rodman is a member of the College of Physicians, Philadelphia, the Academy of Surgery, Philadelphia, the American College of Surgeons, the American Surgical Association, and the International Surgical Association. In 1904 he read a paper on cancer of the breast before the British Medical Association. He has contributed during the past thirty years many articles to medical periodicals of this country.

News Items.

"Ptomaine" Poisoning.—It is extremely difficult for the department of health to learn how prevalent bacterial food poisoning (ptomaine poisoning) is in this city. Practically the only opportunity it has for studying this condition arises when a considerable number of cases, either in a family or in a group of individuals, attract the attention of the newspapers. The department of health will welcome reports of suspected cases of bacterial food poisoning from private physicians, and will, if requested, gladly have special investigations made.

Changes in the Medical Faculty of Columbia University.—Dr. Warfield T. Longcope has been appointed Bard professor of the practice of medicine in the medical department of Columbia University, succeeding Dr. Theodore C. Janeway, who has accepted the chair of medicine at Johns Hopkins University. Doctor Longcope has also been appointed a medical director of the Presbyterian Hospital. Dr. Samuel W. Lambert, dean of the medical department of Columbia University, formerly professor of therapeutics, has been made professor of clinical medicine, the department of therapeutics having been merged with that of clinical medicine. Dr. Charles C. Lieb has been appointed assistant professor of a new department of pharmacology, and Dr. William Darrach has been appointed assistant professor of surgery.

Medical Missionaries Meet.—The fifth annual conference on Western medicine in Eastern lands was held in Atlantic City, N. J., on Sunday afternoon, June 21st, under the auspices of the American Academy of Medicine. The meeting was addressed by physicians who have returned home from mission fields in the Orient. They gave a vivid portrayal of their work there, and of the progress that has been made along medical as well as religious lines, and made plain the need for a greater number of medical missionaries. Among those who delivered addresses were Dr. Edith Brown, principal of the Women's Christian Medical College and Memorial Hospital at Ludhiana; Dr. W. H. Jeffreys, surgeon at St. Luke's Hospital, Shanghai; Dr. L. C. Bulkley, of the Presbyterian Hospital, Tap Tieng, Siam, and Pac-tong Lau, a former medical student in the Canton Christian College.

Changes at the Polyclinic Hospital.—At the last meeting of the board of managers the following changes were made in the department of ophthalmology: Dr. Thomas P. Holloway was elected professor of ophthalmology, to succeed Dr. James B. Thorington, resigned; Dr. Charles R. Head was elected associate professor of ophthalmology, and Dr. George S. Crampton was made lecturer on refraction. With the installation of its new superintendent, Dr. James Hugh Morris, on July 1st, a different plan of management was introduced with a newly established board of managers. The board of trustees and the faculty remain the same, with their functions unaltered, but the board of managers will be active in the direction of the hospital hereafter. Dr. John A. Wyeth, president of the faculty and surgeon in chief of the hospital, heads the board. The other members are Dr. D. Bryson Delavan, Dr. W. H. Katzenbach, Dr. A. R. Robinson, Dr. John A. Bodine, Dr. William Van Valzah Hayes, and Dr. Charles H. Chetwood.

American Medical Editors Association.—This association held its annual meeting at the Marlborough-Blenheim Hotel, Atlantic City, June 22d. A number of useful and informing papers were read, only three of them by title. Dr. E. A. Van der Veer, of Albany, N. Y., presided. Dr. H. Edwin Lewis, of New York, was elected president for the ensuing year, and Dr. Joseph MacDonald, Jr., was reelected secretary and treasurer. The banquet was held on the evening of Tuesday, June 23d, when addresses were made by Dr. Walter M. Brickner, Mr. Frederick L. Hoffman, Dr. George F. Butler, whose amusing comments on *The Ladies* will appear in an early issue of the *JOURNAL*, Dr. E. A. Van der Veer, Dr. J. A. Warbasse, Dr. H. O. Marcy, Dr. Victor C. Vaughan, Dr. H. Edwin Lewis, Dr. Harold Hays, Judge Robert H. Ingersoll, and Mr. W. Boulton Conyngham, of Dublin, who made an unexpected and a ringing speech in favor of proper international understanding between the doctors of the old world and the new. Both meeting and banquet were unusually successful and reflected the highest credit on the organizers.

Fourth of July Wounds.—In accordance with the usual custom, medical inspectors of the department of health, will, on request, administer free of charge, tetanus antitoxin for the prevention of tetanus (lockjaw) resulting from pistol and firecracker wounds and injuries so common during Fourth of July week. Physicians who prefer to administer the serum themselves, can obtain it from the various borough offices. Prior to the introduction of tetanus antitoxin, the number of deaths from lockjaw each year as a result of Fourth of July celebrations, was distressingly large; since that time there have been practically no deaths from this cause.

American Association of Anesthetists.—At the second annual meeting of this organization, held in Atlantic City on Monday, June 22d, Dr. Charles K. Tete, of Cleveland, was elected president, succeeding Dr. James T. Gwathmey, of New York. Other officers were elected as follows: First vice-president, Dr. Willis D. Gatch, of Indianapolis; second vice-president, Dr. T. D. Buchanan, of New York; third vice-president, Dr. Mary Madigan, of Portland, Ore.; secretary and treasurer, Dr. James T. Gwathmey, of New York; executive committee, Dr. F. W. Pineo, of Newark, N. J., and Dr. W. C. Woolsey, of New York.

National Association for the Study and Education of Exceptional Children.—This association will meet at St. Paul, July 7th to 10th, with the Department of Special Education of the National Education Association. There will be three joint sessions with the Department of Special Education and one joint session with that department and the Departments of Elementary and Kindergarten Education. A strong program of prominent speakers has been prepared, covering the most important phases of saving the potentially normal, but "different" or "difficult" child. Clinical methods of testing such children and exhibits of their work will be presented. Copies of the complete programme may be had upon application to Dr. Maximilian P. E. Groszmann, who is president of the Department of Special Education, or to D. W. Springer, secretary N. E. H., Ann Arbor, Mich.

Enlarged Scope of the Rockefeller Institute.—In order that further opportunities may be afforded for more complete investigation, Mr. John D. Rockefeller has just donated \$2,550,000 to the Rockefeller Institute for Medical Research. Of this sum a part will be used to purchase additional land in New York so that the institute will have acquired the entire tract where its buildings are now, between Sixty-fourth and Sixty-seventh Streets on Avenue A, extending through to the East River—about four acres. The remainder will be used to erect and equip additional laboratories, buildings, and plant, and to insure the proper maintenance and conduct of the extended work. This gift of \$2,550,000 is in addition to a special fund of \$1,000,000 provided in order to establish a department of animal pathology. Dr. Theobald Smith, now professor of comparative pathology in Harvard Medical School, is to become director of the new department. It will be the purpose of this branch to give special attention to the study of hog cholera, foot and mouth disease, and diseases of poultry, which are of such immediate and practical concern to farmers. Mr. Rockefeller's previous gifts amounted to practically \$9,000,000, exclusive of real estate in New York, so that the endowment will now approximate \$12,500,000. The Rockefeller Institute will now become the most amply endowed institution for medical research in the world. In addition to the laboratories, there is a hospital with every facility for the treatment of contagious diseases.

The aims of the institute and the lines along which its future work will be conducted, are indicated by some of its practical achievements, such as the serum treatment of epidemic meningitis; the discovery of the cause and mode of infection of infantile paralysis, the surgery of blood-vessels through which blood transfusion has become a daily life saving expedient; the method of administering anesthetics by intratracheal insufflation; the skin or luetin reaction for syphilis; and the cultivation of the parasite of rabies. The scope of the work includes pathology, bacteriology, protozoology, biological chemistry, physiology and pharmacology, experimental biology, and animal pathology, beside the special hospital. A number of leading scientists devote their entire time to medical research at the institute. All discoveries and inventions made by any person while receiving compensation from the Rockefeller Institute become the property of the institute.

Pith of Progressive Literature.

CORRESPONDENZBLATT FÜR SCHWEIZER AERZTE.

May 23, 1914.

Treatment of Epilepsy with Bromides.—A. Ulrich propounds the following rules: 1. Permanent freedom from epileptic attacks can be secured only through a year's uninterrupted and consistent treatment with bromides. 2. Intermittent treatment always produces mishaps. 3. Sudden and long continued stoppage of the bromide must be considered a dangerous error, as it may make the patient worse and even provoke a fatal result. 4. Even after the attacks have ceased the treatment with bromides should be maintained for a year uninterruptedly, in bad cases longer. 5. Individually determined and methodically carried out, the treatment with bromide and with food poor in salt accomplishes more than any other. 6. Bromide of potassium alone is useful for the purpose; organic preparations of bromine are little, if at all, antiepileptic. 7. A regular, quiet life, with total abstinence from alcohol, is absolutely necessary for every epileptic. The dose should be slowly increased for each epileptic until it works antiparoxysmally without producing constant bromism. After this dose has been accurately determined, it should be given constantly for a year. It is a mistake to increase and lessen the doses. In most cases it is necessary to remove the salt from the diet in order to enable the bromide permanently to stop the attacks. Such a regime does no harm unless salt is too extensively removed. Extreme deprivation of salt is contraindicated, because of the danger of bromine cachexia. Average doses of salt from five to ten grams a day, and average doses of bromide of four to six grams a day, are about right. Bromism can always be obviated by regulating the amount of salt, sometimes with a measurable reduction of the bromide, but a withdrawal of the latter for more than one or two days is unnecessary and dangerous.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

May 21, 1914.

Syphilitic Myocarditis.—Fritz Rosenfeld reports a case in which the onset of symptoms was sudden with syncope. Death followed with symptoms of acute cardiac failure in less than twenty-four hours. He analyzes the cases in the literature: in the vast majority the onset of symptoms is so abrupt that one has no time to make an etiological diagnosis. When the condition is not so rapid in onset nor so promptly fatal, the symptoms do not differ from those due to myocarditis of other origin. But in some cases the associated presence of arteriosclerosis, or other syphilitic manifestation, or the history of past infection, coupled with the presence of a positive Wassermann reaction, should lead one to suspect the nature of the condition and institute treatment.

Pulmonary Embolism.—Ulrichs found a total of eighteen cases in a series of 11,647 patients. In one quarter, death was nearly instantaneous. Most often death resulted in from ten to twenty minutes after the first symptom, while in a few it was de-

layed as much as ten to twenty hours. In one third of the cases, the condition arose in enfeebled old persons who were not suited to operation. In only five of the eighteen were the conditions such that operation would have been possible; in two patients Trendelenburg's operation was carried out, but both died. Nevertheless, Ulrichs believes that we may hope for an occasional success from operation when the conditions are all favorable.

Ambulant Treatment of Painful Leg Affections.—A. Schanz cites the fact that most of the ordinary methods of so called ambulant treatment fail because the weight falls on the foot and leads to production of pain or other unfavorable result. The method he advocates consists in the application of a thin, rigid fixing splint to the extremity, over which there is then fitted a laced brace to bear the weight so that it falls upon a bar below the foot and is transmitted directly to the pelvis above the hip joint. He makes the inner splint out of a mixture of ordinary glue and Unna's zinc plaster in equal proportions. This is applied while warm, and is strengthened, if necessary, by the insertion of small strips of wood. The thickness of this fixing bandage is only a few millimetres and it is very strong and light.

Fever and Rectal Hyperthermia.—Martin Engländer discusses the relation of the axillary temperature to the rectal and comes to the conclusion that the former is no index of the actual temperature within the body, whereas the rectal temperature can be shown to give a good index of this internal temperature by the simultaneous determination of the temperature of the urine as it passes.

Anaphylaxis and Urticaria.—Hans Mühsam and Julius Jacobsohn found that, in two cases of urticaria resulting in the one from the ingestion of crabs, and of crayfish in the other, the serum when tested by Abderhalden's method gave a very strong reaction showing digestion of the protein. Controls showed no digestion. The interesting feature of these cases lay in the fact that, in the intervals between attacks, the digestive power of the serum toward the specific protein disappeared. It is obvious that in these two cases there was a primary permeability of the intestinal mucosa for the proteins in question.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT

June 2, 1914.

New Reaction with Cerebrospinal Fluid.—P. Boveri describes the following reaction: One c. c. of the cerebrospinal fluid is poured into a reagent glass of a small calibre and one c. c. of a one in 10,000 solution of potassium permanganate is added, and allowed to flow down the side of the tilted tube. In pathological cases there is a yellow color at the line of contact of the fluids. If the tube is shaken, the entire mixture becomes light yellow, if the cerebrospinal fluid is pathological, but remains violet, if normal. If the yellow color appears within two minutes, the reaction is strong; if within three to four minutes, moderate; if within five to six minutes, weak. If the yellow color appears after six minutes, the reaction is considered negative. A positive reaction always indicates a

changed condition of the cerebrospinal fluid. When the albumin content of the fluid is increased, a positive reaction occurs. The reaction bears no relation to the increase of the leucocytes in the fluid. The strongest reactions occurred in cases of inflammation of the spinal cord. The pathogenesis of the reaction is unknown.

Treatment of Photophobia in Eczematous Conjunctivitis.—H. Peterka uses a five per cent. watery solution of optochine hydrochloride. This will stand sterilization by boiling, but deteriorates quickly, so that only a small quantity should be made up at a time. He uses it at intervals of two days and has noticed no adverse symptoms. The pain at the time of instillation is no more than when cocaine is used. Treatment to combat the eczema, and constitutional treatment, should be carried out at the same time.

Dystrophia adiposis genitalis.—J. Weicksel reports the case of a boy aged fifteen years, weighing one hundred and thirty-two pounds, with marked deposits of fat in the chest and abdomen. The thyroid gland was palpable; axillary hair absent, pubic hair scanty. No changes were visible in the sella turcica, excepting that it was relatively large compared with the small skull. The blood count showed 8.25 per cent. eosinophiles. In diseases of the polyglandular system, of which the hypophysis forms a part, the blood picture is usually that of a relative lymphocytosis with an eosinophilia. Experiments on animals have been made in which the products of the different glands have been used. The glands have been divided into two groups, adrenaline being the prototype of one, infundibular pituitary extract of the other. The former gave a leucocytosis without an eosinophilia, the latter a leucocytosis with eosinophilia. Whether the eosinophilia, in cases similar to the one reported, is directly due to the primary functional disturbance of the hypophysis cannot as yet be determined.

Salvarsan and Neosalvarsan in Ambulatory Cases.—K. Rühl employed salvarsan intramuscularly and intravenously and neosalvarsan intravenously in a great number of ambulatory cases, and reports that their administration in these cases is not attended with great danger. In fresh cases of syphilis, he always used mercury in addition to the arsenic compound, giving three infusions at intervals of three to five days, and following these with injections of mercury in the form of calomel for ten to twelve days. He repeats this treatment three separate times, with an interval of five to seven weeks between. Infusions should not be given during the menstrual or premenstrual period. The peculiar taste noticed by some patients during the course of the infusion, is frequently accompanied by slowing of the pulse, and regarded by Milian as the premonitory of subsequent violent reaction with anorexia, vomiting, diarrhea, etc., which he observed in seventy per cent. of his cases, but in only one fourth of these did a reaction occur. In some cases a reaction occurred without premonitory symptoms. The slowing of the pulse is probably caused by an increase of the circulating fluid. Swelling of the testicles, observed by Milian, the author has never seen.

Mixed Amylaceous Diet in Diabetes.—W. Falta, in combating ketonuria in diabetes, gives carbohydrate in the form of a mixed amylaceous diet instead of oatmeal, as in von Noorden's cure, the potato cure, etc. Carbohydrates are given in the form of soups, potato, rice, spaghetti, noodles, and occasionally rolls. The principle is that the carbohydrate content of the food is given in the form of starch only, and that animal albumin such as eggs, milk, etc., is omitted. The practical importance of this cure is that it can be carried out for a length of time on account of the variety of the diet, and the only difficulty is the elimination of the albumin. Theoretically the presence of albumin in the diet limits the formation of glycogen in the liver and more sugar has to pass through the liver than normally. Under ordinary circumstances, the system is able to take care of this increased amount of sugar, but in pancreatic insufficiency this is not the case.

Toxic Symptoms after Embarin.—George Merzbach, in using this preparation, a three per cent. solution of the sodium salt of mercury salicylsulphonic acid with one half per cent. acoine, in the treatment of syphilis, observed untoward symptoms in a few cases—feeling of fatigue, urticarial eruption with itching and burning, moderate fever, erythema of the face and body resembling a severe infection, and pains in the joints, especially the knee joint. The milder symptoms responded to treatment; the more severe, however, did not disappear until the drug was discontinued. Whether it is due to a personal idiosyncrasy or change in composition of the drug, he has been unable to decide. When these untoward symptoms occur, he usually stops treatment for a short period until they disappear, and then uses mercury in another form.

June 9, 1914.

Etiology of Gastric Ulcer.—B. Stuber has advanced the theory that gastric ulcer is due to a pyloric insufficiency of a neurogenic character, based on the following animal experimentation. In a series of dogs an artificial insufficiency of the pylorus was created by removing a portion of the pyloric musculature and these animals were fed on milk, bread, and potatoes on account of the normal high acidity of the dog stomach. At the end of three months these animals showed hemorrhages in the pyloric antrum and typical gastric ulcers in all stages from the small hemorrhagic erosion to the chronic ulcer. No lesions of any other organ could be demonstrated. In a series of control experiments, in which the pancreas was tied off, these findings were not obtained. The latter experiment, taken in connection with the fact that animals which were fed trypsin showed typical gastric ulcers, would seem to prove that the ulceration is due to the action of the ferment trypsin which passes into the stomach when a pyloric insufficiency exists.

Therapy of Pernicious Anemia.—H. Floercken reports several cases of pernicious anemia and contrasts the different methods of treatment. Direct transfusion of blood, which gives excellent results in secondary anemia and hemophilia, improved cases of pernicious anemia for only a short time. Thorium X applications have given very good results, the remissions lasting much longer. The diffi-

culty, however, has been to obtain the proper doses. Smaller doses, thirty to thirty-five units, given daily per os, have given the best results. Still more recently splenectomy has been done. In diseases associated with hemolysis, hemolytic jaundice, some cases of hypertrophic cirrhosis of the liver, and pernicious anemia, the urobilin content of the stool is increased. In hemorrhagic jaundice, when splenectomy was performed, the urobilin content of the stool sank to normal and this procedure had a favorable influence on the hemolysis. This led to its performance in pernicious anemia. The results of splenectomy in the treatment of this condition, while not effecting a cure or bringing the blood picture to normal, have been the most satisfactory obtained, considering all forms of treatment.

Treatment and Prophylaxis of Circumtonsillar Abscess.—Levinger describes a method of operation in this painful and at times grave condition. Most cases of circumtonsillar abscess are in the upper part of the tonsillar space anteriorly and are treated by incision through the anterior palatine arch, or at the point where the fluctuation is greatest or where pus is present. At times these incisions prove insufficient as they open the abscess only slightly, and may later close, causing retention. If the cases are seen early, before the rigidity of the jaw is marked, the author opens the abscess by dissecting the upper pole of the tonsil and extirpating it, together with its capsule. The operation is performed under one per cent. novocaine and one per cent. adrenaline local anesthesia, and has the advantage of obtaining thorough drainage, there being no danger of retention. A total extirpation of the tonsil has been recommended by Winkler, but as this operation can be performed only with the mouth wide open, a general anesthetic is required and the danger of aspiration must be taken into consideration.

WIENER KLINISCHE WOCHENSCHRIFT.

May 21, 1914.

Friedmann's Remedy for Tuberculosis.—Friedrich von Friedlaender reports eight cases treated by Doctor Baum, Doctor Friedmann's assistant. As regards the effect of the treatment, no improvement was observed in any case.

May 28, 1914.

Excitation of Transitory Albuminurias.—A. Schiff quotes a number of cases that showed a transient albuminuria after lavage of the stomach, although nothing of the sort was present before.

ZENTRALBLATT FÜR CHIRURGIE.

May 2, 1914.

Treatment of Persistent Parotid Fistulas.—R. Leriche reports a case in which fistula had been caused by a stab wound. He exposed the auriculo-temporal nerve, dissected it up as far back as the condyloid process, twisting and pulling its central end, until he removed a piece about four cm. long. The dressing was dry that same evening, but was moistened somewhat during meals for the next four days. A definite healing was secured. Thus far he has operated in three cases.

Operative Treatment of Spastic Flatfoot.—Aladar Fischer and Alexander Baron take a strip of

tendon six to eight cm. long from the peroneus longus, and a shorter piece from the peroneus brevis. The naviculare is then laid bare and bored through. The end of the piece of tendon from the peroneus longus is split, one part is passed through the hole in the bone and sutured with the other to the planta. Some strengthening sutures also are inserted. Then the median surface of the tibia just above the internal malleolus is laid bare, and a little transverse hole made in it, through which a silk thread is passed, while the end of the tendon is brought up to this point and secured with the silk thread.

PARIS MÉDICAL.

May 30, 1914.

Ocular and Auditory Impairment after Salvarsan.—F. Terrien and P. Prélat report four cases of syphilis in which, during the secondary stage and shortly after injections of salvarsan, there appeared synchronously or at a few days' interval loss of hearing and ocular complications. In at least two of these cases, both the ear and eye phenomena could be definitely ascribed to the syphilitic process itself rather than to a toxic effect of the arsenical preparation. Since it is now generally accepted that ocular complications appearing during salvarsan treatment are syphilitic, the fact that the ear complications occurred simultaneously in the two cases referred to tends to show that these complications were likewise syphilitic and not due to salvarsan. In each case, moreover, signs of meningeal involvement, with a characteristically syphilitic iritis, and in one case a positive Wassermann, indicated the specific nature of the eye and ear complications. In the other two of the authors' cases, however, the complications were apparently directly to be ascribed to the salvarsan itself.

PRESSE MÉDICALE.

May 27, 1914.

Treatment of Hypophsyxic Psychoneuroses.—G. Maupetit writes of the treatment of cases of psychoneurosis associated with what Martinet has termed the hypophsyxic syndrome—low systolic and pulse pressures, with venous stasis and hypertension, excessive viscosity and toxicity of the blood, and resulting poor nutrition of peripheral organs, the whole forming a vicious circle. This tends eventually to react on the patient's mental state, a neurasthenic psychosis resulting. To break into the vicious circle, Maupetit recommends, as initial measures, subcutaneous injections of oxygen, glandular therapy, and administration of heart tonics. Later, when the general condition has improved, he places great faith in systematic morning exercises, supplemented by hydrotherapy. To raise the tone of the nervous system, he injects two c. c. of normal saline solution daily under the abdominal skin. Diet he also considers important. The patient is allowed considerable latitude as to the articles taken, but the quantity of food is limited. Sauces, fatty soups, and eggs are prohibited, and the evening meal is dispensed with or nearly so. Sodium sulphate, one teaspoonful in a half glassful of water, is taken each morning for a time. The patient's sleeping period is not allowed to exceed

eight hours. Gratifying results were obtained with these measures.

Role of the Nervous System in Occupational Skin Affections.—P. Jourdanet refers to the frequency with which, in persons whose skin is exposed to the action of irritating fluids, actual skin disease does not appear until just after some mentally depressing influence or shock. Sensory irritation of visceral origin, e. g., that resulting from gastric disturbance, may also be the exciting factor. In those exposed to exogenous skin irritation, avoidance of every form of nervous excitation is actually a prophylactic measure.

May 31, 1914.

Prognosis in Chronic Nephritis.—F. Widal, A. Weill, and P. Vallery-Radot hold that in a certain proportion of cases a fairly accurate idea of the duration of the disease can be had by means of urea estimations. When urea ranges between one and two grams a litre, the period before death rarely exceeds a year; when the ratio is between two and three grams, death is generally a question of months; more than three grams are observed only in the ultimate stage. When the urea is between 0.5 and one gram, repeated examinations are necessary for prognostic purposes, as the amount in some cases remains practically constant.

June 3, 1914.

Colloidal Sulphur.—A. Martinet writes enthusiastically of the therapeutic utility of colloidal sulphur. Sulphur preparations in general vary in efficacy according to their degree of purity, homogeneous constitution, and size of the individual sulphur particles. Sublimated sulphur is made up of particles visible to the naked eye, and precipitated sulphur of particles about 0.2 micron in diameter. True colloidal sulphur, according to quality, consists of particles just visible with the ultramicroscope, six to fifty millimicrons in diameter, or particles exceeding even the powers of this instrument, i. e., less than six millimicrons in size. Colloidal sulphur, according to recent experience, appears to correspond exactly in its indications to spa treatment with sulphur bearing waters. Bouveyron, from clinical observation, states that colloidal sulphur in many respects replaces perfectly in the home the sulphur spring treatment of syphilis. Colloidal sulphur is of value in chronic rheumatic conditions and in the treatment of seborrheic and parasitic skin affections.

SEMAINE MÉDICALE.

May 27, 1914.

Special Type of Mass in the Centre of the Abdomen.—F. Lejars describes a variety of mass, centrally situated beneath the anterior abdominal wall, flat, even, and firm, extending more or less deeply in the abdominal cavity, but usually adherent to the anterior parietes. The borders of the mass are hard and thick, but cannot be grasped and lifted up from subjacent tissues. Such masses the author has found to be of cancerous nature. The tumor may involve the omentum alone, though usually primarily intestinal. Occasionally, tuberculous

disease of the intestine and mesentery, with extension to the omentum, gives rise to the same clinical appearance. Finally, at times the process is an acute inflammation, though here fever, pain, and local softening are likely to develop. From all these masses, it is important that cases of tuberculous peritonitis should be clearly differentiated.

BRITISH MEDICAL JOURNAL

June 18, 1914.

Method of Anesthetizing the Larynx.—Courtenay Yorke cites the fact that injections of alcohol into the region of the internal laryngeal nerves have been in use for some years in the treatment of tuberculous laryngitis. Frey suggested the procedure as a means in 1906. The methods in vogue for the injection into this region are not satisfactory and Yorke has perfected a new one based upon close anatomical study of the parts. "... the needle is entered so as to strike the great cornu of the hyoid (a landmark easily felt) one inch behind the lesser cornu. The point is now slightly depressed, so that it hitches against the lower border of the great cornu. The needle is now in relation to the uncovered area of the thyrohyoid membrane and in a position from which to commence the downward and forward movement along the nerve. The anterior limit of the pharynx is variable, and dependent on the size of the thyroid cartilage. As a rule, in the male, the sinus pyriformis, at the upper border of the thyroid, is one inch to one inch and a quarter, and in the female three quarters of an inch to one inch, from the middle line of the neck. To be quite sure that the needle is engaging the tissues of the larynx, and not entering the pharynx, it is necessary to keep just within these measurements. There is very little likelihood of the needle entering the pharynx in the earlier part of its course, as it is proceeding in a plane parallel with the thyrohyoid membrane. It only begins to pierce the tissues deeply when it sinks beneath the upper border of the thyroid, and hence the importance, in this latter position, of keeping in front of the sinus pyriformis." Twenty to thirty minims of a five per cent. solution of novocaine are injected into each side. Anesthesia is usually complete by this method.

LANCET.

June 13, 1914.

A Plea for the Degenerate.—T. Claye Shaw takes a firm stand against the prevailing suggestions of the eugenists and sustains his position with much able logic. In essence, his arguments show the value of the mentally weaker members of the community as constituting the necessary laboring class and the class to do the manual work planned and guided by the intellectually superior members of the community. He also shows that quite frequently persons of more than average intellectual capacity spring from forbears not up to par. The Utopia of physical and intellectual perfection for all which the eugenists would desire is not only not attainable, but if it were, it would place us in a position far worse than the one we now occupy.

Aerial Conveyance of Infection.—Frederick H. Thomson and Clifford Price have conducted a

ward of twelve beds and have treated 332 individual infectious diseases with special attention to nursing and strict care to avoid the possibility of direct transmission of the diseases through the medium of the nurses or the staff. A few of the small number of ward infections were traceable to slight lapses in the ward technic, the rest could be ascribed only to aerial transmission. The authors conclude with the following remarks: "From our experience in this and other wards we believe that the infection of measles is probably air borne early in the disease, but that the power of infection soon passes. We are inclined to think that the infection of chicken pox is air borne early in the disease, but our experience goes to suggest that on and after the third day it is probably not air borne. In our view, this probability is the most interesting outcome of the work. For many years we have held that diphtheria infection is not air borne. No cross infections arose from German measles or from mumps, but the small number of cases treated scarcely warrant any definite conclusion. On the whole, however, from this and previous experience in other wards, we tend to the view that they are probably not air borne."

The Wassermann Reaction in Malaria.—William Fletcher has tried this reaction in fifty cases of active malaria, in all of which the parasites were present in the circulation at the time of the tests. The serum was inactivated for thirty minutes at 55° C. and tested by the improved method of Browning, Cruickshank, and McKenzie. The reaction was negative in all of the cases except five, and in all of these five which could be investigated there was clear proof of a former syphilis. These results are quite opposed to those reported by several authorities who have stated that the reaction is very often positive in malaria. Fletcher believes that the reason for the positive findings of the others is the use of less accurate methods than the one which he employed.

Effect of Gastric and Pancreatic Ferments on Tincture of Digitalis.—Alexander Goodall and H. S. Reid determined the strength of six samples of the tincture and then incubated ten c. c. of each of these with five grains of pepsin and one c.c. of 0.2 per cent. hydrochloric acid for six hours. Upon subsequent testing they found that four of the samples retained their full activity, while the other two lost less than thirty per cent. in activity. When treated in a similar way with five grains of pancreatin, two samples retained full activity, two lost less than thirty per cent., and the other two less than fifty per cent.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

June 20, 1914.

Hookworm Disease.—J. A. Ferrell says hookworm disease is common, insidiously harmful, and easily prevented. It is more or less prevalent in the entire zone lying within thirty degrees north and thirty degrees south of the equator, or in practically all tropical and semitropical countries; in which are more than half the people of the globe. Examination of more than 415,000 school children during the four years 1910-13, in 413 counties of the eleven Southern States, revealed that forty-three per cent.

of them were infected; while of more than 700,000 persons of all ages taken at random in the same territory, thirty-five per cent. were found suffering from the disease, and in a vast majority of instances were completely cured. It is commonly recognized by the following method: A small portion of the stool is spread out thinly in water on a glass slide, and placed under the microscope. The hookworm eggs are characteristic in appearance. Preventive measures against the disease are simple. The disease is usually treated with Epsom salt and powdered thymol given in capsules. The object of the Epsom salt is to free the intestine from mucus or other matter surrounding the hookworms and protecting them from the action of the thymol. Nothing should be eaten on the day the capsules are taken until the final dose of Epsom salt has acted well.

Induced Pneumothorax.—Edward Von Adelung treated forty-two cases, all but one unilateral and well advanced. The total number of punctures was over 600, and no gas embolism occurred; though pleuritic effusion supervened in six cases, in one case purulent. Twenty-two patients gained, and eleven lost weight. In four, no observation as to weight was recorded. In the thirty-seven cases in which a pneumothorax, even though small, was possible, twenty-eight patients were improved in varying degrees, one case was arrested (perhaps cured), and ten remained unimproved.

Germicidal Activity of Calomel.—J. F. Schamberg and J. A. Kolmer conclude: 1. The method proposed by them for testing the germicidal activity of substances insoluble in water is very simple and yields constant and reliable results; it offers a means of determining comparative values with calomel as a standard, the result being expressed as the "calomel coefficient." 2. Despite the insolubility and relative nontoxicity of calomel, its germicidal power, weight for weight, equals that of mercuric chloride.

MEDICAL RECORD.

June 20, 1914.

Uric Acid Overproduction.—W. H. Porter says: 1. Uric acid, in the human species, is a normal product of protein metabolism. 2. It is a normal oxidation reduction product formed and secreted by the renal cells only. 3. It is never found normally in the blood. 4. Primarily, it should be regarded as an essential secretory product of the renal cell. 5. It is only a normal and final end product when united to some alkali within physiological limits. 6. When produced beyond physiological limits, it indicates suboxidation. 7. The overproduced uric acid is a true index to a large variety of disturbances of metabolism. 8. The overproduced uric acid can be determined easily and accurately by Porter's test. (After boiling the upper strata of urine, add a few drops of four per cent. acetic acid. Let it stand for three or four hours; after which the overproduced uric acid will crystallize out just beneath the surface of the urine in the test tube.)

Treatment of Trifacial Neuralgia by Injection of Alcohol into the Gasserian Ganglion.—C. D.

Camp concludes that the injection of alcohol into the Gasserian ganglion by putting a needle through the foramen ovale is possible in many cases; the physiological effects are similar to those from removal of the ganglion; the pain of trifacial neuralgia is relieved, and there is good ground for believing that the relief is permanent.

Wright's Solution.—G. K. Dickinson states that at Christ Hospital, Jersey City, Wright's citrated isotonic solution (sodium citrate 0.5; sodium chloride 3.0; distilled water 100) has been used exclusively for the past two years, and that nothing in the treatment of wounds has ever pleased him so much. He believes that the sooner the profession relegates the chemical antiseptics to the background, and follows out the ideas promulgated by Wright, the more sensible and the more successful will treatment become.

The Medical Management of Exophthalmic Goitre.—Robert Abrahams says that the ideal treatment is found in complete isolation, rest, and freedom from all care and worry. Where such conditions are attainable, no medicinal agents may be needed. He has used the antithyroidin of Möbius with good results. He finds the tincture of strophanthus, five or ten minims three times a day, most useful for steadying the heart. Tremor and nervousness are well controlled by ammonium bromide, but this need not usually be given until strophanthus has reduced the rapid heart action. The lukewarm shower bath also allays these symptoms and works well as a hypnotic.

AMERICAN MEDICINE.

May, 1914.

The Establishment of Lactation.—Eric Pritchard believes that if one tithe of the ingenuity, which in recent years has been lavished on the artificial method, had been bestowed in studying improvements in the feeding of infants, comparatively few of the breast babies would even now, in these so called degenerate days, be relegated to the bottle. Lactation is dependent on various conditions. The nipple must be stimulated by the sucking of the infant. The nerve centres which control the functions of secretion and the vascular supply must be in a condition of adequate excitability; and the blood itself must contain a sufficiency of the raw material out of which the mammary secretion can be elaborated. The physiological activity of the mammary glands is dependent on a complicated nervous mechanism, in which mental and psychological factors are closely concerned, in addition to the direct centripetal influences. There is a close relationship between the specific secretory functions of a gland and the vascular supply. The influence of emotions on the vasomotor functions explains secretory variations of the mammary glands. There is reason to believe that internal secretions or hormones circulating in the blood can also actuate or reinforce the activities of vasomotor nerves. There are no grounds for supposing that foods or so called galactagogues can have any influence on the nervous mechanism of secretion.

Oral Sepsis and Vaccine Therapy in Dental Practice.—G. W. Ross states that the effects of

pyorrhœa alveolaris may be local, adjacent, distant, and systemic. The distant and local pathological changes are to be found in the gastrointestinal tract—causing the symptoms associated with so called indigestion and at times diarrhea; in such respiratory disorders as bronchitis, etc.; in certain forms of chronic arthritis; in certain cases of so called neuralgia or neuritis, sciatica, etc.; possibly in psoriasis, certain eczemas, and urticaria. Among the systemic effects are mental and physical inaptitude, secondary anemia, and, according to some authorities, even pernicious anemia. The author has treated a considerable number of cases of chronic arthritis in which the following principles have been relied upon: 1. Search is made for a focus of infection. This is most commonly found in the mouth; pyorrhœa alveolaris, chronic alveolar abscess, etc. Or the tonsils may be chronically inflamed; or there may be inflammation of the bladder or prostate, or of the uterus, etc. 2. The microorganisms found there are isolated, and autogenous vaccines are prepared, and used to help control the local infection. 3. The focus of infection is eradicated, if possible. 4. The endeavor is made to correct deformities by appropriate orthopedic measures.

Practical Side of Vaccine Therapy.—G. H. Sherman summarizes the present status of bacterial vaccines as follows: 1. Used early, they will generally cut short the common pyogenic infections of the skin, mucous membranes, joints, and muscles. 2. Administered in advanced cases, they will usually ameliorate or abbreviate the course of the disease. 3. Even when given as a last desperate expedient in acute processes, they will often reverse the prognosis.

SURGERY, GYNECOLOGY AND OBSTETRICS.

March, 1914.

Conservative Surgery of the Testicle.—Granville MacGowan says that there are two diseases of frequent occurrence which, except in very rare cases, do not call for castration, in which castration should never be done without an effort, or repeated efforts to save the testicle by conservative surgical and medical treatment. These diseases are tuberculosis and syphilis. Where one or both testicles are the seat of pathological change that has not followed a traumatism, where the testicle or a portion of it is indurated and painless, it should always be suspected that such a growth, whether rapid or slow, is syphilitic, and the organ ought not to be removed until all modern methods of treatment have been tried. Tuberculosis of the testicles commonly commences in the epididymis, and is frequently confined thereto. It is quite easy to remove the epididymis and preserve all of the testicle to which an undiseased vas may be coupled, or the epididymis and its diseased vas may be removed and the healthy testicular substance still retained, or the epididymis and the diseased portion of the vas and the portion of the testicle which is tuberculous may be resected and an attempt made to preserve the healthy or apparently healthy substance of the remaining portion of the testicle, if a sufficient blood-vessel supply can be retained for this purpose.

Proceedings of Societies.

AMERICAN MEDICAL ASSOCIATION.

HOUSE OF DELEGATES.

(Continued from page 1312.)

Afternoon Session, Thursday, June 25th.

Child Labor. In line with the general movement for the uplift of humanity among the members of the American Medical Association during the past few years, and which assumed definite form during the great medical congress since Tuesday, the House of Delegates went on record as strenuously opposed to the evils of child labor. Resolutions deploring the conditions under which many thousands of children labor were submitted at a previous meeting by Dr. Henry B. Favill, of Illinois, chairman of the Council on Public Health and Public Instruction, and were unanimously adopted at this session of the House of Delegates. These resolutions set forth that children under sixteen years of age are employed in great numbers throughout the United States under improper conditions, resulting in the impairment of their health, morals, and future well being; that nineteen States and the Congress of the United States, for the District of Columbia, have already enacted laws limiting the hours for these children to eight hours a day, and prohibiting them from working at night or at dangerous occupations.

States which had adopted such legislation were commended by the association, and other States were urged to adopt similar legislation, and to this end it was recommended that all State medical societies affiliated with the American Medical Association and the medical profession generally advocate the passage of such laws by their respective States. The Association unanimously approved the principles of the Palmer-Owen Labor Bill, now pending in Congress, which provides means for controlling this problem.

SECTION IN PRACTICE OF MEDICINE.

WEDNESDAY, JUNE 24TH.

Morning Session.

SYMPOSIUM ON NUTRITION.

Seldom has the subject of nutrition been presented by masters in their chosen field, in a manner more lucid, and as far as the topic permits, in a form as nontechnical, as was done by the readers of the papers in this symposium. Almost wholly bereft of scientific verbiage, and whenever possible, the application of the work to clinical usage was made so that it became both a pleasure and a privilege to be numbered among the audience.

Dr. V. S. VAUGHAN, of Chicago, Ill., in opening the discussion, congratulated the medical section in having papers of such importance presented to them in a manner so comparatively easy to assimilate.

The contribution of Dr. L. B. MENDEL, of New Haven, Conn., *The Specificity of the Nutrients*, dealt with the primary food elements. In referring to the earlier workers he quoted Foster, who said that both "gaps and guesses" were too evident, but the writer endeavored to show that many of the guesses had been eliminated and the gaps filled, and that research work was rapidly yielding more definite results.

Dr. OTTO FOLIN, of Boston, Mass., *The Intermediary Metabolism*, dwelt especially upon the relation of the aminoacids to the individual cell, the destructive hydrolysis of proteins being fairly well understood up to that stage. After absorption, their further synthetic change is

a matter about which we are still only able to speculate upon.

Dr. GRAHAM LUSK, of New York, *The Specific Dynamic Action of Food*, pointed out that starches and compound sugars, polysaccharides and disaccharides undergo decomposition in the intestine, being simplified in their conversion into monosaccharides, after which they are soluble in the fluids of the body. In the disintegration of proteins a number of aminoacids are formed, among them being glycol, alanin and glutanic acid. These aminoacids are then carried to the individual cells. Heat production results, depending on the kind and quantity of food supply. This is the specific dynamic action. Meat increases heat production and causes sweating. Intestinal activity and stimulation of secretory glands are not factors in heat production. Heat production is not a measure of the absorptive and excretory mechanism, but the interrelation of aminoacids and the cells. Alcohol and glucose both increase oxidation. The former had a smaller molecule with only two carbon atoms. The larger and more complex molecule seems therefore less able to give rise to the same degree of heat production.

Dr. EUGENE F. DuBOIS, of New York, *The Total Energy Requirement in Disease as Determined by Calorimetric Obstructions*, stated that the appetite is a fairly reliable guide as to the amount of food necessary in any given individual, but in disease this is lacking as a rule. He referred to the laboratory methods by means of the respiratory calorimeter as devised by Atwater. His work dealt with 142 observations and many normal controls made in the second medical division of Bellevue Hospital. He described briefly the method. A portion of the heat is lost by vaporization through skin and lungs and much more by radiation. The relation between energy and food supply is the basis of heat production and when food is not supplied, an individual draws upon his own tissues. In typhoid fever there is no specific dynamic action of the food and the calorimetric curve runs almost parallel with the fever curve.

Dr. S. J. MELTZER, of New York, also commented on the closer relations existing today between the scientific worker and the practising physician.

Doctor FOLIN referred to the advances in our knowledge of hydrolysis, the destructive process by which proteins reach the aminoacid stage. This is due to enzymes, but whether the more advanced, synthetic stage is also due to ferments is not known.

Doctor LUSK referred to basal metabolism and the conditions which result in the presence of disease.

Doctor DuBOIS, in responding to a question of Dr. George D. Head, of Minneapolis, said that he had made no studies upon the comparative heat production of the enteroptotic and normal individual, but said it would be a subject of great interest and worthy of investigation.

In closing Doctor MENDEL said he wished to be clearly understood in referring to gaps and guesses, that the work of today was perhaps hypothetical in some of its phases, but based on enough evidence to avoid a mere guess, and that the gaps were surely being filled.

WEDNESDAY, JUNE 24TH.

Afternoon Session.

The Treatment of Heart Involvement in Syphilis—

Dr. HARLOW BROOKS and Dr. J. CARROL, of New York, said: A close study of each case on its merits was necessary, and the more frequent use of specific treatment of cardiovascular cases. It is certainly more promising to attempt to deal with a case from the etiological standpoint, rather than from a symptom group. He mentioned the value of both mercury and iodides together with salvarsan in preference to neosalvarsan.

The Four Common Types of Heart Disease.—

Dr. RICHARD C. CABOT, of Boston, advised the more rational plan of grouping heart disease from an etiological viewpoint rather than upon a local or valvular or pathological basis, the idea being to get behind the symptom to the cause. His groups are: 1, Rheumatic; 2, syphilitic; 3, arteriosclerotic; 4, nephritic. These constitute about ninety-five per cent. of 600 cases studied, only seven per cent. being due either to goitre or some unknown factor. He then described in detail the subgroups and spoke of the advantages and disadvantages of such an arrangement.

THURSDAY, JUNE 25TH.

Morning Session.

End Results in Gastric and Duodenal Ulcer.—Dr. ELLIOTT P. JOSLIN, of Boston, submitted a satisfactory study of over 200 cases of gastric and duodenal ulcer which had been seen by him during the past sixteen years. Many of them, in fact the majority, he stated, he had only seen in consultation, but he had made a special effort to follow them up with the view to determine the end result. He contrasted the medical treatment with the surgical and concluded that the disease is more frequently surgical than medical.

Gastric Cancer in the Young: A Study of Sixteen Cases in Patients Under the Age of Thirty-one.—Dr. FRANK SMITHIES, of Chicago, showed a comprehensive grasp of the subject of gastric disorders, and said that he had made some thousands of gastric analyses. He referred in detail to the sixteen cases upon which his paper was based, and commented on the tendency of ulcers even in the young to undergo malignant degeneration. It was stated by some that ulcer should be looked upon as an infectious disease and that predisposition to cancer in one with an ulcer should always be borne in mind; that surgical intervention met a medical failure. It was also pointed out that hematemesis did not necessarily mean a well developed ulcer, in fact operation in such cases frequently failed to show any definitely involved area, and even after resection in such a case, an erosion might escape detection.

Afternoon Session.

Late Manifestations of Inherited Syphilis with Especial Reference to Arterial Disease.—Dr. HENRY F. STOLL, of Hartford, showed the frequency with which the children of luetic parents present positive Wassermann or luetic tests, or both. He spoke of the luetic factor as the probably predominant one in families spoken of as cardiovascular types. He referred also to disease of the heart valves resulting from lues. In these cases, every effort had been made to rule out tonsillar and rheumatic infections. He cited two instances in which luetics in the third generation was studied. Dr. ROBERT N. WILLSON, of Philadelphia, showed a heart removed from a woman of thirty with almost complete mitral stenosis, who was believed to be a congenitally luetic and in whom absolutely no history of rheumatism existed. He also showed an aneurysm which caused death by rupture in a congenitally luetic child, of five years. The specimen also showed aortic and mitral disease. Both he and Doctor Stoll expressed the view that probably many cardiac myopathies and cases of valvular disease would probably reveal lues if sought for, and that contrary to the view expressed by Doctor Cabot the day before, they felt that in a number of instances, they had been able to prove the existence of syphilitic valvulitis.

Various Types of Lues: A Clinical and Laboratory Study. The Abelin Reaction. Direct Subdural Injections.—Dr. W. E. ROBERTSON and Dr. J. V. KLAUDER, of Philadelphia, submitted serological facts to show the frequency of pathological findings in the spinal fluid in late primary and secondary cases. They mentioned the absence of definite clinical types of lues and the well known fact that such a multiplicity of diseased entities owe their origin to lues. They pointed out the pathologic nature of serum or spinal fluid, or both, in the majority of cases, and the value of the provocative test in latent cases. Without primary and even without secondary symptoms, or at most the only transient ones after years of latency, the disease may rather rapidly manifest serious destructive phenomena. Anatomical and experimental evidence was then submitted to show the difficulty of reaching the nerve structures in treatment. Reference was made to the Abelin reaction. Summing up their treatment, they stated that very late manifestation is evidence that a patient was improperly handled in the earlier stages, and that if properly handled earlier, governing the treatment by serological studies, probably no late cases would ever develop. Symptomatic recovery in tabes in early cases frequently follows treatment intravenously and by mouth; while recovery in the late cases by any method of treatment is only possible where secondary degenerative changes are not too pronounced.

Salvarsan in Pernicious Anemia.—Dr. JAMES S. BROTHERTHOOD, of Clifton Springs, N. Y., referred to re-

ported cases in the recent literature successfully treated with salvarsan, and without necessarily looking upon pernicious anemia in every instance as luetic in origin, he expressed the possibility of employing salvarsan in refractory cases. He referred, however, to the fact that recovery had followed in cases in which a Wassermann had been positive. He briefly cited his own technic of giving intravenous injections. Dr. W. E. ROBERTSON cited an apparently typical case of pernicious anemia with achylia gastrica refractory to Fowler's solution which gave a positive Wassermann in the serum and made a complete symptomatic recovery under a single intravenous injection, gaining thirty pounds in weight with a return of the blood picture to normal but with a positive Wassermann remaining in the serum and a negative spinal fluid. Dr. R. N. WILLSON, of Philadelphia, referred to posterior sclerosis of the cord as a symptom of some cases of pernicious anemia and referred to two cases occurring in an apparent syphilitic family previously reported by himself. Dr. TOM WILLIAMS, of Washington, D. C., cautioned against regarding pernicious anemia as in any way synonymous with tabes as far as the cord lesions are concerned. The two diseases, he said, are genetically, symptomatically and pathologically different.

SECTION IN SURGERY.

WEDNESDAY, JUNE 24TH.

Morning Session.

A Simple Method of Tapping a Distended Bladder and Making Permanent Drainage.—Dr. W. L. RODMAN, of Philadelphia, exhibited an ingenious contrivance to be used in cases of retention due to impermeable stricture, hypertrophied prostates, and tumors. He said that often immediate relief and subsequent drainage were needed until the cause is removed. Permanent catheterization is uncomfortable and leads to infection. This suprapubic method meets all requirements and obviates the three objections usually encountered, namely, 1, contraindication for general anesthesia; 2, sloughing of prevesical space; 3, small mortality. The urine flows freely into a rubber bag worn constantly without inconvenience.

Testing the Efficiency of the Collateral Circulation: Its Importance in Determining Surgical Intervention and Methods of Applying the Test.—Dr. R. MATAS, of New Orleans, said that most surgeons deem testing the collateral circulation of only theoretical importance and that they overlook the practical value of such tests. He thinks many plastic vascular operations could be dispensed with if such tests were properly made. Every surgeon should ascertain by tests the behavior of the collateral circulation whenever the parent trunk is to be operated upon. They should be made especially before operations on the neck and brain when the carotids are involved, and before operations on the extremities if gangrene is feared. Among the tests he mentioned were: 1. Bleeding of peripheral parts on puncturing or incising after main trunk is compressed; 2, preservation of peripheral pulse, warmth, and living color when main trunk is compressed; 3, blood flows from peripheral end when artery is divided and proximal end in compressed; 4, color test applicable to fingers, but difficult to apply to toes if deformed; 5, use of oscilloscope in testing in the laboratory the blood pressure; 6, progressive congestion cannot occur in peripheral vessels if main vessel is compressed; 7, calorimeter test of Stewart, of Chicago, which furnishes an estimate of the quantity of blood circulating in a part in a given time by the amount of heat given off; 8, Matas method—which is simple and reliable—of two types, (a) hyperemia or living color test, (b) preliminary occlusion of the main artery with an aluminum band—applicable to neck and trunk cases. If gangrene threatens the band is relaxed and the artery only partially occluded. These tests are of value in avoiding the disasters of possibly fatal operations; in defining dangerous operations; in shaping the course of the operation; in preparing the operator for possible contingencies; in aiding a prognosis.

Aneurysm of the Posterior Tibial Artery with Report of Two Cases.—Dr. ALEXIUS MCGLENNAN, of Baltimore, reported two cases of this rare condition and contrasts the Matas operation of endoaneurysmorrhaphy with that of excision of the tumor. He said in his experience that he found the former was easier and caused less disturbance. The results are better, there being less

edema. In both cases the ultimate or end results were the same. He therefore advised endoaneurysmorrhaphy.

Experimental Surgery of the Heart and Lungs.—Dr. AXEL WERELIUS, of Chicago, presented the results of experiments of operations upon the heart and lungs of twenty cats. He showed that no symptoms arise in excision of the pericardium, but advised that in a poorly acting heart the pericardium should not be sutured. In intrathoracic work hemostasis is of course important, and he uses the Bauer clamp in his operations upon the heart. He has laid open the entire ventricle and has explored the cavities. He has removed the auricles. In performing cardiectomy he incised the ventricles and forcibly dilated the auriculoventricular openings. Puncture wounds of the heart cause only slight disturbance. It is remarkable how much the heart can be damaged without serious results. Auricular appendectomy may be done, but the appendages are not amenable to suturing. He spoke of unilateral resection of the lung for tuberculous foci, and treats the bronchial stumps as in appendectomy. The trachea he resects, but the danger is great and the shock the worst of all intrathoracic operations. Almost all cases result in death from pleurisy and pneumothorax.

Afternoon Session.

Oration on Surgery: The Relation of the Surgeon to the Conquest of Cancer.—Dr. JOSEPH BLOODGOOD, of Baltimore, said the keynote of modern medicine is prevention; of modern surgery better training. We have control over two factors in the conquest, which are the duration of the disease and the treatment of the disease. Cancer attacks the most fit—and under the best environment. He advocated national and State control of education of the surgeon. The treatment depends upon better surgery and earlier recognition. Better an operation with now and then fatal results than always fatal results and no operations. Patients come late for surgical treatment. In the earlier stages, where the diagnosis must be made by a microscope, the probabilities of a cure are eighty to ninety per cent., and one hundred per cent. if the microscope cannot confirm the diagnosis of malignancy. The cautery can often be used when the knife is contraindicated because of too wide destruction and disfigurement. The most important thing for the layman to know is that the warning of what is to become cancer is no different from the warning of any other lesion that will not become cancer. The first thing to do is to submit to a careful examination, and that treatment before such examination has tremendous risks is a fact that must be emphasized.

Exploration of the Knee Joint and Its Teachings.—Dr. F. M. CORNER, of London, England, said the pathology of the knee joint should be revised. To explore the joint an incision is made in the median line over the knee. This gives the greatest opportunity for exploration. The muscle fibres are split and not divided. The patella is sawn across. By splitting the muscles there is no atrophy resulting. The knee joint being opened, knee is flexed, thus protruding the condyles, enabling a most complete exploration—even the back of the knee joint, a most important region. The incision is quickly closed in three layers; 1, synovial membrane by continuous sutures; 2, muscle sutured over the patella, which is not sutured; 3, skin suture. The knee joint is explored for unlocalized disabilities, recurrent synovitis, loose bodies in the joint, and cases of internal derangements within the joint. The exploration of the joint merely adds a few days to the convalescence occurring when the joint is opened. Prolonged disability postoperative does not occur. The pathology and treatment are concerned mostly with the crucial ligaments. The internal lateral ligaments are usually first injured, and giving way, the strain is taken up by the crucial ligament and the joint is filled with bloody fluid. The application of his methods lies in those cases that are apt to become useless members of a community, as, for example, in cases of slipping knee, where the femur slips over the tibia due to an elongation of the crucial ligaments. This can be corrected by reefing the ligament, by angulating it against the external condyle with the aid of a ligature passed through the condyle. When the anterior crucial ligament was completely ruptured, a new one was made by loops of wires drawing the joint together. The ligaments normally are both tense in flexion and extension and slack in semiflexion and semi-extension. The attachments of the ligaments to the tibia are often fractured; to the femur seldom fractured. Such

patients will complain of great disability, but on examination nothing will be found until the joint is explored.

Exophthalmos and Methods of Surgical Treatment.—Dr. C. H. MAYO, of Rochester, Minn., said that myocarditis through irritation of the sympathetics will cause a condition resembling exophthalmos. Thyrotoxic goitres, old goitres, are often called exophthalmic goitres, and the exophthalmos ascribed to them, whereas in reality it is the toxic condition that produces it. The symptoms are lagging of the lids; long staring without winking; widening of palpebral fissure; diplopia. The cause of the exophthalmos is the irritation of a small thin nonstriated microscopic muscle that, counteracting the action of the other ocular muscles, pulls the globe forward. This muscle is innervated by the sympathetics. Irritation of the sympathetics will cause the ball to protrude, the fissure to widen, and pupil to contract. In cases of glaucoma operation upon the sympathetic has relieved these symptoms. The nearer the sympathetics approach the character of a true ganglion the more successful will the operation be in the treatment of exophthalmos. If after thyroidectomy it remains, as is usually the case, a resection of the sympathetic if complete, will cure it. In doing a ligation of the thyroid arteries, the incision should be run a little further back and a sympathetomy done.

Mechanism for Injuries of Shoulder Region: Results of Forty Operations.—Dr. T. TURNER THOMAS, of Philadelphia, observed that the deformities in Colles's and Pott's fractures are the best evidence of the direction of the force. In the case of the shoulder, according to the amount of the force, the result is a sprain, dislocation, or fracture of the upper extremity of the humerus at the surgical neck. The fracture is due to hyperabduction. Fractures of the clavicle occur oftener in children and of the scapula more frequently in adults, and that the frequency of the two fractures is due to the relative weakness of those two parts at these two ages. It is probable that fractures of the clavicle in children result from injuries that later in life would cause fractures or dislocations at the shoulder joints.

Aperiosteal Amputation (Hirsch-Bunge).—Dr. HENRY H. M. LYLE, of New York, said there are four methods of treating the bone after amputations—osteoplastic, tendinoplastic, periosteal, and aperiosteal. In the osteoplastic method a bony outgrowth is prevented and gives good results with proper technic. The possibility of infection and necrosis of the transplant must be borne in mind. The aperiosteal method aims to produce a weight bearing stump at an early period. Hirsch divides the bone and periosteum at the same level, adding massage and passive motion at an early date. Doctor Lyle had almost perfect results in the method of Hirsch-Bunge. As soon as the wound is healed massage, and a two per cent. salicylic acid ointment should be applied every day. It is the only method likely to furnish a weight bearing stump, is most applicable, and is easily done. In the operation a centimetre of the periosteum and medulla is removed from the sawed end of the bone. It is necessary to start them early walking on the stumps, using an ordinary peg leg at the end of sixteen or eighteen days.

THURSDAY, JUNE 25TH.

Morning Session.

Anoci Association in Relation to Operations on Gallbladder and Stomach.—Dr. GEORGE W. CRILE, of Cleveland, reviewed the clinical course of resection of the stomach and the common duct. The cause of the high mortality of operations on the gallbladder is exhaustion and shock, the exhaustion of the vital organs of the body. In excision of the liver and adrenals within a few hours the blood becomes acid. In every case of exhaustion the same changes were found in the brain, liver, and the adrenals. Postoperative pain finally overcomes the margin of safety and the patient dies. Neutralization of the acids is one of the most important functions of the liver. Every response to stimuli produces an acid condition. The margin of safety is reduced in exhausted patients by this acidosis. An increased acidity always accompanies inhalation anesthesia. Ether, however, adds another strain. The liver finally becomes no longer able to neutralize the acidity. The only cure for the acidosis is prevention, which may be largely accomplished by increasing the store of energy and preventing the waste of it. Glucose and bicarbonate of soda and sleeping in the open air, will increase the store of energy. Morphine does not increase the acid-

ity of the blood, but if the latter is once produced by emotion, starvation, or whatever cause, large doses of morphine will then rob the body of its power to neutralize the acidosis. But if given before the acidosis occurs, the morphine will not have any effect. Psychic rest is obtained by twilight anesthesia. If the margin of safety is very narrow the operation should be done in two stages. Another great danger in gallbladder operations is interrupting the function of the liver by interfering with its nerve supply. Hence blocking the nerve in these cases is not advisable. The avoidance of injury to the splanchnic nerves was insisted upon.

The Problem of Intestinal Obstruction. Effort to Explain Variable Clinical and Experimental Results.—Dr. FRED T. MURPHY and Dr. BARNEY BROOKS, of St. Louis, endeavored to prove by a series of experiments on dogs that the cause of death in cases of intestinal obstruction was a toxin. This toxin is the result of bacteria or bacterial growth, and the symptoms can only be produced by the absorption of the toxin by a damaged mucosa and not by a normal mucosa. The toxin, they believe, is one of the group of ptomaines. Such a loop of bowel should be resected rather than drained. The damage to the mucosa is caused by the distention of the intestine.

The Rodman Operation for Cancer of the Breast.—Dr. DONALD GUTHRIE, of Sayre, Pa., said that the Rodman operation was one of the best because cancer cells were expressed away from the axilla instead of toward it. Less blood was lost. Exposure of denuded surface of the chest was diminished in length of time, thus lessening the shock. It gives better results in lessened disability of the arm. No attempts should be made to remove individual glands, but the contents of the axilla should be removed en masse. The skin is cut so as to be undermined everywhere for some distance. The deep fascia is dissected out of the epigastrium. Supraclavicular glands should be explored by a separate incision if the tumor is situated in the upper outer quadrant of the breast. He did not employ drainage unless in a fleshy person or unless there had been a large amount of trauma. Passive motion is begun early. He had his patients return and submit themselves for one year to x ray treatment.

FRIDAY, JUNE 26TH.

Morning Session.

Present Day Problems in Present Day Treatment of Gastric and Duodenal Ulcers.—Dr. HAROLD COLLINSON, of Leeds, England, in considering acute perforation of the ulcer, said, with the exception of appendicitis, it is the most frequent abdominal lesion. The results depend upon the time of operation after perforation; the seriousness of the condition increases at every hour. The symptoms and diagnosis are: 1. Sudden onset of pain in upper abdomen; 2. shortness of duration of shock; 3, muscular rigidity. The latter is alone sufficient to make a diagnosis. Operative technique: As soon as diagnosis is made one quarter grain morphine is given hypodermically to relax the muscle. The patient is put at once in Fowler's position and kept there before and after operation. In large perforations exceptionally he excises the opening. A stab drain is put in. Continuous proctoclysis is begun immediately after operation. As to doing a primary gastroenterostomy, he was convinced that it is a dangerous procedure, and is unnecessary for the recovery of the patient. The convalescence of the patient with or without it, is very little different. He concluded that in ulcers of the bases of curvature, it is unnecessary. In cases of severe peritonitis it should not be done. It is justified if perforation is recent and patient is in good condition. He says when in doubt, don't.

For chronic ulcer gastroenterostomy gives the best results, especially if the ulcer is situated at the pylorus or in the duodenum. Ulcers often recur at the line of excision with a reappearance of the symptoms. Excision and gastroenterostomy combined give the best results; gastroenterostomy next; and excision alone gives the worst results. A limited gastrectomy gives good results also, and has a certain sphere of usefulness.

Cancer Vaccine and Anticancer Globulins as an Aid in the Surgical Treatment of Malignancy.—Dr. J. W. VAUGHAN, of Detroit, said all cancer cells are protein substances which can be split up into a poisonous and a non-poisonous element. All proteins possess this same property. The portion of the cell insoluble in alcohol is called cancer residue, and this is soluble in water. The reaction

to an injection of cancer cells depends upon the number of body cells that the residue comes in contact with. Hence he injects them in all cases into the large peritoneal cavity. Serum derived from sensitized animals will never become of therapeutic value in the treatment of cancer. Globulin introduced into cancer patients at first does good, but later has no further effect, owing to the fact that the ferment introduced causes the production of an antiferment which antagonizes it. In advanced cases a large dose of the ferment will kill the patient. He advocates some method of cancer sensitization in connection with operation, and believes under such treatment there will be fewer recurrences.

Hodgkin's Disease.—Dr. C. H. BUNTING, of Madison, Wis., and Dr. J. L. YATES, of Milwaukee, Wis., said there was a living pathology of Hodgkins disease. It is a chronic infection. It starts in some superficial irritating lesion as a primary focus of infection. There is a specific change in the lymphoid tissue around the portal of entry. A lymphangitis extends to the next lymph focus, and here arises the process that is recognized as Hodgkin's disease. The ultimate outcome depends upon the control of the virulence of infection and the extent of it. It is curable in its early stage. The primary focus must be eliminated and the local condition must be excised as is done in cancer, preventing the extension to other tissues. Every organism must be killed and an antitoxin stimulated by x ray, by hygiene, and by vaccine. Cure can only be declared if the disease doesn't recur within five years. Vaccine alone will not effect a cure.

Penetrating Wounds of the Abdomen.—Dr. RANDOLPH WINSLOW, of Baltimore, said the treatment of penetrating wounds of the abdomen was of much interest. He divided such wounds into those occurring in civil life and those occurring in warfare. Of wounds of the first class, hospitals are easily accessible for treatment. He has only seen two cases which could possibly have recovered without laparotomy. There is much danger in delaying laparotomy. In domestic broils a single shot may produce twelve to twenty wounds. If the firearm is close to the body the wound may be extensive and ghastly, especially if the firearm happens to be a shotgun. Usually there are not many signs of perforation. Such signs as there are consist usually of bloody vomiting or of bloody stool. Shock is the most common sign—the most manifest sign is the external wound. We should ascertain the size and character of the weapon, and the position and distances apart of the assailed and the assailant. The prognosis of penetrating wounds is always grave and depends upon many factors. In wounds of the hollow organs the patient always dies unless operated upon. The mortality is fifty per cent. Wounds of the solid organs are not so often fatal even when left alone. Age, general health, and the condition of the patient affect the prognosis. A penetrating wound should not be tampered with until it is brought to operation. The best incision is in or near the midline, as it offers the best route for exploration. Bleeding, if present, should be first controlled. The openings should then be closed, bowels resected, if required, peritoneum flushed, and the abdomen closed with drainage. Warm tap water, rectal flushing should be started, the patient in Fowler's position. In military practice serious injuries of the abdominal viscera often get well if left alone, but are fatal if operated in. The conditions in the field make laparotomy exceptionally unsafe. The results of this expectant treatment are found to be due to the character of the modern firearm projectile. The intestines are either pushed aside or the perforations are very small. If the troops are in garrison, abdominal wounds should be treated as in civil practice.

Myositis as a Sequence of Fracture of the Forearm, Elbow, and Lower End of the Humerus.—Dr. JOHN B. MURPHY, of Chicago, said that the word paralysis should be omitted from the term Volkmann's contracture and paralysis, inasmuch as it is erroneous in that the nerve is never affected—although often operated upon by surgeons who think the condition is due to a nerve lesion. Myositis, a sequence of fracture of the elbow, is due to the management of the fracture rather than to the fracture itself. The wrist and fingers fail to extend at the same time owing to a lesion of the musculature. Neither is the condition due to arterial changes, because the radial pulse is not obliterated. Rather it is due to pressure from, 1, the splint, bandage, or cast; 2, from flexure of the arm; 3, from the

swelling and edema produced by one and two. There is a cyanotic ischemia over the entire area leading possibly to gangrene. The maximum destruction occurs in the muscle cells within the first forty-eight hours. The symptoms are intense boring pain after the fracture has been dressed, edema of the hand below the dressing, and pronounced cyanotic ischemia. The muscle is replaced by a firm cicatricial mass; hence the contraction and limited degree of motion. Two erroneous ideas must be corrected, namely, that a splint is necessary to reduce a fracture, and that firm pressure is needed to retain the fragments in place. Plaster cast cases should not be allowed to leave the dressing room until the cast is set; if pain and swelling develop at the wrist the cast must be cut at once and the arm extended and left free of all dressings. Doctor Murphy emphasized strongly that the condition is avoidable with management of this class of cases. Each tendon of the forearm is elongated separately by catgut, the tendons being divided at different levels. The tendons are then wrapped with fat or fascia from the trochanteric area. Primary healing with perfect restoration of the hand is obtained. Wrist drop he also called a surgeon's lesion—as he also does foot drop, which he said was due to pressure on the external popliteal nerve as it passes over the neck of the fibula. This nerve can easily be palpated and the deformity avoided by proper application of dressings.

SECTION IN ORTHOPEDIC SURGERY.

THURSDAY, JUNE 25TH.

Morning Session.

Original Use of the Bone Graft in Pott's Disease, Fracture, and Other Conditions.—Dr. FRED H. ALBEE, of New York, reported 180 cases to date. He has lately changed the technic slightly; he places a number of small grafts at ends of the large or main graft for reinforcement. Time consumed, in cases with comparatively slight cyphos, was fifteen minutes, while in cases with marked cyphosis forty-five minutes may be necessary. Ages have ranged from twenty months to sixty-five years. The graft is applicable and efficient in all cases and all positions of the spine. Only contraindication is inability to obtain sterile field. He demonstrated latest improvement in his motor saw, showing the twin saw for cutting dowels and cutter for dowel pegs and specimen showing how it was used.

Use of Transplant from Tibia as a Unit of a Joint.—Dr. JOHN F. GOLDEN, of Chicago, laid stress on the transplant in osteitis fibrosa cystica, its value in resection for osteosarcoma, carcinoma or where destruction near the joint has taken place from infection. As much of the joint surface as possible was preserved. In osteitis fibrosa cystica, in the early stages, thorough curetting will probably suffice, later stages curetting and crushing down of the cystic walls, and transplant of bone to form a unit of the joint if necessary.

Observations on Bone Transplantation (Albee's Method) for the Cure of Pott's Disease.—Dr. CHARLES M. JACOBS, of Chicago, said experience shows, as essential to success, the necessity of the graft covering at least two vertebrae on either side of the diseased area, as shown by careful x ray study. The operation should be restricted to selected cases. External support should be continued for many months, six or more. Doctor MURPHY asked three pertinent questions to be answered to decide the value of the operation: 1. Does it aid in the cure of the disease? 2. Does it prevent deformity? 3. If deformity exists, will it aid in correction?

SECTION IN OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY.

WEDNESDAY, JUNE 24TH.

Morning Session.

Experimental and Clinical Studies of Colon Stasis.—Dr. JOSEPH RILUS EASTMAN stated that colonic toxemia may be studied under four headings: 1, colitis; 2, adhesions, membranes and kinks; 3, colon dilatations and vicer-optosis, and 4, stasis. An understanding of the mutual relationship of these factors is important. Colitis is quite a constant accompaniment of stasis and colon ptosis. Colitis may with reason be suspected of causing or increasing stasis. It is probable that the Röntgen examination of patients on whom shortcircuiting operations have been made will continue to afford surprises. Prompt relief following this operation has been the rule. The Röntgen

examinations of cases which had had the serial röntgenogram tests, have show how little we know of the hydrostatics of the colon. Unless the colon is hopelessly enveloped in dense membranes, the purpose of a well planned short circuiting operation should be to put the colon back in commission.

Resection of the First Portion of the Large Intestine and the Resulting Effect on Its Function.—Doctor MAYO stated that slight variations of the abdominal viscera should not be regarded as abnormal. With regards to the function of the colon, it is a storage organ in which vegetable fermentation takes place and is absorbed, while the descending portion acts as a vestibule to the sigmoid. In the large intestine lies the cause of much misery. Many of the bands, kinks and adhesions are of a normal character and too much importance has been attached to these incidental changes in the position and attachments of the large intestine. Autointoxication is a low grade of bacteremia or subinfection, a term used to express a hypothetical condition, resulting from retention, putrefaction, and absorption, aggravated by a liberal meat diet. The twenty cases operated upon had the usual train of symptoms, viz., headache, neurasthenia, and constipation amounting to obstipation. All had exaggerated conditions of cecocolic stasis. About ten inches of the colon were resected and the ileum joined to the side of the colon. While the constipation was relieved and the results were entirely satisfactory, the number of cases was too small on which to base definite conclusions. The widespread advocacy of this serious operation is deplored while yet only in the experimental stage.

Some Surgical Phases of the Sigmoid.—Doctor REED, after giving a description of the anatomical features of the sigmoid, stated that twenty-five per cent. of cases of stasis of the sigmoid were the result of redundancy, and the cause of the existing toxemia. The examination for diagnosis consists of inspection, palpation, by Röntgen ray, and sigmoidoscopy. If due to redundancy, constipation is liable to alternate with diarrhea. The facial expression and general appearance of the patient is suggestive. Pressure symptoms are present, especially in the prostatic area. Cystic irritation is rather a frequent complaint. Marked tenderness in the ovarian region is aggravated at the menstrual period. Pain, for example, in the left hypochondriac region, indicates stasis at the splenic flexure. The Röntgen ray examination for diagnostic purposes, should always be by an expert, with the patient's bowels thoroughly emptied and in the upright position during the examination. The systemic symptoms are the result of absorption by the blood and the toxic manifestations, as headache, neurasthenia, and disturbed function of the bowels. The treatment for the mild or moderate cases is palliative, eliminative, massage, diet regulation. Mechanical abdominal appliances do no good, but often much harm. Intestinal ptosis with ileum redundancy is never cured except by surgical measures. Doctor Reed omitted the technic of the various methods of operating, but stated that in the hands of the skilled operator he regarded surgical interference as the proper treatment for those cases which were unyielding to the ordinary methods, previously described.

The Present Status of Pyelography.—Dr. FLOYD E. KEFNE and Dr. HENRY K. PANCOAST, of Philadelphia, stated that the indiscriminate use of collargol in pyelography was often productive of much harm and should be condemned. It was a most valuable method for differential diagnostic purposes with the proper technic and with properly selected cases. A series of cases was reported in which there was convincing evidence of injury to ureters and kidneys, including hydronephrosis, cortical necrosis, etc. The safety of the treatment depends largely upon the experience and skill of the operator, as much so as with the use of the x ray catheter. The injurious effects from pyelography with collargol are an inflammatory process from the introduction of the foreign body, under too great pressure, mechanical action, and argyria. There should be low pressure—not over 30 mm.—or no pressure at all. Silver iodide, as recommended by Kelly, is a valuable adjunct to the treatment.

The Pathological Physiology of Uterine Bleeding.—Dr. EMIL NOVAK, of Baltimore, spoke of the inability to explain many cases of uterine bleeding on anatomical grounds and stated that the bleeding fundamentally may

be due to disturbance of the internal secretions, especially that of the ovary; second, psychic or reflex nervous disturbance, shock, etc., and third, to anatomical structural changes of the pelvic organs or bloodvessels. While uterine hemorrhage occurs more frequently from anatomic structural changes, those due to disturbance of internal secretions and of the nervous system are not uncommon early and late in life—at puberty and the climacteric.

SECTION IN PHARMACOLOGY AND THERAPEUTICS.

WEDNESDAY, JUNE 24TH.

Afternoon Session.

Radium and Röntgen Rays in Radiotherapy, Their Use and Limitations.—Dr. WILLIAM S. NEWCOMET, of Philadelphia, pointed out the use, nature and limitations of radium. He stated that it was of more value than the Röntgen ray in the treatment of inoperable cancer, especially when the disease attacked inaccessible parts as the larynx and uterus. It was serviceable aside from its curative effect in relieving pain. Inflammatory reactions to its use were found in individuals whose health was greatly impaired. An advantage of radium over the x ray was found in the ease with which its dose could be regulated. Doctor Newcomet discouraged the idea of radium being a sure cure for cancer, but that it did cure cancer in a limited number of selected cases, he had proved.

The Place of the Röntgen Ray in Therapeutics.—Dr. GEORGE C. JOHNSON, of Pittsburgh, spoke of the great importance of using massive doses. He showed how small doses might simply stimulate the disease to activity and a large dose or doses were necessary to produce healing. He did not think that at the present time it should be looked upon as indicated in treating every case, still he showed many instances where its use had cured many cases of superficial carcinoma. He thought the most recent advance in Röntgen ray therapy was in the development and use of the coulauge tube.

The Local Preparation of Patients for Operation.—Dr. A. D. WHITING, of Philadelphia, discussed the relative value of germicides in the sterilization of the skin. By tests and experiments he showed that bichloride of mercury solutions were useless from a surgical standpoint. Perfect or nearly perfect sterilization could only be brought about by removal of the microorganisms below the skin surface, that this possibility in a measure was shown by sweating the part and repeated washing and soaking. Iodine in the form of the tincture was especially good, but he found by his tests that the operative field was rendered more sterile with the use of a seventy per cent. alcoholic solution of iodine, and that it was more effectual than when ninety-five per cent. alcohol was used.

Postoperative Treatment of Surgical Cases.—Dr. GEORGE P. MÜLLER, of Philadelphia, said that to prevent shock it was necessary to maintain a cheerful mental state in patients, and that the patient should be kept comfortable. A word of warning was spoken against the indiscriminate use of salt solution, as it was shown that serious effects may occur in patients having damaged kidneys. In shock epinephrine was considered most valuable, its only disadvantage being its fleeting action. Pituitary extract he thought more stable. In the treatment of shock with drugs, atropine, strychnine and caffeine he thought much overestimated as to their therapeutic worth. Digitalis and strophanthus are useful in cases requiring urgent stimulation. Morphine for pain should never be given unless the cause of the pain is fully understood. In abdominal distention without peritonitis, good results were obtained from pituitary extract and that it was better than eserine.

The Medical Treatment of Chronic Intestinal Stasis.—Dr. W. A. BASTIDO, of New York, advocated the use of liquid petroleum oil. He also desired to correct the idea, by his own tests, that the Russian oils were better than our American product. Treatment with it consists of giving a dram after a meal daily or twice daily.

THURSDAY, JUNE 25TH.

Morning Session.

The Use of Diphtheria Antitoxin in the Treatment of Diphtheria.—Dr. SAMUEL S. WOODY, of Philadelphia, spoke of the value of antitoxin as a treatment for diphtheria and laid emphasis on its early use. He recom-

mended the giving of very large doses—10,000, 30,000, 60,000, 100,000 units, and even so much as 150,000 in most malignant cases. The mortality rate is lower with large doses, there is also less postdiphtheritic paralysis. He thought the danger attending its injection very small.

Diet in Typhoid Fever.—Dr. LEWELLYS F. BARKER, of Baltimore, pointed out the value of departing from the historic method of diet in typhoid, i. e., exclusive milk or fluid diet, and showed where the patients' best interests were conserved by giving a solid diet, especially foods rich in carbohydrates and some fats. It was shown that complications were no more frequent, and that it shortened convalescence and prevented emaciation.

The Effects of Food on Metabolism in Typhoid Fever.—Dr. WARREN COLEMAN, of New York, said that studies showed that, as in health, in typhoid fever the body utilized carbohydrates in preference to fats and protein. He also stated that the patients did much better on a more generous diet, including solids, as toast, eggs, scraped beef, mashed potatoes. He thought fermented milk and buttermilk poor foods because their food values were low, owing to absence of sugar.

Dietetic Limitations in Typhoid Fever.—Dr. DAVID L. EDSALL, of Boston, said a disturbed digestion in typhoid fever might be made worse by the giving of solid food, and in some cases it was impossible to get patients to take solid food in any form, just as patients might show a disgust for milk. Milk may in its plain state upset digestion. He then advised the use of fermented milk. Milk that putrefies before it sours may give rise to most serious abdominal symptoms. In cases suffering from grave toxemia the use of dextrose isotonic solution was found of great value. For constipation liquid paraffin oil was most serviceable.

The Value of Salicylates in Acute Articular Rheumatism.—Dr. JOSEPH L. MILLER, of Chicago, said that comparative statistics show that patients do not recover any more quickly under salicylates than with the alkaline treatment. With the salicylate treatment pain is sooner relieved. Heart complications are not any more common when treating with the salicylates. He spoke of using large doses of the salicylates, twenty to forty grains every two hours, the sodium salt being usually used. The value in the salicylates is enhanced by using double the quantity at each dose of sodium bicarbonate. No toxic effects had been noted after using large doses.

SYMPOSIUM ON PELLAGRA.

The Work of the Thompson-McFadden Pellagra Commission.—Dr. J. F. SILER and Dr. P. E. GARRISON, of Washington, D. C., and Dr. W. J. MACNEIL, of New York, reported that in a study of about 5,000 persons there failed to show a distinct correlation between the occurrence of pellagra and the ingestion of any particular food. Districts where unsanitary surface privies were used the disease showed the larger number of cases. Patients recovered from the acute attack when given rest and proper diet and change of climate with correction of faulty hygienic surroundings.

Attempts to Transmit Pellagra to Monkeys.—Dr. C. H. LAVINDER, Dr. EDWARD FRANCIS, Dr. R. M. GRIMM, and Dr. N. F. LORENZ, of Washington, D. C., reported that their researches up to the present were somewhat discouraging, as attempts had been made in every possible manner to infect these monkeys without success.

Treatment of Pellagra.—Dr. CARL VOEGTLIN, of Washington, D. C., stated that the treatment rested on empirical grounds, the cause of the disease being unknown. Diet, almost forced feeding, like that instituted in the treatment of tuberculosis, general hygienic measures, yielded favorable results. Arsenic he considered useless. Psychotherapy seemed to render some assistance.

SECTION IN PATHOLOGY AND PHYSIOLOGY.

WEDNESDAY, JUNE 24TH.

Newer Viewpoints Regarding the Role of the Different Food Substances in Nutrition.—Dr. L. B. MENDEL, of New Haven, Conn., contrasted the vague generalizations of a generation ago regarding foodstuffs and their functions with the more tangible views of today. He emphasized the significance of aminoacids—the end products of protein digestion. Whereas formerly superficial distinctions between products of animal and vegetable sources, between albumins and globulins, formed the basis for

discussions, today we are concerned with them from the standpoint of specific aminoacids they yield. He cited, in his paper, experiments upon animals whereby the cessation or resumption of both growth and maintenance could be instituted by omission of addition of certain aminoacids in the diet. Modern conceptions explain why certain dietaries, like those made up of corn, may be poorly suited for certain uses; how they are advantageously supplemented by "complete proteins," and why a low supply of suitable protein may be superior to a surfeit of "incomplete" protein. He called attention to the little suspected specific role of certain foods like milk, butter, and codliver oil in certain aspects of nutrition.

Parenteral Protein Digestion.—Dr. VICTOR C. VAUGHAN, of Ann Arbor, Mich., said: All body cells are living cells. In order that we may be in health all the cells of our bodies must be in normal condition and must function in harmony. As these cells are living, growing, and multiplying, they must have a supply of normal food, and since these cells are made up of protein they must be supplied with protein food. The digestive functions of the alimentary canal have been evolved for the purpose of preparing proteins for the body cells to feed on. The proteins of our food are normally broken up in the digestive tract into aminoacids. These are absorbed through the intestinal walls and serve for the nourishment of the body cells. The blood and lymph carry to all the cells of the body the prepared and absorbed protein split products. Each kind of cell selects from these products such portions as it needs in its own metabolism. It sometimes happens that proteins reach the blood and lymph without being acted on by the digestive juices of the alimentary canal. On a small scale this is constantly happening. We absorb minute quantities of protein through the mucous membrane of the respiratory tract and in ordinary health it may happen that small amounts of undigested or imperfectly digested proteins are absorbed through the intestinal wall. In the therapeutic employment of serums and vaccines undigested protein sometimes in large amount is introduced into circulation. Infection bacteria, which are living proteins, convert the simple proteins of the body fluid into complex, which become foreign proteins. These foreign proteins are digested by the agencies of ferments supplied by the body cells. Poisons are liberated which are responsible for the symptoms and pathological conditions. The digestion of these proteins is called parenteral digestion. How to control and modify parenteral protein digestion is now one of the big problems in experimental medicine.

THURSDAY, JUNE 25TH.

Morning Session.

The Relation of Diet to Cancer.—Dr. L. D. BULKLEY, of New York, believed that there was a latent cause of cancer which must relate to nutrition and metabolism. Cancer is a disease of civilization, and while it is absent or relatively rare among aborigines and those living in primitive conditions on vegetable products, it is found to increase in proportion as these people become assimilated with those more highly civilized, among whom luxury and overeating have increased; and this is especially true of meat eating, alcohol and coffee drinking. In England meat eating has more than doubled during the last fifty years and the deaths from cancer have increased fourfold. The same is more or less true of the United States. In seven large cities the average death rate per hundred thousand has increased to eighty-nine in 1913 as compared to eighty-three, the average for the previous five years. Under an absolutely vegetarian diet cancer has repeatedly been observed to disappear entirely.

Aberghalden's Test in the Diagnosis of Cancer.—Dr. C. F. BALL, of Rutland, Vt., said: This test has already proved serviceable in various parts of the United States. The actual work of making the test is a very complicated one. The presence of cancer in any part of the body calls for the production of a "protective ferment" to destroy the cancer invasion, if possible, otherwise to resist the invasion to the end. The test simply determines the presence or absence of this special ferment. Suspicious conditions in various parts of the body causing anxiety may thus be examined without submitting to the frequently delayed examinations otherwise necessary. The association of this reaction with x ray methods affords the very

best means possible of making an accurate diagnosis in diseases of the stomach and bowels. The x ray locates the difficulty and the blood reaction determines its true nature. Time only can demonstrate the wonderful advantages of this blood test in making possible an early diagnosis, and therefore treatment, of this awful malady.

The Pineal Gland in Relation to Somatic, Sexual, and Mental Development.—Dr. C. P. McCORD, of Detroit, Mich., described a series of experiments in which 144 animals had been used. He had obtained results indicating that so small an amount of substance obtained from the pineal gland of various animals as ten milligrams administered daily produced striking alterations in growth. Chickens, dogs, and guineapigs, when fed this material, have shown by comparison with control animals maintained under identical conditions, excessive growth. In extreme cases the pineal fed animals have attained double the weight of their controls. This stimulation of growth is confined to young animals when fed with pineal tissue from young animals. No tendency to gigantism has been observed. The present experiments lead the writer to the conclusion that the pineal gland has a function confined to the prepuberal life of promoting growth rather than retarding growth as heretofore has been described.

The Pathological Physiology of Arteriosclerosis.—Dr. L. F. BISHOP, of New York, said that some individuals reach a great age while others when quite young present pictures of senility through arteriosclerosis. The process of arteriosclerosis is not an organic disease affecting one organ, or even only the bloodvessels, heart, and kidneys, but it has to do with the whole body. In other words it is a disease of the cells. Premature old age is caused by autointoxication. The body is poisoned by foods which in themselves are naturally adapted to the human constitution, but which have become poisonous to it because some severe illness or great worry has perverted the cellular relations of the body to various foods. So the cells are irritated and destroyed by foods that are harmless to the normal body. There are no hard and fast rules for diet in hardening of the arteries, but for each person there is a diet which can restore health and prolong human activity. For the person with symptoms of high tension, the diet must be very strict as to what is eaten, though the quantity need not be limited. Considering arteriosclerosis as an upset metabolism, instead of a mysterious hardening of the tissues, there is hope through treatment, and by a proper regime it has been possible, to add years to the lives of persons who at first seemed doomed. The fact that certain things agree with some and cause great discomfort in others is a familiar fact, but foods that cause hardening of the arteries do not always cause discomfort. So a satisfactory diet can only be selected by the study of the individual in the light of modern principles of physiological research.

SECTION IN PREVENTIVE MEDICINE.

WEDNESDAY, JUNE 24TH.

Morning Session.

The Importance of Proper Sanitary Measures in the Preparation of Foodstuffs.—Dr. M. CLAYTON THRUSH said that there should be a routine examination monthly of all persons who have to handle the foodstuffs given to the public. There should be also an inspection of all storage plants and receptacles for foods. Water should be examined, by municipal laboratories, chemically and bacteriologically, at definite times.

Dr. J. W. TRASK remarked that most of our food laws are economic or business laws, and have entirely too little regard for the hygienic aspect. Dr. N. E. CAMPBELL believed that the public press should be called on to aid in clearing up unsanitary eating houses.

Principles of State Control of Tuberculosis with Special Reference to Pennsylvania's System.—Dr. ALBERT P. FRANCINE said that the community should take care of all tuberculous patients who are too ill for sanatorium treatment. Towns rarely can maintain a local sanatorium even by accepting State aid. There was need of one central person to supervise, there was need of visiting nurses to see all cases after they are discharged from institutions.

Infantile Dejecta an Unrecognized Source of Infec-

tion.—Dr. E. C. LEVY, Chief Health Officer of Richmond, Va., said that studies of infantile diarrhea in Richmond have led to the conclusion that infection was the most common cause of the fatal cases. The milk supply of Richmond had been of excellent quality since 1907, a very large part of the total market milk supply containing less than 10,000 bacteria per c. c. [thirty-one per cent. in 1911, forty-two per cent. in 1912, and thirty-seven per cent. in 1913]. Instructing nurses have been employed since March, 1910. In spite of this the death rate from infantile diarrhea (under five years) remained high. Starting in 1912 the nurses connected with the Richmond health department were told to emphasize the proper care of the diapers above everything else in the instruction given to the mothers seen by them. The results in the past two years have confirmed a reduction of the death rate.

THURSDAY, JUNE 25TH.

Morning Session.

School Spread of Contagious Diseases and How to Control It.—Dr. MYER SOLIS-COHEN, of Philadelphia doubted if any one realized the role the school plays in the spread of contagion, both of the major and minor diseases. Doctor Solis-Cohen made an exhaustive study of the epidemic of measles in Philadelphia in 1914. He was of the opinion that the disease spreads by contiguity and possibly the cases reported represent only about twenty-five per cent. of the total number. Medical inspection had failed to check the spread of disease because the teachers do not notify the medical inspector. The attempt to maintain a good class record is another cause of keeping ill children in the classroom. After every two day absence a child should be questioned or examined by the medical examiner before readmission to the school. Any suspicious symptoms should warrant the observation of the pupil until these have been cleared up. He did not believe that children contract contagion because of age, but rather because they never have been exposed. If they began school at the age of sixteen they would contract contagion as quickly as they do at the age of six.

Provisions of the Model State Law for the Notification of Controllable Diseases.—Dr. JOHN W. TRASK, of Washington, D. C., spoke of the ignorance of physicians as to the diseases on the reportable list as the cause of the small number of reported cases in certain communities. All infections, occupational, venereal, and diseases of unknown origin, should be reportable. A representative of the health department (one familiar with the disease) should see every suspicious disease and not trust the general practitioner, who does not have the special knowledge such as the departmental men have at their disposal. In Doctor TRASK's opinion no license to practise medicine should be given until applicants furnish an affidavit that they have read carefully the law pertaining to the reportable diseases.

SECTION IN DISEASES OF CHILDREN.

WEDNESDAY, JUNE 24TH.

Afternoon Session.

Care of Delicate and Premature Children in the Home.—Dr. H. M. McCLANAHAN, of Omaha, said that in treating premature infants the body heat must be controlled and the loss of heat prevented. He uses, in preference to an incubator, a clothes basket padded and lined with oil cloth, flannel, and cotton wool. Five hot water bottles (one pint glass bottles) are placed in the basket and also a thermometer, and the temperature is kept at 95° F. The infant is fed without being taken out of the basket. In regard to the nourishment, breastmilk is best and it should always be diluted with an equal quantity of water, or even a greater dilution when it is not well borne. The dangers to be guarded against are: 1. Unnoticed regurgitation, the food then getting into the larynx, resulting in death to the infant. 2. Excessive external heat. 3. Assuming wrongly that an infant is getting sufficient food when nursing directly at the breast.

Doctor CHAPIN, of New York, said he had long ago given up the use of the incubator because out of 150 cases so treated nearly all died. He often gives the food with a stomach tube with great success when an infant is unable to swallow.

Refractory or So Called Fast Cases of Meningococcus Meningitis.—Dr. HENRY HEIMAN, of New York, stated

that the treatment of this disease had not yet reached perfection, even with antimeningococcus serum. The causes of failure are: 1. Fulminating cases which always end in death in spite of early diagnosis and treatment. 2. Incomplete, insufficient, or late treatment, or the unskillful use of Flexner's serum. 3. Unstable, nervous development in young infants, which often ends in hydrocephalus. 4. Other diseases complicating meningitis, like pneumonia, tuberculosis, etc. 5. Refractory cases that run a long course in spite of good treatment. These are fast cases, and are due to strains of the meningococcus. They are more resistant and are a different variety of the microorganism, and, therefore, not influenced by the Flexner's serum.

Urinary Analysis in the Diagnosis and Treatment of Diseases of Infancy and Childhood.—Dr. ROWLAND GODFREY FREEMAN, of New York, said that an examination of the urine is often neglected in infants, owing to the difficulty in obtaining it. In a boy a bottle may be attached to the penis with a piece of adhesive plaster. In the girl a small cup may be placed under the buttocks and left there until the urine is voided. Acidosis is seen when babies are taking more breast milk than they can digest. Cases of eczema, and intertrigo, and many attacks of vomiting in infants are due to acidosis. Intestinal intoxication and urticaria are often accompanied by acidosis. Pyelitis is diagnosed by a bacteriological examination and the variety of the infection cannot be determined by the examination of the sediment alone.

Amebic Dysentery in Children.—Dr. L. R. DEBUYS, of New Orleans, said that amebic dysentery was relatively rare in children, not because they were not susceptible to it, but because they were not apt to be exposed. The sources of infection are water, fruits and green vegetables. Seven cases were cited, two of which were treated with large doses of ipecac, as much as 280 grains being given. Five cases were treated with emetine given hypodermically in doses of two thirds to one grain daily, and as much as five grains in six days. The prompt effect of emetine both in causing the blood and ameba to disappear from the stools within two to five days after the first dose, was remarkable. Emetine is harmless even in large doses, and the results in effecting a cure with it cannot be duplicated with any other treatment of the disease.

Dr. H. D. CHAPIN, of New York, said that amebic dysentery was not entirely a disease of the South, as it was seen all over the country, and he treated cases every year which occurred in children that had never lived in the South. Doctor HESS had the opportunity of observing an epidemic of pertussis in an institution where the children were permanently and continuously under his observation. He inoculated 244 children who had been exposed to the disease and all but twenty-one of these escaped the infection. Of seventy-five cases not vaccinated, fifty-nine came down with pertussis. Four different vaccines were used, each containing three or four strains of the bacillus, and the best results occurred in those receiving a vaccine made from cultures of that individual epidemic, although they were not autogenous in the true sense. Of those treated with vaccines after they came down with the disease, there were eighty-five cases. There were no deaths. Of twenty of the severest cases the use of vaccines did not change the course of the disease at all. He did not believe that it was of value in a curative way, but it was of value as a prophylactic. Doctor MEAD, of Middletown, Conn., treated twelve cases of pertussis with autogenous vaccines and in every case all paroxysms ceased inside of eight days.

The Examination of the Chest in Children.—Dr. RICHARD M. SMITH, of Boston, and Dr. CLIFFORD D. SWEET, of Fresno, in a study of 100 cases of children suspected of tuberculosis, found that thirty-nine had no evidence of tuberculosis either with x ray examinations or physical examinations. Only ten had night sweats, and they believe that this sign is of no diagnostic assistance. Of the thirty-four cases that were known to be exposed to tuberculosis, eighteen showed signs in lungs, twenty-two showed lesions by x ray. Of sixty-six cases that showed lesions in the lungs by physical examination, eighty-nine per cent. showed some lesions of tuberculosis by x ray examination. The x ray is of value as an aid to physical examination, but does not take the place of it. Of 100 cases, only twenty showed dullness on percussion.

The Use of Boiled Milk in Infant Feeding.—Dr. ROGER H. DENNETT, of New York, stated that milk is

boiled for infant feeding not only to destroy bacteria and prevent disease, but to make it more digestible, although boiling has formerly been thought to have just the opposite effect. He believes that the prolonged use of boiled milk during the bottle period does not cause nutritional disorders such as rickets, anemia, malnutrition, and poor musculature, provided the proper feedings are given, and cites eighteen cases of his own that were fed with boiled milk throughout the most critical feeding period. Scurvy may be avoided by giving orange juice. He gives his reasons why boiled milk is more digestible than unboiled milk: 1. Boiled milk does not cause digestive disturbances when fed to infants who have no difficulty in digesting unboiled milk. 2. Boiled milk is very helpful in overcoming digestive disturbances which are already present such as diarrhea and vomiting. 3. Certain infants who are being fed boiled milk often have digestive disturbances brought on by changing from the boiled milk to the unboiled, although many infants who have a greater digestive capacity stand the change without this difficulty.

Experiences with Whey-Modified Milk in Infant Feeding.—Dr. JEROME S. LEOPOLD, of New York, stated that human milk was unquestionably the milk of choice in infant feeding, but when human milk cannot be obtained artificial feeding must, of course, be employed. Eiweiss milk, malt soup, buttermilk, and the various simple milk dilutions with the addition of sugar have been used with much success during the past few years, but there was room for much improvement in infant feeding. E. Schloss, of Berlin, has recently devised a milk mixture which resembles human milk very closely, and which Schloss called whey-modified milk. With this mixture, Schloss obtained nearly as good results in feeding institutional children as with breast milk. Doctor Leopold used this milk mixture on fifty-four institutional infants during the past two years. The ages varied from two days to thirteen months. Very good results were obtained in thirty-six cases, fairly good results in ten cases, and poor results in eight cases. Based on the results obtained the following conclusions seem warranted: 1. Whey-modified milk is indicated whenever breast milk is not obtainable. 2. Much better results are obtained with this milk mixture than with any other method of artificial feeding, in institutions at any rate. 3. Whey-modified milk is especially indicated in very young infants, and in infants under three months of age.

Experiments with Swine Fat in Infant Feeding.—Dr. JOHN ZAHORSKY, of St. Louis, stated that the value of different kinds of fat in infant feeding is well recognized. Cream, codliver oil, etc., are great aids in building up children. Swine fat in the form of pure leaf lard is one of the most bland substances known. One half to two drams was malted and poured into the bottle of milk and used in this way in twelve infants with a most satisfactory gain in weight and improvement in the general condition. Vomiting and diarrhea were better treated and showed greater improvement than with the usual cream and top milk mixtures.

The Influence of Starch on Infant Digestion.—Dr. THOMAS S. SOUTHWORTH, of New York, stated that starches in the form of gruels were added to infants' food for the following reasons: 1. To prevent curds. 2. The proteins in them supplement the proteins in milk. 3. Starch influences intestinal peristalsis, digestion, and absorption. Fermentation in the stomach and intestines is often caused by sugars and fats. Starch can be used to replace some of the sugar, as is done in Schloss milk and Keller's malt soup, and buttermilk mixtures made with flour. Boiled starch acts as protection against the injury done by large or excessive amounts of sugar or fat. He also stated that rapid peristalsis interferes with absorption of fat and sugar and the boiled starches tend to prevent excessive peristalsis.

THURSDAY, JUNE 25TH.

Afternoon Session.

Blood Pressure in Normal Children.—Dr. C. F. JUDSON, of Philadelphia, and Dr. PERCIVAL NICHOLSON, of Ardmore, Pa., made 2,300 blood pressure observations upon children whose ages ranged from one to fourteen years. They stated that a large series of observations is necessary in any individual case in order to be of any value, on account of the variations from slight causes in

children. The usual factors influencing blood pressure as they affect children are age, weight, psychic influence, relation to the food, etc. They consider the auscultatory method superior to the palpation method. The modification of the Erlanger apparatus was found to be the best. The gradual increase in the blood pressure takes place up to thirteen years of age. From ten to fourteen years, at puberty, there is a rapid increase in pressure, owing to the great increase in the size of the heart at that time. The variation from four years to puberty is less than eight mm. and the total rise from four to fourteen years of age is fourteen mm. The systolic blood pressure is of more importance than even the diastolic or pulse pressure, although in certain heart lesions the diastolic pressure is extremely important in making the prognosis. Great emphasis was laid upon the fact that repeated observations must be insisted upon.

The Study of Blood Pressure in Anemia in Infancy.—Dr. JOHN LOVETT MORSE and Dr. EDWIN T. WYMAN, of Boston, studied the blood pressure of sixty-two normal infants, twenty-seven poorly nourished infants, and made fifteen observations on ten babies that had anemia. The systolic pressure was higher than normal in the poorly nourished infants and the diastolic pressure was lower than normal. One infant with a severe anemia and splenic enlargement was observed over a period of two months. This baby had a hemoglobin of twenty-five per cent. and one and a half million red cells. The systolic pressure at the beginning was 120, the diastolic 0, and the pulse pressure 124. At the last observation, when the hemoglobin was forty per cent., the diastolic pressure had increased to 30.

Further Observations Concerning the Relation of Heat to Infant Mortality.—Dr. HENRY F. HELMHOLZ, of Chicago, studied forty-six babies during the hot summer weather, the temperature of the room and the temperature of the babies being taken constantly for a period of two months. There was no definite relation between the high room temperature and fever in the infants, although the room temperature did not go above 90° F. Of the forty-six cases, twenty-nine had diarrhea, some of them more than one attack, so that thirty-nine cases of diarrhea were observed during this period. Seventeen escaped, twenty had a single attack, eight had two attacks, and one had three attacks. There were six fatal cases and in only one did the heat have any possible relation to the death.

A Further Clinical Study of the Efficiency of Sodium Chloride in the Therapeutics of Bright's Disease.—Dr. H. LOWENBURG, of Philadelphia, stated that he did not believe in the toxicity of sodium chloride in nephritis. Sodium chloride is helpful and even curative in edema of infancy from other causes, and normal saline solution has a restraining effect in edema. There were three cases of idiopathic edema and four cases of nephritis which he studied. Two hundred and fifty or 300 c. c. of normal saline or Fisher's solution were given subcutaneously on alternate days. He found that sodium chloride did not promote, nor prevent the cure of nephritis. It is curative provided the kidneys are not too much damaged.

The Use and Abuse of the Tonsils.—Dr. JULIUS H. COMROE, of York, Pa., made a plea for the preservation of the tonsil in children. In Philadelphia, 37,000 school children were recommended for the removal of the tonsils by the examining physicians of the board of health. He believed that fewer tonsils should be removed than is being done at the present time, and spoke of the functions of these organs. He said that the epithelium of the tonsils antagonize the entrance of bacteria. Tonsils also have a bactericidal action which is very much needed in the throat and that a generation of leucocytes takes place in them. Diphtheria is far less malignant when the membrane occurs on the tonsils or when the tonsils have not been removed. The internal secretion of the tonsils is probably of valuable aid. Many deaths follow the operation for removal of tonsils, not so much from immediate causes as from the complications such as an anemia and otitis media.

Thoracic Complications of Rickets.—Dr. J. HOWLAND and Dr. E. A. PARK, of Baltimore, stated that rickets was the direct cause of death in many cases through failure of the respiratory apparatus. Many of these infants were supposed to die of pneumonia, but actually had no inflamma-

tory process of the lungs, although pneumonia is a common terminal infection. In the first place the chest is small, measuring less than the head and shaped like a wedge, being narrow in front. This, in itself, causes a great decrease in the actual space occupied by the lungs. Beside this, the circumference of the chest is less during inspiration than during expiration when taken at the lower part of the sternum. The thoracic respirations result in an actual loss of space inside the chest. The ribs sink in anteriorly during the inspiration. Fractures were commonly found in other cases, as many as twenty fractures of the ribs occurring in one infant. The abdominal breathing is also lessened, as there is no compensation of the diaphragm which is seriously impaired in action, and the efficiency of respiration is much diminished. Many cases are diagnosed as pneumonia when the lesion that is present is atelectasis, which they have demonstrated at autopsy and by x ray. In these cases the respirations are increased as high as 140 to 150 in the extreme cases. Rickets is not cured as easily as some authorities have stated, and it is a disease of relapses and remissions lasting from the first to the third year. It takes a year for rickets to become well established. The fractures may take place from the first to the third year.

SECTION IN NERVOUS AND MENTAL DISEASES.

TUESDAY, JUNE 23D.

Afternoon Session.

Some Factors Tending Toward Adequate Instruction in Nervous and Mental Diseases.—Dr. W. W. GRAVES, of St. Louis, dealt with the existing faults in many medical schools in teaching the branches of neurology and psychiatry, together with suggestions of means by which improvement might be brought about. He referred to the incompetency of the average student, the apathy of the average practitioner, and the ignorance of the courts in neurological and psychiatric matters, and ascribed these conditions, not to the absence of definite knowledge on the subjects, but to the inadequacy of the teaching in the medical schools. In an analysis of the situation the following factors were held to be at fault: 1. Defects in instruction and methods. 2. Absence of rational correlation of the subjects of neurology and psychiatry with other clinical branches. 3. Insufficient time devoted to these subjects in the medical curriculum. Emphasis was placed on the lack of properly trained instructors, and a plea made for the devotion of time and attention to the subjects of neurology and psychiatry proportionate to their importance compared to other branches of medicine.

Juvenile Psychosis: Report of a Case.—Dr. H. H. DRYSDALE, of Cleveland, pointed out the fact that psychoses in childhood are rare in medical literature and expressed his conviction that they are relatively frequent, much more so than statistics would indicate. He referred to several cases personally observed and reported on in detail. The symptomatology of juvenile psychoses does not differ materially from that of adults, although their limited knowledge and experience prevent complicated delusional states, the manifestations tending more to hallucinations and confusional states. The most important etiological factors noted were almost constant neurotic heredity, head traumatism and deleterious psychological environment.

WEDNESDAY, JUNE 24TH.

Afternoon Session.

Landry's Paralysis: Report of a Case with Necropsy.—Dr. EDWARD D. FISHER, of New York, described a case of Landry's paralysis which ended fatally in six weeks. The symptoms primarily were those of multiple neuritis with pain in the limbs along the nerve trunks. Later, there was paralysis, which ascended until involvement of respiration caused death. The necropsy findings consisted of macroscopical congestion of the spinal cord, especially of the anterior cornua, and, microscopically, of a neuritis of the anterior roots extending for a distance in the peripheral nerves.

Results Following Seventy-five Injections of Salvarsanized Serum.—Dr. C. EUGENE RIGGS and Dr. ERNEST M. HOMMES, of St. Paul, said: The cases which they reported included cerebrospinal syphilis, locomotor ataxia, and general paresis. The method used was essentially that of Swift and Ellis. Results, as a whole, were favorable. In seventy-five per cent. of the cases, the blood and spinal fluid Wassermann tests became negative after nine

injections. Cases were noted in which the results had been unsatisfactory from intravenous injections alone. Paresis was found to be the form most refractory to treatment. Wassermann reports on treatments of this character are held to be useless without laboratory studies.

A Brief Report on Cases of Paresis Treated by Intraspinal Injections of Salvarsanized Serum.—Dr. L. B. PILSBURY, of Lincoln, Neb., reviewed thirteen cases of paresis treated by sixty-two intraspinal injections according to the method of Swift and Ellis. One case resulted fatally a few hours after the intraspinal injection and the fatal result may have been in part due to the treatment. Other cases were somewhat improved, but the author was not enthusiastic in support of the method, although he felt that it should be given a further trial.

Ankylosis of the Shoulder Joint in Association with Brachial Neuritis and Pulmonary Lesion of the Right Lung.—Dr. D. J. MCCARTY, of Philadelphia, described a group of six cases in which brachial neuritis and non-bony ankylosis of the shoulder complicated tuberculosis of the right lung. After a course of several months recovery occurred. No definite conclusions were drawn as to the etiological factors, nor as to the cause of the association of the various lesions.

A New Method of Reflex Elicitation: Further Analysis of the Voice Sign in Chorea.—Dr. WALTER B. SWIFT, of Boston, described a method of reinforcement for the knee jerk which consists of placing electrodes of faradic apparatus on calf and under surface of the leg to be tested, with current insufficient to produce muscular contraction. When tendon reflexes are tested at this time, a positive response is much more easily elicited than by other methods. The voice sign in chorea, as described by the author, consists of distinct changes of pitch and intensity from the normal vowel sounds.

THURSDAY, JUNE 25TH.

Morning Session.

A Brief Summary and Analysis of the Work Done by Psychoanalysts, with Reference to the Diagnosis and Treatment of the Psychoses.—Dr. JAMES J. PUTNAM, of Boston, briefly summarized the work and aims of the psychoanalysts, particularly calling attention to the possibilities of preventive measures for the control of nervous and mental diseases. Psychoanalysis is destined to become important, not so much directly as by stimulating a practical psychology and ethical education. It is held that psychoses and psychoneuroses are not simply misfortunes or accidents, but definite results of unconscious attempts at adjustments, and the symptoms exist because they serve a purpose. The patients are dissociated and without insight, and the aim of psychoanalysis is to broaden the field of their consciousness. The preventive education of the child should begin with that of the adult, for lamentably few parents or teachers are prepared to give children under their influence sympathy and rational instruction during their formative period.

Genetic Factors in One Hundred Cases of Psychoneurosis.—Dr. DONALD GREGG, of Brookline, Mass., reviewed the analysis of 100 cases of psychoneurosis from the outpatient department of the Psychopathic Hospital in Boston. The causative factors, so far as they could be determined, were divided into the essential or congenital factors and the provocative. Among the former were the following conditions in the progenitors, in order of their importance: Lues, insanity, alcoholism, neuropathies, and tuberculosis. The provocative factors embraced the environmental influences and somatic disturbances. The provocative agents have been brought into the limelight by psychoanalysis. Some of the conclusions drawn were to the effect that at least one essential factor was found to exist in a majority of the cases; that as a rule the more factors found to be at work, the more serious was the neurosis; that environmental factors tend to cause symptoms earlier than somatic conditions; and that the requirements of prophylaxis are early diagnosis, careful consideration of the causative factors, especially in regard to their correction.

The "Not Insane" and "Voluntary" Admissions to the Psychopathic Hospital, Boston.—Dr. E. E. SOUTHARD stated that of the last 2,500 cases discharged from the Boston Psychopathic Hospital, 570 were classified as not insane, 105 as recovered, and 177 improved. The not insane included feeble-minded, psychoneurotics, alcoholics, epileptics, etc. From a total of 4,051 admissions, 636 were

voluntary, possible through the new "temporary care" law of Massachusetts, which does not require commitment procedures. Through the operation of the law many hundreds of cases have been saved from the stigma of insanity. Attention was called to the urgent and widespread need of institutions for the poor where psychopaths could be properly observed and treated. Such institutions can be successful only when backed by adequate state laws.

Present Teaching of Psychiatry in American Medical Schools.—Dr. ROSS MOORE, of Los Angeles, summarized the replies which he had received to a series of questions sent to the various medical colleges concerning the time and method of teaching psychiatry. From this material it was found that an average of 33.4 hours were devoted to the teaching (clinical and didactic) of psychology and psychiatry in the schools from which replies were received; there was but little attempt to correlate the subjects of psychology and psychiatry. Various views were expressed as to the requirements of an ideal course in this subject, but most of the replies indicated unsatisfactory conditions, and that the needs required from thirty-three per cent. to fifty per cent. increase in time devoted to the subject, as well as more clinical teaching.

The Ideal Course in Psychiatry for Medical Schools.—Dr. H. DOUGLAS SINGER, of Hospital, Ill., considered the so called mental diseases not as disease entities, but rather as modes of reactions to conditions of disease or unfavorable environment. Based upon this broad conception of the psychoses, the ideal course in psychiatry was held to require systematic instruction along the following lines: Physiology of the nervous system, dynamic psychology, individual reaction types, disorders of attitude from inadequacy of affective reactions, changes in nutrition, and gross structural alterations.

SECTION IN DERMATOLOGY.

TUESDAY, JUNE 23D.

Afternoon Session.

The Future of Dermatology in America.—Dr. RICHARD L. SUTTON, chairman, of Kansas City, in his address to the section, considered that one of the most important questions for them to solve is along that of education. Possibly the most crying necessity in this line of their work is in the direction of the study for the consideration of the care of lepers. In the same line and next in importance was the study of syphilis. He felt that the schools must make a special effort to promote the study of syphilis; that a year's internship in a hospital for the study of syphilis, as well as of dermatology, is much to be desired.

The Necessity for the Establishment of a National Leprosarium.—Dr. W. C. RUCKER, of Washington, D. C., said that the problem of control presented many complexities; that they must first recognize certain facts. The incubation period in man is unknown; there is no positive means of diagnosis in early stages. The disease is mildly contagious; not limited to any country. In the United States, disease is surely on the increase; more or less great number of cases unreported. Upon the segregation and cleanliness depend the final elimination of the disease. The speaker placed great stress upon the unkind, if not inhuman, treatment in general of the leper in this country. Communities at large seem afraid to openly discuss the present situation for fear of the institution of a leprosarium in their own vicinity, forgetful of the mildness of the infection. If the disease is fearlessly attacked now in this country, and the government is now awakened to the necessity for this, it could be easily eliminated; but if work in this direction is procrastinated much money and time will be required for its final elimination. The speaker suggested that one national hospital be erected in a suitable site, with proper laws to regulate the admission, discharge or period of absence of any patient under its control.

The National Care of Leprosy.—Dr. ISADORE DYER, of New Orleans, considered that the disease is widespread and under very little control. Immigration of lepers is very easy into the United States. The simple control of some States is in absurd contrast to the hysterical effort of those of other States. The knowledge of the Louisiana home has made it a subterfuge for many cases coming from all over the States and even from foreign countries. More study has been observed in this country for the treatment and the care of this disease than in any

other. Bacteriological study has been possibly more diligent at Tulane University than in any other in this country. With us there is an undoubted progress of the disease. There should be a national asylum, with the proper provision for the admission and discharge of the patients, for the proper care and study of the disease. Single rooms, instead of wards, and separation of men, women, and children, are best in the new leprosarium. Doctor Engman, of St. Louis, suggested that there should be governmental control, and under such the hysterical condition of the laity in relation to this disease should be stopped. Education of the public could also help to stop this hysterical manifestation which nags them on to inhuman treatment of the leper. The motion was proposed by Doctor Engman, and seconded, that a committee of three from this section draft a resolution to the House of Delegates upon the question, urging the government to prepare a way for the national care of leprosy and the establishment of a national leper home.

The general belief was that the inhuman, cruel treatment of the leper should be stopped; that there should be proper protection for the public health; that State hospitals were not efficient and that there should be one hospital under national control; that it was the special duty of dermatologists to undertake the larger burden of public education.

In conclusion, Doctor Rucker did not know positively whether leprosy is truly a mild or violent contagion, and until this is a known fact a good national leprosarium could be made a home and a refuge and not an enforced prison.

A New Method of Treatment for Lupus vulgaris.—Dr. M. L. HUDINGSFELD, of Cincinnati, uses a saturated solution of trichloroacetic acid in lupus vulgaris, with eventual destruction of the growth. Several years of study had led the writer to believe that his treatment was at least equally successful and possibly more so than any other known methods. Cosmetic results were good, better than x rays; the method was devoid of severe pain; does not cause a subsequent dermatitis; no cost for equipment; improvement noted in a few weeks, and a cure results within more or less of a year. A saturated solution of trichloroacetic acid, upon a piece of cotton and a toothpick, is applied to the congested nodes for a few seconds at a time. This he follows by a cooling lotion of a combination of zinc sulphate, potassium sulphide and zinc oxide. Applications are made fourteen to fifteen day intervals, which may also be used upon the mucous membranes of the nose and lips. Professional opinion showed that in this affection the x ray has little value, though in some exceptional instances cures have been obtained. Lantern slides demonstrated the writer's successful use of the drug.

WEDNESDAY, JUNE 24TH.

Morning Session.

A Few Practical Points in the Treatment of Leg Ulcers.—Dr. A. RAVOGLI, of Cincinnati, described types of leg ulcer; in chronic cases it is necessary to slough off superficial layers of tissues to produce healthy granulations beneath; cleanliness of lesion should be maintained; hot packs with salines or alkalis should be used to facilitate sloughing, followed by a suitable mild healing ointment, as boric acid; surgical freshening of edges was often necessary; use of dyes as dusting powders was not particularly beneficial.

The Diseases and New Growths of the Skin of Lymphatic Origin.—Professor G. ARNDT, of Berlin, read a paper on lymphadenosis. He said that the skin may be the first to show symptoms of the disease. The changes in the skin at the beginning are not characteristic. There may be petechiae of the skin and mucosae suggestive of scurvy; the diagnosis only being determined by the blood picture. Another stage is characterized by pale papules, as prurigo, coincident scratch marks and crusts. This prurigo lymphatica may be seen in generalized lymphatic diseases as well as in lymphogranulomas. Simple pruritus with no other primary lesion is not uncommon. Urticaria papulosa and vesiculosa, and carbuncles are frequently found. Erythrodermias may slowly become generalized with possible enlargement of liver and spleen, though these are often absent; the blood picture clears the diagnosis. Fever is sometimes present, often severe. Histologically are

found diffuse infiltration of lymph cells, sharply limited below the papillary layer—very characteristic; infiltration is identical with that around the lymph nodes; mast cells are sometimes seen in large numbers; there is dilatation of blood vessels. Pityriasis rubra of Hebra sometimes is classified here. Circumscribed growths were described as soft elastic, with occasionally a violaceous hue. Universal types are not very well defined. Nothing is positively known as to the real cause of this general hyperplasia of connective tissue.

Summary of Research Studies in Psoriasis.—Dr. JAY F. SCHAMBERG, Dr. R. W. RAIZISS, and Dr. JOHN A. KOLMER, of Philadelphia, described the results of varied protein diet upon psoriatic patients as found in research work in psoriasis. A low protein diet, readily demonstrated by confined hospital cases, showed prompt improvement, even to healing of the lesions; while a high protein diet under the same conditions produced an increase of the lesions. Ambulatory patients, both clinical and private, were not so well controlled—therefore results were not so good. The diet can be readily maintained by eliminating meat, fish, and fowl—allowing very few eggs, and a small amount of milk. A sufficient amount of vegetables, cereals, and fruit is given in great enough quantities to satisfy hunger containing therein just enough protein for the necessary metabolism. Chrysarobin is a very valuable agent, and both it and its derivatives possibly owe their activity to robbing the tissues of their loose oxygen. It was suggested that this action may be one of the causes of the difficulty in finding the active cause in psoriasis. Novorobin, a derivative of chrysarobin, is more active than any other of the by products discovered. The cause of psoriasis is still undetermined.

Afternoon Session.

Syphilis in the American Negro.—Dr. H. H. HAZEN, of Washington, D. C., believed that the negro with syphilis was a difficult problem and required serious consideration. At the present time there may be two types of negro recognized, the educated and the ignorant. The educated present about the same type of syphilitic infection as the white, while the ignorant have far the greater proportion of violent symptoms. Before the liberation of the slaves they were well clothed, housed, and protected for commercial reasons against any contagion. When released from bondage, the ignorant walked direct into all the avenues of contagion, and are now frightfully syphilitic. Syphilis is found oftener in the negro than the white; is largely of sexual origin; rarely an extragenital chancre being seen; the average age about twenty-one years, though no age is exempt. Papular syphilides are possibly the most common. Glandular enlargements are more constant in the negro, but it should be remembered that in the negro, adenitis is invariably present. The patients are not tractable to treatment, in that they are migratory and not persevering. Propaganda work is not effective, because of native ignorance; young children should be forced by some means to come to clinic for continuous treatment; slipshod methods of physicians in general and hospitals were derided. Doctor Hazen suggested that the work of direction of treatment in hospitals should be under one head; there should be a corps of specially educated nurses for their care; special provision should be made for them in the eye hospitals.

Observations on Strains of the Pallida Group of Spirochetes.—Dr. HENRY J. NICHOLS, of Washington, D. C., asserted that early localization of spirochetes was followed soon by septicemia. Changes in the spinal fluid show early involvement, so there may be no external manifestation. It is possible that the apparent later syphilides had an early origin. In the latent stages there are no consecutive positive results; it is probable that the spirochetes localize early and produce local symptoms; there is no special reason to believe that there is a general dissemination later in the disease. Different strains exist of the pallida; he suggested that they be isolated and fully studied; it might be possible to find the exact localized areas, and treat *in loco*. Spirochetes have a special affinity for the genital organs. Active lesions in one organ tend to inhibit activity in another affected organ, for the time being. Strains are probably permanent in type.

Treatment of Syphilis of the Nervous System.—Dr. JOHN A. FORDYCE, of New York, said that the nervous system became involved in secondary syphilis; organisms remained latent to light up later in life. In treatment, potas-

sium iodide he believed one of the best remedies in gummata, periostitis, and disseminated forms of meningitis. All types of meningitis were not amenable. Definite treatment of cases should be determined by careful serological work. In employing salvarsan by intraspinal injections great care should be exercised in the technic and doses, and frequent serological examinations made. To avoid ugly symptoms such as persistent headache, nausea, and vertigo, prophylaxis should be exercised; administration of a cathartic first, flat posture absolutely maintained with quiet. It was possible for specific findings to be limited to the brain and cord—the cause was difficult to explain.

The Intravenous Administration of Mercury in Syphilis.—Dr. JEROME KINGSBURY and Dr. PAUL F. B. BECHT, of New York, reviewed the history of intravenous injection of mercury. The preparation of mercury now in use is the bichloride, the dose not to exceed one third grain in at least twelve c. c. sterile water, introduced usually into the veins at the elbow. For treatment, it is to be extolled as a helpful medium in severe lesions difficult to move by other methods; produces no pain; only occasionally is followed by a temporary local phlebitis; mixes rapidly in the blood stream. Occasionally ptialism and diarrhea may be disturbing symptoms, which soon disappear. Palmar squamous syphilides quickly disappear after one to four injections. This may be done twice weekly, and seldom more than five or six doses are demanded to remove a stubborn skin lesion.

THURSDAY, JUNE 25TH.

Morning Session.

Association of Erythema nodosum and Tuberculosis.—Dr. O. H. FOERSTER, of Milwaukee, Wis., said: Etiology of erythema nodosum awaits solution. Review of the literature discloses a multiplicity of opinions with regard to the association of erythema nodosum to tuberculosis. There is a general belief that there is some association, and if not in all, at least in many cases, particularly in children. The writer believes that the lesions are not immediately tuberculous; that they prepare an avenue for a tuberculous invasion. In the two cases detailed, both girls, the lesions followed an attack of measles; one case immediately developed cervical adenitis, which was rapidly followed by tuberculous meningitis. The other case also developed cervical adenitis, after the lesions appeared upon the arms. Fever accompanied this development, and a generalized papular tuberculide rash appeared. The child finally succumbed to tuberculous meningitis.

Radium: Its Use and Limitations in Skin Diseases.—Dr. FRANK E. SIMPSON, of Chicago, employs applicators with tips of radium varying in radial activity. Uses filler shields of different substances as lead, silver, aluminum-platinum. It is well to make a selection from these as experience dictates, for they may influence the quality of the resulting reaction. Duration of the treatment varies according to personal desire, usually from fifteen to twenty minutes. An inflammatory reaction follows, more or less severe according to the strength of the radium and the length of time applied, dermatitis similar to that of x rays, but more readily healed. Radium is particularly helpful in epitheliomas, lupus erythematosus and angiomas. Just why all cases are not amenable to the rays is still not understood. Beautiful cosmetic effects may be obtained (slide demonstration). Some cases of lupus erythematosus relapse. Others remain healed, whether permanently is still to be determined. The writer had most successful results, particularly with port wine stains in children. Has been successfully used in a case of blastomycosis, lichen planus, moles, keratoses, etc. Whether they continue to remain healed, the future will determine. The writer does not believe it wise to use radium on epitheliomata of the lips—surgery preferred.

Professor DUANE, of Harvard, demonstrated by a small glass tube what is known as radium emanations. The radium emanations remain actively efflorescent for about an hour, during which time it is therapeutically curative when placed immediately over a diseased area. Discussion brought out that the x ray was less efficient in official work because it is not so easy of application, and that mucous membrane takes less kindly to healing under the rays. It is not understood why epitheliomata in certain instances yield to radium and not to x rays, and in other instances vice versa. This possibly is due to a special ability of the manipulator.

SECTION IN ORTHOPEDIC SURGERY.

TUESDAY, JUNE 23RD.

Afternoon Session.

Some Remarks on the Etiology and Pathology of Bone and Joint Tuberculosis.—Dr. JOHN FRAZER, of Edinburgh, Scotland, spoke as follows: Exhaustive studies in bone and joint tuberculosis prove that it is never a primary implant, but invariably secondary to a more or less evident focus elsewhere. The existence of bovine tuberculosis as a factor in the production of bone and joint tuberculosis cannot be controverted, as witness the deplorable state of affairs in Scotland due to the prevalence of the disease in cattle. The localization of the disease is due to the retardation of the blood stream following trauma or less easily explained circumstances.

Doctor FRAZER was voted an Honorary Fellowship as an expression of the esteem in which he and his work were held.

Ankylosis: An Experimental Study.—Dr. NATHANIEL WILSON, of St. Louis, stated: Twenty-three experiments were carried out on the knee joints of dogs. These were divided into four classes: Partial excision, nine; removal of cartilage, three; injury to cartilage, two; infection to joint, eight; by direct introduction of organisms into joint, eight. True bony ankylosis is an extremely slow process, the successive stages of which are first by granulation tissue, which gradually becomes dense; fibrous tissue, which by metaphysis becomes cartilage and directly changes into bone. Any method of arthroplasty employing interposition of soft parts to prevent ankylosis should include the possibilities of fibrous ankylosis ultimately becoming bony.

Arthroplasty with the Aid of Animal Membrane.—Dr. W. S. BAER, of Baltimore, described results based on a series of fifty-two cases, all on human beings, with a result of seventy-one per cent. movable joints, none of the operations having been performed less than eighteen months ago. Advantages of use of animal membrane over transplant are: The joint more normal in size, as the interposed tissues are not nearly so thick; simplicity of operation, no need of flaps or secondary operation to complete; less interference with the stability of the joint, no need to sacrifice cartilage or ligaments, as in fascial flap operation. Infection is less likely if membrane is perfectly sterilized. Forcible manipulation and motion are not necessary at as early a period. After operation nothing is left in joint in way of foreign matter to incapacitate from normal function. The parts are as nearly normal, after absorption, as is possible. Ninety day chromicized membrane from pig's bladder is used. Six day chromicized gut is used in skin wound, which should be very closely sutured.

Doctor RYERSON said that he had had but little difficulty in getting good results in hip or jaw operations by osteoplastic methods, but must confess inability to get as good results in such operations on the knees.

Doctor ELLISON agreed with Doctor BAER on the value of the animal membrane as compared with osteoplastic flap either free or pedunculated, and felt that possibly Doctor Baer's work shows that marked bone resection in conjunction should be done.

Doctor FRIEBERG believed that successful arthroplasty of the knee must be accomplished by membrane, as the method involves less destruction of the soft tissues protecting the joint.

Doctor BAER, concluding, said: In eight operations he had had fifty per cent. good motion in knees. Of the remaining four, which were tuberculous, three set up active tuberculous process. He had had extrusion of membrane in probably twenty per cent. of cases. It was accounted for by amount of chromic acid in membrane, or wound not sewn tightly enough with sixty day chromic catgut, or by a wound not sufficiently cleaned of blood before closing. If membrane is extruded after three months, however, it may be entirely without loss of proper result.

SECTION IN LARYNGOLOGY, OTOTOLOGY, AND RHINOLOGY.

TUESDAY, JUNE 23RD.

Afternoon Session.

Preventive Otolaryngology.—Dr. B. R. SHURLY, chairman, emphasized the importance of preventive medicine, with special reference to otolaryngology. An exhaustive examination of patients was strongly advocated to exclude the existence of more than one affection. The house fly

should not be allowed to go unmolested, but a vigorous warfare should be instituted to eliminate it as a carrier of infection. The running ear, especially in children, should not be considered with indifference on account of the possible complications that might arise. Much can be accomplished in preventing disease if the proper care is exercised.

Chronic Focal Infection of the Nose, Mouth, Throat, and Ear.—Dr. J. C. BECK considered the subject from the standpoint of resistance immunity, type of the organism present, diagnosis, and treatment. The symptoms manifested may not be more than a general feeling of depression and an inability to perform the usual amount of work. The offending organism may be any one of those known to bacteriology, but the infection is usually due to a combination of two or more. Immunity against an outbreak of the invading organisms may be a natural condition or may be acquired by vaccines or bacterins. The opsonic index is important in determining the patient's resistance. Difficulty may sometimes be encountered in locating the portal of entry of the infection. The teeth should not be passed over without consulting a capable dentist and without an x ray picture of both jaws. The examination of the nasopharynx can be satisfactorily performed by the direct method, by using the rubber catheter through the nose, as advocated by the author. Infection through the ear usually gives few symptoms, and those are invariably referable to the mastoid region.

The object of the treatment is to eradicate the focal infection and increase the resistance of the patient.

The Faucial Tonsil as a Gateway to General Infection.—Dr. N. L. WILSON stated that more emphasis upon the possibility of general infection through the tonsils would undoubtedly act as a means of preventing the cutting short of the life of the child. He believed the ring of Waldeyer to be the most vulnerable part of the body and the faucial tonsils the most frequent source of infection. The size of the tonsils is no index to the amount of trouble produced. The curettage of the crypts and the application of iodine and carbolic acid may be of benefit, but does not always, if ever, effect a cure, as evidenced by the subsequent removal of the glands in one case, in which a culture of the crypts showed the presence of streptococcus. The use of calcium salts for one to three days before the operation may not decrease the bleeding at the time of operation, but will have a tendency to prevent secondary hemorrhage.

Doctor STAMBAUGH stated that the tonsils are the most important foci of systemic infection, and he was of the opinion that they are more frequently the seat of streptococcus infection than any other organ of the body. Not infrequently the patient will complain of pain incident to an arthritis or a neuritis, or will manifest symptoms of a nephritis a week or so after the acute attack. Infection becomes difficult of recognition when it is of a latent nature. Doctor Carter stated that primary disease seldom produced focal infection. Such a condition occurs as a rule only after the pathological changes have taken place.

WEDNESDAY, JUNE 24TH.

Morning Session.

The Reconstruction of the Nasal Septum After the Submucous Operation.—Dr. J. A. BABBITT emphasized the importance of careful consideration of the physiology, pathology and anatomy, as well as the symptomatology. In correcting deformities of the septum, traumatism should be reduced to the minimum degree and the circulatory channels should be retained as far as possible. The supportive character of the splint is important. Doctor BABBITT advised the use of rubber tissue around the dressing in order to facilitate its easy removal. No aftertreatment in the way of sprays is necessary after the removal of the dressing, as the normal nasal secretions are sufficiently antiseptic to prevent complications by infection.

The Relation of Pathological Conditions in the Nose and Throat to the Development and Treatment of Hyperthyroidism.—Dr. S. P. BEEBE stated that the secretion from the thyroid gland is not limited to its own borders, but manifests evidence of a general influence. The opsonic index is lowered by the removal of the thyroid gland. Poisons that may not be effective with the gland *in situ*, may manifest their deleterious effects in the absence of this organ. A close relationship seems to exist

between the tonsils and the thyroid gland, the latter frequently assuming normal proportions upon the removal of the former. However, other sources of infection of the respiratory tract should not be overlooked. This calls for a careful examination, at all times, of the nose and throat. Doctor SHAMBAUGH mentioned the fact that palpable evidence of disease of the tonsils cannot always be determined; yet removal of these glands produces a diminution in the size of the thyroid. Doctor BARNHILL advanced the point that in order to get the desired relief, when the tonsils are thought to be at fault, tonsillectomy must be performed early. Doctor BECK stated that the relief from removal of tonsils may be only a transient one, as the toxic elements affect the vagus, which in turn influences the sympathetic, which produces a disturbance of the internal secretion. Doctor BEEBE stated that the uniform symptoms were fatigue and tremor. Rest is the main factor in the treatment with suitable doses of thyroid preparations over a long period of time, with the necessary supportive measures.

Afternoon Session.

Treatment of Deafness Due to Ossicular Fixation.—Dr. P. D. KERRISON was of the opinion that a reverse Rinné is indicative of fixation of the stapes. He emphasized the fact that too long practice of inflation is conducive to loss of tone. In the treatment of cases of fixation, the method employed was to make an incision into the tympanic membrane, engage the handle of the malleus with a hook and produce traction, thereby increasing the excursion of the stapes. Improvement of hearing took place afterward. Doctor PIERCE mentioned the fact that Bezold had demonstrated that fixation could be determined with the tuning fork. He was of the opinion that no permanent benefit would result from the operation as described, but that improvement might be noted following ossiculotomy.

THURSDAY, JUNE 25TH.

Morning Session.

The Suspension Method of Killian.—Dr. R. H. SKILLERN believed that ether is the most satisfactory anesthetic for the performance of this operation. The ideal patient is one with a long, slender neck. This method is especially adaptable in children. Short, thick neck individuals and old people offered difficulties to a successful performance. The direct method is usually tried first; if successful, the suspension is resorted to. Instruments must be introduced with care. Spatula must be of sufficient length and kept in median line, otherwise vision is obscured. Its introduction must be under the guidance of the eye in order to prevent laceration of the postpharyngeal wall. Teeth should be protected. Coughing should be guarded against in order to prevent the hook from being thrown off the bar. The shoulders should always rest on the table. The advantages gained by this method are a direct view of the larynx and a continuously illuminated field; there is sufficient working room for both hands. The upper air passages are not filled with blood, which flows into the nasopharynx and is easily aspirated. The removal of growths and foreign bodies is facilitated and is aided by two sources of light. Curettage of the larynx under direct supervision is possible. It appears to be an ideal method for diagnostic purposes. Doctor REDPATH called attention to the fact that if tonsils are removed while the patient is suspended, one must bear in mind that while the position throws the tonsils toward the median line, it also throws the superior portion back into the fossa, and the superior lobe may escape the snare.

Laryngeal Papilloma.—Dr. H. SMITH stated that the existence of the growth in children was very apt to interfere with proper development. The condition is found more frequently in men. Fulguration has proved disappointing in children. It is well to see that insulation is sufficient to prevent a short circuit with the spatula. Most efficient treatment at present seems to be tracheotomy, the child wearing the tube constantly from 6 months to 2 years. Radium may be used to advantage in certain cases. Various therapeutic measures have been resorted to, but with not much decided benefit. Doctor IGLAUER said that in the future he expected to remove the tumor mass by suspension laryngoscopy, following a preliminary tracheotomy, and to sear the base with an electric cautery.

SECTION IN OPHTHALMOLOGY.

TUESDAY, JUNE 23D.

Afternoon Session.

Chairman's Address.—Dr. FRANK C. TODD, of Minneapolis, urged the promotion of research work in ophthalmology and above all of better teaching of ophthalmology. At present there is no systematic course as a rule, but the instruction is almost wholly clinical. High grade medical schools with proper facilities should undertake to teach ophthalmology together with ample opportunity to study closely related branches. The future ophthalmologist should choose his line of work early and become thoroughly prepared. If a degree is conferred the requirements for it should be uniform in all colleges.

Ocular Manifestations of the Toxemia of Pregnancy.

—Dr. WARD A. HOLDEN, of New York, reported the case of a woman twenty-five years old, eight months advanced in her second pregnancy, who had albuminuria, edema about the ankles, paralysis of the left external rectus, and an absolute central scotoma in each eye, so extensive that vision was reduced to recognition of movements of the hand in the entire periphery of the field. The fundi were normal in appearance except for a trace of retinal edema about the macula in each eye. Premature labor was induced, and the patient regained her sight and the use of the parietic muscle, but had night blindness. He offered two conjectures—one that a defective elimination of salines led to an edema of the dura which compressed the sixth nerve and later each optic nerve, thus causing central scotomas; the other that an increase of salines in the blood caused edema of the retina and proliferation of its pigment epithelium, which resulted in night blindness.

WEDNESDAY, JUNE 24TH.

Morning Session.

Epithelioma of the Lids.—Dr. CARL FISHER, of Rochester, Minn., presented a study of eighty-eight cases of primary epithelioma in the lids and canthi, or involving them from the skin in the immediate vicinity. They were all of the type of the rodent ulcer. In five, glandular involvement was present when first seen. This seems to be favored by unsuccessful treatment, as four had been previously treated with pastes or x rays, and about the same proportion was found in epitheliomas of the cheek showing glandular involvement. The treatment was the actual cautery, radical excision, or excision with actual cautery of the wound, according to the site of the growth and the degree to which it had progressed. Recurrences took place in situ in seventeen per cent. when the lids and canthi alone were involved, but when the growth had penetrated the orbit the percentage rose rapidly, eight out of eleven. Of thirty-three that did not include the orbit and in which the records are complete, ninety-four per cent. were cured by operation, counting as cures those in whom no recurrence has appeared for at least a year, but when the orbit was involved, eighty per cent. were not cured. The percentage of two years' cures was given as eighty-four, which is better than the sixty-eight per cent. obtained with radium. The Röntgen ray is not trustworthy. Operative measures form the safest means of treatment of any that are known.

Dr. E. E. JACK, of Boston, had taken up the question with experts in surgical and other methods, and found that surgeons preferred primary operation, the others to have operation performed first in case of deep growths. In superficial cases the results are about equally good with radium or with operation. The claims of chemotherapy, the introduction of organic substances to devitalize cancerous growths, seem to be unsubstantiated.

Doctor JACKMAN, of Denver, maintained that no remedy has ever been more incompetently and inefficiently used than the x ray, but it is curative in the hands of experts.

Doctor CLARK, of Philadelphia, advocated the desiccation method of treatment, in which the cancerous tissue is destroyed by a single application of heat which stops short of carbonization.

Sclerocorneal Trephining for Glaucoma.—Dr. WALTER R. PARKER, of Detroit, collected from various surgeons, for whom Colonel Elliott operated when in the United States last fall, the data as to the results of his operations, and presented them in tabulated form. His conclusions were that the average results obtained from this operation are better in the noninflammatory type than in

the other forms of the disease. The results obtained when the operation was associated with a complete coloboma were better than when performed with a partial iridectomy, or when the iris was left intact. The remote results may not be as good as those shown immediately after the operation, and the number of cases here recorded was too small to permit of definite conclusions concerning the real value of the operation in relieving glaucoma.

Value of Miotics in Chronic Glaucoma.—Dr. W. C. POSEY, of Philadelphia, corroborated the findings he reported in 1906 and 1908 concerning the benefit to be derived from the constant prolonged use of miotics. The figures given proved that drug treatment exerts a more beneficial influence than iridectomy on the progress of chronic glaucoma, and other operations have not yet proved to be better. Miotics should be relied on as the sole method of treatment only in cases that are free from congestive symptoms. They should be begun in small doses and increased until the pupil is strongly contracted, and this contraction maintained throughout life by occasionally increasing the strength of the solution. Local massage is of decided advantage and the general conditions should be attended to.

Doctor WOODS, of Baltimore, suggested that a hereditary dyscrasia exists in several sorts of diseases of the eye, and described two cases of glaucoma in young people that had peculiar features. Hypertension, deep or normal anterior chambers, and sluggish pupils, suggest something else than glaucoma. Certain general diseases, like pneumonia or malaria, may be a factor. Doctor WEEKS, of New York, maintained that cases for Elliott's operation should be selected very carefully. He preferred to do a complete iridectomy and to suture the flap. Hemorrhage occurs in all degrees, but no greater than from iridectomy or sclerotomy. Detachment of the choroid is reported in eight per cent. from the Vienna clinic, but he had not seen it. Complicating accidents were not more than in other operations. Tension recurs in a certain percentage. He had seen no case of late infection, but this was an occurrence that must be taken into serious consideration. Doctor CHENEY, of Boston, said that miotics were used very largely in a half hearted way. The age of the patient is important in determining the line of treatment, and he was apt to advise operation in patients under sixty. Trephining reduces tension more than miotics, but is associated with danger, particularly of late infection that lasts all the patient's life. A number of other gentlemen took part in the discussion, which generally focused about Elliott's operation, and the consensus seemed to be that while they could not speak finally concerning the merits of this operation for four or five years to come, it is not without serious dangers. Doctor Parker perhaps summed up the matter in closing when he recommended first to use miotics; if these failed, to do an iridectomy, and if this failed, to trephine.

WEDNESDAY, JUNE 24TH.

Afternoon Session.

Convergence Insufficiency.—Dr. ALEXANDER DUANE, of New York, asserted that convergence insufficiency is a frequent condition, which in a great many cases seems to cause no trouble whatever. It is an anomaly of a co-ordinate movement of the eyes, therefore central, and not of the muscles, that presents the following features: Deviation for distance little or none; abduction not excessive; adduction subnormal and difficult; exophoria for near points marked and increasing with approximation of test object; convergence near point abnormally remote; lateral movements of each eye, inward and outward, normal in extent and concomitant; diplopia, if present, not increasing to right or left; convergence reaction of pupil deficient or absent. It may be primary or secondary. The primary form may be accommodative or nonaccommodative. A secondary convergence insufficiency may develop when a divergence excess has lasted a long time. The symptoms are diplopia, asthenopia, eyeache, headache, and sometimes are reflex. Treatment consists in correction of the refraction, and of other exciting causes; in practice in converging on an approximating point with prisms base out; practice with the amblyoscope, stereoscope, and bar reading; practice in the recognition of diplopia with the aid of the red glass, etc.; prisms for constant wear; operation. The last should not be done until other means have failed,

and the writer does not approve of wearing prisms constantly.

Dr. W. N. SOUTER, of Portsmouth, N. H., was inclined to think the convergence near point to be nearer 12 than 9 cm. and considers the wearing of prisms base in to be of great value.

Dr. FRANCIS VALK, of New York, advocated early operation. He prefers a shortening of the weak muscle and is opposed to tenotomy.

Doctor WELLS, of Boston, pled for more constant use of the stereoscope to develop the fusion faculty.

Doctor WILKINSON, of Washington, finds an exophoria for near of 3° or 4° in 90 per cent. of presbyopes, which is very slightly affected by the correction of refractive errors. When muscles are parietic he has obtained benefit from electricity and nux vomica.

Doctor STEVENSON, of Akron, recommended the fitting of near glasses at a good distance, provided occupation permits, and to change them rather frequently. He has found that the insufficiency may differ as the object is held directly in front or a little to one side.

The Etiology of Phlyctenular Ophthalmia. Is Tuberculosis Really as Important a Factor in the Causation of this Disease as is Now Commonly Taught?—Dr. SAMUEL THEOBALD, of Baltimore, maintained that no convincing evidence that phlyctenular ophthalmia is tuberculous had yet been adduced, and that in the present state of our knowledge of the etiology of the disease, the use of tuberculin therapeutically is not justifiable. It is a disease of childhood and study of the cases leads him back to the old idea that it is an eczematous disease, due to intestinal intoxication. He believed tuberculosis to be rarely an etiological factor.

Doctor WEIDLER and Doctor CURTIN seemed to rely on von Pirquet's test, which was later objected to by Doctor Theobald on the ground that this test simply indicated that the organism had received an infection at some previous time, but did not show the presence of an active process. Dr. Curtin found this reaction positive in eighty per cent. of the patients under ten years old, and that the balance cleared up under intestinal treatment. The opinion of most of the speakers seemed to be that the recurrences were stopped by tuberculin and that this drug did no harm when properly used.

SECTION IN ORTHOPEDIC SURGERY.

WEDNESDAY, JUNE 24TH.

Morning Session.

A Neglected Type of Ankle Fracture.—Dr. F. J. COTTON, of Boston, described a type of ankle fracture that was not a Potts fracture, the lesion being a splitting of the tibia posteriorly, with dislocation backward of the foot and wedge shaped fragment. Both malleoli were fractured and the foot was plantar flexed. The condition is not uncommon; in two years he has had fifty-three cases. To correct it, the plantar flexion is slightly increased, the foot is rocked from side to side until it can be felt to slide forward on the joint, then dorsally flexed sharply. Doctor Cotton objected to tenotomy of the Tendo achillis, because of the consequent atrophy and secondly because one depends on Tendo achillis for the leverage necessary to replace fragment in putting the part up in the position of exaggerated dorsal flexion.

The Three Cardinal Signs in the Diagnosis of Fractures In or Near Joints.—Dr. W. G. STERN, of Cleveland, an expert authority, said that probably ninety per cent. of all sprains seen by radiographers for the purpose of study are in reality fractures of some type. In the absence of generally recognized clinical signs the following will suffice for the purpose of diagnosis: 1. Pain and tenderness localized immediately over fragment, elicited by palpation with tip of finger, or rubber tip of pencil, "pencil point tenderness." 2. Swelling over area of fracture. 3. Ecchymosis occurring over area after twenty-four hours. To endeavor to elicit crepitus is not only unnecessary but brutal. Dr. F. J. COTTON, of Boston, said if in injury to a part, the local signs are not manifested at the point of the injury, the condition is probably a fracture.

Resection of the Knee for Tuberculosis.—Dr. M. S. HENDERSON, of Rochester, Minn., said: A functioning knee rarely follows infection of the joint by tuberculosis. True bony ankylosis is almost impossible to obtain without resection. A great deal of time is lost by treatment with

conservative methods and results are uncertain. Only cases of undoubted tuberculosis were selected, the average age was forty-seven years and average duration of infection eight years. He performs complete incision after the usual method; before closing mops the joint with iodine. He had thirty-two bony unions out of thirty-seven cases.

Doctor RIDLON, of Chicago, said that he did not wish to recommend excision of all tuberculous knees, especially in children and even in advanced cases, as much can be done by conservative methods. In adults it is mainly useful as a time saving method. Doctor ALBEE advocated splitting of patella if not too widely involved, and insertion into the joint as transplants. Lane plates are also valuable in obtaining fixation.

Scoliosis.—Dr. E. G. ABBOTT, of Portland, Maine, by means of photographs, demonstrated a method of padding and reasons for it. Cast must be applied in the position of flexion and care observed that the pressure is not so applied as to increase deformity rather than correct it. Overcorrection is necessary for cure, the spine must be carried back over the same route as in the formation of the deformity, and a similar arch in opposite directions must be obtained.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Seventeenth Annual Report of the Loomis Sanatorium. For the Treatment of Tuberculosis. For the Year Ending October 31, 1913. Liberty, Sullivan County, New York. Pp. 85.

A perusal of this report should go far toward convincing the skeptic of the value of properly conducted institutional treatment of tuberculosis. An effort has been made to keep in touch with discharged patients and has been rewarded with a measure of success, over seventy-six per cent. of the total having been reported upon. More than eighty per cent. of the total number were still alive, regardless of the initial severity of the condition. This report covers a period of sixteen years, and the percentage of patients still living is, therefore, remarkably high. The report of the laboratory of the institution shows the large amount of research work which is being conducted, in spite of the fact that insufficient funds have greatly hampered this work. No new measures have been employed in the treatment of tuberculosis, but graduated autoinoculation by controlled exercise and artificial pneumothorax still hold their positions.

Geschichte der Nasenheilkunde. Von ihren Anfängen bis zum 18. Jahrhundert. Von Dr. med. KARL KASSEL, Posen. I. Band. Würzburg: Verlag von Curt Kabitzsch, Kgl. Univ., Verlagsbuchhandler, 1914. Pp. 476.

The relation of the various methods resorted to by the ancients for the relief of conditions affecting mankind and causing discomfort to those afflicted, always proves to be interesting reading, and no less is this true of a special branch of medicine. The courage to prepare a history of rhinology, covering the period from the very inception of medicine to the year 1800, is to be commended because of the labor attached and the difficulties encountered in obtaining authentic reports. The present volume shows a marked degree of patience on the part of the author in the examination of the large amount of manuscript that must have been necessary to make possible a book of this kind. He has reviewed the literature of the past and has manifested considerable skill in presenting only such facts as are of interest and value to those who are historically inclined. Beginning with Egypt, which is mentioned as the cradle of all medical science, he traces the art, as practised in various countries, down through the ages and gives the reader a clear conception of the different methods followed. It is well known that superstition has often had a firm hold upon the masses at certain periods of this earth's existence, and the various methods of treatment not infrequently resorted to, even by those medically trained, appeal to us now only as being

ridiculous. Nevertheless, with the limited facilities at hand for research work, and in the primitive state of medicine, the earlier masters often manifested much ingenuity in their efforts to determine facts during the management of their cases. It is evident to the reader of history that the prominence in medicine of any one country very frequently depended upon the reputation of a single man, and with his death the honors passed to another people. A specific incident of this kind followed the death of Hippocrates. One could write much in commending this work, of such interest to rhinologists, but more is unnecessary, as the book speaks for itself.

The International Medical Annual. A Year Book of Treatment and Practitioners Index. Contributors: Sir CHARLES BENT BALL, Bart. M. Ch., F. R. C. S.; JOSEPH G. BLUMFELD, B. A., M. D.; VICTOR BONNEY, M. S., M. D., F. R. C. S.; FRANCIS D. BOYD, C. M. G., M. D., F. R. C. P.; LAWRASON BROWN, M. D., New York; FRANCIS J. CHARTERIS, M. B., B. Ch.; Sir JOHN COLLIE, M. D.; CAREY F. COOMBS, M. D., M. R. C. P.; Prof. WILHELM FALTA, Vienna; HERBERT FRENCH, M. A., M. D. Oxon., F. R. C. P.; BRYDEN GLENDINING, M. S., M. B., F. R. C. S.; EDWARD W. GOODALL, M. D., B. S.; ERNEST W. HE GROVES, M. D., M. S., F. R. C. S.; OSKAR C. GRUNEF, M. D. Lond., Montreal; C. THURSTAN HOLLANI, M. R. C. S., L. R. C. P.; ROBERT HUTCHINSON, M. D., F. R. C. P.; NORAH KEMP, M. B., C. M.; FREDERICK LANGMEAD, M. D., F. R. C. P.; PRIESTLEY LEECH, M. D., F. R. C. S.; E. G. GRAHAM LITTLE, M. D., F. R. C. P.; CHARLES FRED. MARSHALL, M. D., F. R. C. S.; KEITH W. MONSARRAT, M. B., F. R. C. S.; Sir BERKELEY G. A. MOYNIHAN, M. B., M. S., F. R. C. S.; Prof. CARL VON NOORDEN, Frankfurt; EDW. N. PACKARD, Jun., Ph. B., M. D., New York; JOSEPH J. PERKINS, M. A., M. B., F. R. C. P.; BEDFORD PIERCE, M. D., F. R. C. P.; W. G. PORTER, M. B., B. Sc., F. R. C. S.; JOSEPH PRIESTLY, B. A., M. D., D. P. H.; GEORGE L. RICHARDS, M. D., Fall River, Massachusetts; Prof. LEONARD ROGERS, Maj. I. M. S., M. D., F. R. C. S., Calcutta; J. S. KELLETT SMITH, F. R. C. S.; PURVES STEWART, M. A., M. D., F. R. C. P.; A. HUGH THOMPSON, M. A., M. D.; BEVERLEY R. TUCKER, M. D., Richmond, Virginia; HAROLD UPCOTT, F. R. C. S.; J. W. THOMSON WALKER, F. R. C. S. 1914, Thirty-second Year. New York: E. B. Treat & Co., 1914. Pp. xiii-716. (Price, \$3 50.)

The thirty-second year of publication of this excellent annual brings forth a volume larger, handsomer, and, if possible, still more valuable to the profession. There are 716 pages in this volume and the contributors are, as usual, from the United States, England, Canada, France, and Germany; the illustrations are fine, particularly those in color. The annual begins with a therapeutic review, in which we note that the reports from tuberculin, except from its advocates, are not especially encouraging. In the second part, the dictionary of treatment, the general practitioner, always in search of new remedies, will find ample information from all parts of the world to keep him busy until another edition of the annual is ready. The popular subjects—the various tests of Abderhalden; and Rowntree and Geraghty's method of estimating renal function with phenolsulphonephthalein—receive due attention.

Die Röntgendiagnostik der Magenkrankheiten. Von Dr. M. FAULHABER, Privatdozent an der Univ. Würzburg. 2 vermehrte und verbesserte Auflage mit 48 Abb. im Text und auf 2 Tafeln. Halle a. S.: Carl Marhold Verlagsbuchhandlung, 1914. Pp. 96.

In the introduction to his monograph Faulhaber states that röntgenoscopy (fluoroscopy) will always remain indisputably of much greater importance than all other graphic methods. By such an unqualified statement he closes the gate to röntgenological progress, yet throughout his entire communication he cites the limitations of fluoroscopy, at the same time declaring and continually reiterating that no other röntgenological method can supply its deficiencies. In his opinion röntgenocinematography may prove of scientific or possibly practical value at some future time. If he knew that cinematography or serial röntgenography has been of practical diagnostic value in more than 1,000 cases, with less than a score of proved erroneous diagnoses, he would hardly refer to this method as something which might be accomplished in the future.

Faulhaber's theory that abnormally deep peristalsis is the result of hypertrophy of the gastric musculature places the result before the cause, and is not in accord with the generally accepted theory that activity of the muscular fibres causes a muscular hypertrophy. Although he recognizes the fact that gastric retention, even for as long a period as twelve hours, may occur without organic obstruction, Faulhaber states that one must usually be content with a simple diagnosis of pyloric stenosis, leaving the clinical examination to determine whether the condition is organic or spasmotic. He fails to see that the crux of the whole situation lies in distinguishing between pyloric stenosis of organic origin, which is a surgical lesion, and gastric retention due to a functional disorder of the pylorus or duodenum, which is not a surgical lesion. This differential diagnosis can be made by a serial röntgenographic examination, and frequently the cause of the spasm can be detected at some distant point.

Faulhaber declares that it is impossible to diagnose every gastric ulcer, especially by the Röntgen method. This is a perfectly safe and accurate statement to make. He is still dreaming of a time when the superficial ulcer will be diagnosed by the direct method, oblivious to the fact that his utopia is already enjoyed by a certain group of röntgenologists. Any gastric ulcer, which is surrounded by even 0.5 cm. of induration, can be detected with as great a degree of certainty as a urinary calculus. He admits that callous ulcers can be detected through mechanical disturbances of the motor phenomena by the crude method of röntgenoscopy, and it is only a step to the recognition of smaller ulcers by the use of a thorough technic, which will reveal every fold and ruga in the gastric wall. How large can an ulcer become without distorting the rugæ of the stomach? With characteristic finality, Faulhaber states that the early diagnosis of carcinoma is impossible and must ever remain more or less of a *pium desiderium*. While it is true that röntgenographically one cannot determine at exactly what stage an indurated gastric ulcer becomes malignant, and therefore scientifically one cannot differentiate between an extremely early cancer and an indurated ulcer, yet these early carcinomas or indurated ulcers (embryo carcinomas) can be recognized so early that even the operating surgeon does not know whether he has cured a carcinoma or prevented one until he sees the pathologist's report. In his closing remarks Faulhaber justly emphasizes the value of the Röntgen examination in determining the extent of the involvement and the degree of operability, and adds that in inoperable cases, in which surgical procedure is contraindicated by the Röntgen findings, a needless laparotomy may be spared.

The monograph is profusely illustrated throughout the text with screen tracings. Twelve excellent reproductions of röntgenographs, illustrating the lesions discussed, are appended.

The Pathogenesis of Salvarsan Fatalities. By Sanitäts-Rat Dr. WILHELM WECHSELMANN, Directing Physician of the Dermatological Department, Rudolph Virchow Hospital in Berlin. Authorized Translation by CLARENCE MARTIN, M. D., First Lieutenant, M. R. C., United States Army; Late Clinical Assistant St. Peter's Hospital for Stone and Other Urinary Diseases, London, etc. St. Louis, Mo.: The Fleming-Smith Company, 1913. Pp. 143.

Wechselmann addresses himself to a careful study of the fatalities which have occurred after the use of salvarsan with a view to their avoidance in the future. He regards the drug as safe; indeed, when properly used, safer than large doses of mercury. The author says: "Salvarsan *per se* employed in normal persons in the customary doses is nontoxic. Any evil consequence observed is always due to some organic insufficiency, especially of the kidneys." He furthermore states that millions of salvarsan injections have been given without accident, and that the explanation of fatalities which have occurred is not to be based on purely toxicological grounds; nor is the dose the determining factor. He has administered, on a number of occasions, large doses at frequent intervals without untoward result. On the other hand, a young woman receiving 0.1 gram and 0.2 gram of salvarsan at intervals of six days, succumbed. This, however, appears to have been the only fatal result among 25,000 injections given by Wechselmann.

In most of the reported fatalities, death was due to the hemorrhagic encephalitis. Such a condition, the author

says, is not evidence of acute arsenical poisoning as has been held by some. It is possible that there may be an increased susceptibility of the brain in syphilis to toxic influences. The author is more inclined to believe that insufficiency of the kidneys is the real cause of the deaths following the use of salvarsan. The kidneys may have been damaged by the underlying condition for which the patient is treated and perhaps to a greater extent by the previous administration of mercury. Wechselmann advises careful examination of the urine, particularly when mercury is also used. The conjoint use of salvarsan with massive mercurial treatment, is, in his opinion, dangerous. He believes that mercury, if used at all, should be employed very carefully many days after the last salvarsan injection, but that it should not be used beforehand.

Asthma and Its Radical Treatment. By JAMES ADAM, M. A., M. D., F. R. F. P. S., Hamilton, Dispensary Aural Surgeon, Glasgow Royal Infirmary. With Four Illustrations. New York: Paul B. Hoeber, 1913. Pp. vii-184. (Price, \$1.50.)

Very few conditions are any more distressing to the patient, to the family, and even to the medical attendant than a severe attack of asthma, when it seems that every moment will be the last unless proper treatment is instituted and the desired relief is immediately obtained. The author of the volume under review has done much to determine the etiological factors which might be responsible for this condition, and as the result of his careful observations during years of study, he is led to the belief that the great majority of cases can be traced to a toxemia, usually resulting from faulty metabolism, and often accompanied by some lesion of the respiratory tract, most frequently of the nose. In his experience, the elimination of the toxemia, mainly by the regulation of the diet and the correction of any respiratory lesion, goes far to the establishment of a cure. The book is interesting reading and of value to the nose and throat man in emphasizing the significance of obstructive lesions, especially within the nose. The whole subject appears to be covered with such thoroughness as to make the work also invaluable to the general practitioner.

Die Zuckerkrankheit. (Diabetes mellitus.) Ihre Ursachen, Wesen, und Bekämpfung. Gemeinverständlich dargestellt. Von Dr. med. A. Sopp, Spezialarzt für Magen, Darm, und Zuckerkrankheiten zu Frankfurt am Main. Zweite verbesserte und erweiterte Auflage. Würzburg: Verlag von Curt Kabitzsch, Kgl. Universitäts, Verlagsbuchhändler, 1914. Pp. 90.

The author believes that the necessity for a second edition of this little work is an indication that it has successfully met a real need, and we are inclined to agree with this view because the subject matter is most clearly presented in a form well adapted to the layman's understanding. The patient into whose hands this booklet has been placed by his physician should certainly be far better able to cooperate with his medical adviser than is the average patient; and in diabetes the full and intelligent cooperation of the patient is one of the fundamentals of successful management. Doctor Sopp strips the disease of the vague terrors with which popular imagination has clothed it, and gives a lucid explanation of the elements upon which to base a prognosis, one which cannot fail to inspire the patient with a certain measure of hopefulness, so valuable in setting the mind at rest and aiding in control. His discussion of suitable dietaries is of peculiar value, for with the tables which are given in such a way as to show both caloric values and amounts of carbohydrates in the foods, any patient should be able to regulate his diet according to the limitations prescribed by his physician. Doctor Sopp discusses the uselessness and harmfulness of the folk remedies and the secret medicines, and the flimsy tissue of deception and misinterpretation upon which their popularity depends, and does so in no hesitating manner. In a similar way he warns against the specious claims of the quacks who prey upon these patients and rob them of their needed funds. The booklet is a very brief treatise on diabetes and while it gives the layman much information, it keeps before him the necessity for putting himself into the hands of a competent physician. It is unfortunate that this commendable little book is not translated into English for the use of both physicians and their patients.

Ophthalmic Surgery. A Treatise on Surgical Operations Pertaining to the Eye and Its Appendages, with Chapters on Paraoperative Technic and Management of Instruments. By CHARLES H. BEARD, M.D., Fellow of the American College of Surgeons; Surgeon to the Illinois Charitable Eye and Ear Infirmary; Oculist to the Passavant Memorial Hospital, Chicago, etc. Second Edition, Revised and Enlarged. With 9 Plates, Showing 100 Instruments, and 374 Other Illustrations. Philadelphia: P. Blakiston's Son & Co., 1914. Pp. xi-745. (Price, \$5.)

Doctor Beard is ever a good writer, and it is a pleasure to see how cunningly he has interwoven the recent advances in ophthalmic surgery with the text of his first edition. To tell how it differs is practically to copy his preface, for he has stated there the changes very succinctly. He says: "The present edition contains thirty-three per cent. more text and eighty illustrations more than did the first, yet the contents have been so condensed that the size of the book has not been materially increased. Important new matter has been introduced throughout, and two new chapters on the newer operations for glaucoma and the surgical treatment of detachment of the retina, have been written. Among the descriptions of valuable surgical methods that have been inserted are those relative to Toti's and Butler's operations on the lacrymal canal, Elschmig's and Motais's methods for tendon advancement, Rogman's and Wicher-kiewicz's for epicanthus, Angelucci's for ptosis, Verhoeff's and Green-Ewing's for entropion, Terson's for ectropion, Falchi's for central coloboma of the upper lid, Buedinger's restoration of the lower lid, using cartilage of the ear, and Meisner's restoration of the entire lid." Quite a number more of similar additions are mentioned, like the improved technic for anterior syneciomy and Homer Smith's preliminary capsulotomy, but this list suffices to indicate the magnitude of the changes that have been made. There is little to add, except to praise the sane manner in which the author discusses the merits of various procedures, especially of those called the newer operations for glaucoma. The work is excellent and deserves the highest commendation.

Interclinical Notes.

The *Dial* for June 16th may not have much to interest the doctor as such, but it contains a rich assortment of good things to claim the attention of the physician of literary tastes, who is more numerous, we hope, than is generally believed. We read with particular joy the sharp criticism of two recent novels which have been boomed in outrageous fashion, the style of one and the plan of the other being discriminatingly handled. There is a somewhat unexpected commendation of Bergson. The editorial article on what children should know is admirable.

If doctors ever think of organizing a union to maintain prices, they may obtain valuable information on page 437 of the *Outlook* for June 27th. Of great use to physicians of middle age is the article on Eight Minutes' Common Sense Exercise for the Busy Man, by William J. Cromie, of the University of Pennsylvania; this regime would keep a man fit if conscientiously carried out and is better for stiff joints than the salicylates. This issue is a double number and contains the usual thoughtful comment on current events and a continuation of the autobiography of the venerable editor.

Sandwiched in among some remarkably clever stories in the first July number of the *Popular Magazine*, is a sort of editorial article entitled Words, Words, Words! It is a criticism of the language of the New York banking law. The editor wishes that a Conrad, a Stevenson, or a Rudyard Kipling might be intrusted with the wording of our laws. Might there not be here a career for some of the young writers whose stories are invariably rejected? Why, by the way, did not the writer of the editorial article in question try his own hand on the paragraph which he condemns? He holds it up to scorn, but he does not offer any substitute construction.

Mr. Richard Harding Davis has a story in the June *Metropolitan*, The Card Sharp, supposed to be told by a

surgeon. Even so experienced a writer as Mr. Davis would do well to have a friendly physician go over his copy. Prominent New York surgeons do not write requisitions on the ship doctor for "sleeping potions" for patients of whom they have made no physical examination, and who have not vouchsafed the least detail of personal or family history.

Our retired colleague, Dr. Rupert Hughes, has a tale in the *Metropolitan* for June, The Bitterness of Sweets, in which his knowledge of physiology and dietetics shows most distinctly; Doctor Hughes is of the opinion that the poor do not get good food, either on their home tables or over the counters of confectioneries and drug stores.

Maurice Maeterlinck concludes his extraordinary study of the Elberfeld horses in the June *Metropolitan*, and comes to psychological conclusions that must have astonished the owner and trainer of these animals, whether his work was *bona fide*, or merely clever trickery as many stage conjurors and circus men have insisted. Mr. Maeterlinck allies the mental processes of the horses to those of human mathematical prodigies, whose attainments along other lines are usually not great.

Doctor Lee appears in A Brand from the Burning, by Martha McCulloch Williams in the July *Women's Stories*. He is a "bachelor of forty, with a spare income and a passion for science," who took pay practice with rather a wry face, but gave eager service to those who were in need. We are pained to be obliged to admit that it is this paragon among practitioners who is the brand mentioned in the title; we hardly think he deserved the wealthy and handsome widow heroine.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending June 24, 1914:

Anderson, J. F., Surgeon. Detailed to attend a conference called by the licensed manufacturers of biological products to be held at Atlantic City, N. J., June 22, 1914, for consideration of legal methods and procedures in the control of biological products. Austin, H. W., Senior Surgeon. Granted ten days' leave of absence from June 25, 1914. Cofer, L. E., Assistant Surgeon General. Directed to proceed to Philadelphia, Reedy Island, and Delaware Breakwater Quarantines for the purpose of making an inspection of the operations of the quarantine service upon the Delaware River. Frank, Leslie C., Sanitary Engineer. Directed to proceed to Baltimore, Md., for conference with the State Board of Health relative to plans for the experimental sewage investigation plant at Chevy Chase, Md. Goldberger, J., Surgeon. Directed to proceed, at such times as may be necessary, to Savannah, Ga.; Spartanburg, S. C., and other points in the Southern States to organize and supervise the pellagra studies. Guiteras, G. M., Surgeon. Granted two days' leave of absence, June 21 and 22, 1914. Gwyn, McK., Surgeon. Granted thirty days' leave of absence, on account of sickness from June 14, 1914. Hunter, Andrew, Biochemist. Directed to proceed to Spartanburg, S. C., for duty in pellagra investigations. Kempf, G. A., Assistant Surgeon. Granted twenty-one days' leave of absence from June 29, 1914. Laughlin, J. B., Assistant Surgeon. Relieved from duty in charge of the Mobile Quarantine Station, and directed to proceed to New Albany, Miss., and report to Surgeon L. L. Lumsden for duty in field investigations. Lumsden, L. L., Surgeon. Directed to visit Baltimore and such other points in the State of Maryland as may be found necessary on business connected with the investigation of rural sanitation. Magruder, George M., Surgeon. Reassigned for duty at Portland, Oregon, effective February 23, 1914. Moore, Dunlop, Surgeon. Granted one month's leave of absence from July 21, 1914. Phelps, E. B., Professor. Directed to proceed to Cincinnati, Ohio, and such other

places on the Ohio River Watershed as may be necessary, for conference in regard to the investigations of the pollution of the Ohio River now being carried on. **Rhymus**, C. P., Sanitary Bacteriologist. Directed to proceed to Luray, Va., for duty in the installation of an experimental plant for the treatment of tannery waste. **Sweet**, E. A., Passed Assistant Surgeon. Relieved from duty at the Gulf Quarantine Station and directed to proceed to the Mobile Quarantine Station and assume temporary charge. **Trask**, J. W., Assistant Surgeon General. Granted one day's leave of absence, June 19, 1914. **Tuck**, D. H., Assistant Physicist. Directed to proceed to New York and report to Surgeon J. W. Schereschewsky for duty in connection with the investigations of the unsanitary conditions of the garment workers' trade. **Werry**, L. E., Acting Assistant Surgeon. Granted four days' leave of absence from June 4, 1914. **Woodward**, R. M., Surgeon. Detailed to attend the conference of the Pacific Coast Federation of Sex Hygiene at San Francisco, Cal., July 1, 1914.

Boards Convened.

Board of commissioned medical officers convened to meet at the Hygienic Laboratory for the purpose of making a physical examination of Senior Surgeon H. W. Austin. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman, Passed Assistant Surgeon A. M. Stimson, member, Passed Assistant Surgeon J. P. Leake, recorder.

Board of commissioned medical officers convened to meet at Manila, P. I., for the examination of Assistant Surgeon B. J. Duffy to determine his fitness for promotion to the grade of Passed Assistant Surgeon. Detail for the board: Surgeon V. G. Heiser, chairman, Assistant Surgeon Howard Smith, recorder.

Board of commissioned medical officers convened to meet at Baltimore, Md., for the reexamination of an alien, Carl Langwickel. Detail for the board: Surgeon J. A. Nydegger, chairman; Surgeon T. T. Burkhalter, member; Assistant Surgeon C. E. Waller, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States for the week ending June 20, 1914:

Bastion, Joseph E., Captain, Medical Corps. Granted fifteen days' leave of absence. **Bell**, Leonard P., First Lieutenant, Medical Reserve Corps. Upon arrival in the United States will proceed to Fort Stevens, Oregon, for duty. **Castlen**, C. R., First Lieutenant, Medical Reserve Corps. Resignation to take effect July 1, 1914. **Coburn**, Henry C., Captain, Medical Corps. Relieved from duty in the Southern Department and from further duty at Fort Douglas, Utah, to take effect upon the expiration of his present leave of absence, and will proceed to West Point, N. Y., for assignment to duty. **Denton**, William, Captain, Medical Corps. Granted leave of absence from June 20 to August 5, 1914, and will sail for the Philippine Islands, August 5th instead of July 6th, as heretofore ordered. **Duval**, D. F., Major, Medical Corps. Relieved from duty with the Second Division and from duty at Fort Benjamin Harrison, and will then proceed to Fort Myer, Va., and report for duty, relieving Major John H. Allen, about July 1, 1914; Major Allen upon being thus relieved will proceed to Texas City, Texas, for duty at Fort Meade, South Dakota. **Faulkner**, L. W., First Lieutenant, Medical Reserve Corps. Ordered to active duty at Fort Niagara, N. Y. **Haverkamp**, C. W., Captain, Medical Corps. Ordered to report on arrival in United States for duty at Fort Jay, N. Y. **Le Comte**, R. M., First Lieutenant, Medical Reserve Corps. Resignation of commission to take effect June 15, 1914. **McBayer**, C. E., Captain, Medical Corps. Granted one month's leave of absence on his relief from duty in Alaska. **Mills**, F. H., First Lieutenant, Medical Reserve Corps. Granted four months' leave of absence with permission to go beyond the seas. **Rand**, Irving W., Major, Medical Corps. Relieved from duty at Fort Hancock, N. J., and ordered to proceed to duty with the Second Division, Fort Missoula, Montana. **Reynolds**, Royal, Captain, Medical Corps. Ordered upon arrival in the United States to proceed to Fort Niagara, N. Y., for duty. **Roberts**, William M., Major, Medical Corps. Ordered upon arrival

in the United States to proceed to Fort Yellowstone, Wyo., for duty, relieving Major Horace D. Bloombergh, who will proceed to Fort Ontario, N. Y., for duty.

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending June 27, 1914:

Bailey, W. O., First Lieutenant, Medical Reserve Corps. Ordered from Fort Washington, Md., to Plattsburg Barracks, in time to accompany Companies C and D to camps. **Bosley**, J. R., Captain, Medical Corps. Ordered to Fort Jay, N. Y., for temporary duty. **Coburn**, Henry C., Jr., Captain, Medical Corps. Relieved from duty with troops in the field in the Southern Department and from further duty at Fort Douglas, Utah, effective on the expiration of his present leave of absence, and will proceed to West Point, N. Y., and report in person to the superintendent of the United States Military Academy for duty. **Denton**, William, Captain, Medical Corps. Granted leave of absence from June 20 to August 5, 1914, and will sail for the Philippine Islands August 5, 1914, instead of July 6, 1914, as heretofore ordered. **Duval**, Douglas F., Major, Medical Corps. Relieved from duty with the Second Division and from further duty at Fort Benjamin Harrison, Ind., effective on or about July 1, 1914, and will proceed to Fort Myer, Va., for duty, relieving Major John H. Allan, who on being thus relieved will proceed to Texas City, Texas, for duty, with station at Fort Meade, S. Dak. **Gilchrist**, H. L., Major, Medical Corps. Ordered to proceed on June 27th to Tobyhanna, Pa., for duty pertaining to the camp of instruction for medical officers. **Gregory**, Junius C., Captain, Medical Corps. Relieved from duty at Fort Screven, Ga., and will proceed to Fort Slocum, N. Y., for duty. **Hess**, L. T., Major, Medical Corps. Detailed for duty at Camp at Mt. Gretna, Pa. **Kennard**, Henry W., First Lieutenant, Medical Reserve Corps. Ordered from duty with the Second Division. **King**, Edgar, Captain, Medical Corps. On being relieved ordered to proceed to Walter Reed General Hospital, Takoma Park, D. C., for duty. **Marrow**, Charles E., Major, Medical Corps. Granted leave of absence for twenty days. **Mills**, Frederick H., First Lieutenant, Medical Reserve Corps. Granted four months' leave of absence with permission to go beyond the seas. **O'Connor**, Roderic P., Major, Medical Corps. Relieved from duty at Fort Huachuca, Ariz., and will proceed to Texas City, Texas, for assignment to duty with station at Fort Clar, Texas. **Page**, Henry, Major, Medical Corps. Detailed as inspector-instructor to camp near Youkon, Fla., July 6 and July 10 to 19, 1914; also at Augusta, Ga., July 22 to August 13, 1914. **Quade**, Omar H., First Lieutenant, Medical Reserve Corps. Relieved from duty with the Second Division, and from further duty at Fort Snelling, Minn. **Raymond**, H. I., Lieutenant Colonel, Medical Corps. Granted two months' leave on surgeon's certificate of disability. **Rhoades**, Thomas L., Major, Medical Corps. Relieved from duty as attending surgeon at Philadelphia and will proceed without delay to Ancon, C. Z., and report to the Governor of the Panama Canal for duty in the Health Department of the Panama Canal Service. **Shepard**, J. L., Major, Medical Corps. Detailed for duty at Camp at Selinsgrove, Pa. **Simpson**, J. A., First Lieutenant, Medical Reserve Corps. Granted two months' leave of absence when relieved from duty. **Skelton**, Robert, First Lieutenant, Medical Reserve Corps. Ordered to Fort Sam Houston for temporary duty; relieved from duty with the Thirteenth Cavalry and from further duty at Fort Robinson, Neb. **Tarleton**, Leeson O., First Lieutenant, Medical Reserve Corps. Relieved from duty with the Eighth Brigade and from further duty at Vancouver Barracks, Wash. **Wall**, F. M., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Lawton, Wash., and will proceed to Fort Columbia, Wash., for duty. **Woodson**, Thomas D., Captain, Medical Corps. Relieved from duty at Fort Leavenworth, Kan., to take effect on or about July 1st, and will repair to this city and report for the commandant, Army Medical School, 721 Thirteenth Street, N. W., for a special course of instruction at that school, relieving Captain Edgar King. **Worthington**, J. A., Major, Medical Corps. Granted twenty days' leave.

The following named officers are relieved from duty in the Philippine Department, effective on or about October 15, 1914, and will proceed to the United States for duty: Colonel Guy L. Edie, Major Robert N. Winn, Major Frank C. Baker, Captain Glenn I. Jones, Captain Henry F. Pipes, Captain Eugene G. Northington, Captain John P. Fletcher, and First Lieutenant George Newlove, Medical Reserve Corps.

The following named officers are relieved from duty at the station specified, effective at such time as will enable them to comply with this order, and will proceed on the transport sailing on or about September 5, 1914, to the Philippine Islands, for duty: Major Henry S. Greenleaf, Pacific Branch, United States Military Prison, Alcatraz Island, Cal.; Major Robert B. Grubbs, Medical Corps, Fort Baker, Cal.; First Lieutenant Shelley U. Marietta, Medical Corps, General Hospital, Fort Bayard, N. M.

Each of the following named officers is relieved from duty at the station specified after his name and will proceed on the transport to sail from San Francisco, Cal., August 5, 1914, for Honolulu, H. T., for assignment to duty: First Lieutenant Newl N. Wood, Medical Corps, Fort Apache, Ariz., and First Lieutenant Harry R. McKellar, Medical Corps, Vancouver Barracks, Wash.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers in the Medical Corps of the United States Navy for the three weeks ending June 13, 1914:

Dykes, J. R., Surgeon. Ordered to Receiving Ship at Navy Yard, Mare Island, Cal. **Eaton, W. E.**, Assistant Surgeon, Medical Reserve Corps. Commissioned an assistant surgeon from May 1, 1914. **Faulkner, G. E.**, Assistant Surgeon, Medical Reserve Corps. Commissioned an assistant surgeon from May 5, 1914; ordered to Norfolk Hospital. **Giltner, H. A.**, Passed Assistant Surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to the *San Francisco*. **Hart, S. D.**, Assistant Surgeon. Detached from the *Prairie* and ordered home to await orders. **Hayward, A. R.**, Passed Assistant Surgeon. Detached from the Naval Hospital, Philadelphia, and ordered to the *Milwaukee*. **Howard, J. V.**, Passed Assistant Surgeon. Commissioned a passed assistant surgeon from October 1, 1913. **Kress, C. C.**, Passed Assistant Surgeon. Commissioned a passed assistant surgeon from October 5, 1913. **Lhamon, R. M.**, Assistant Surgeon. Ordered to Las Animas Hospital. **McAllister, H. R.**, Assistant Surgeon. Detached from Training Station, San Francisco, Cal., and ordered to Training Station, Guam. **McDonell, W. N.**, Passed Assistant Surgeon. Detached from Annapolis and ordered to Boston Hospital. **McKinney, William**, Assistant Surgeon, Medical Reserve Corps. Commissioned an assistant surgeon from May 1, 1914. **Mears, J. B.**, Passed Assistant Surgeon. Detached from Naval Training Station, St. Helena, Va., and ordered to Receiving Ship at Norfolk, Va. **Noble, D. H.**, Assistant Surgeon. Detached from the *Ohio* and ordered to the *San Francisco*. **Omelveña, J. G.**, Passed Assistant Surgeon. Commissioned a passed assistant surgeon from October 1, 1913. **Omer, J. A.**, Assistant Surgeon, Medical Reserve Corps. Commissioned an assistant surgeon from May 8, 1914. **Phelps, J. R.**, Passed Assistant Surgeon. Detached from Boston Hospital and ordered to the *Connecticut*. **Pratt, L. L.**, Passed Assistant Surgeon. Commissioned a passed assistant surgeon from October 1, 1913. **Reed, T. W.**, Passed Assistant Surgeon. Detached from the *San Francisco* and ordered to await orders. **Rose, M. E.**, Acting Assistant Surgeon. Ordered to Navy Recruiting Station, New York, N. Y. **Scott, E. K.**, Assistant Surgeon. Commissioned an assistant surgeon from May 5, 1914. **Shipp, E. M.**, Surgeon. Detached from the Navy Yard, Puget Sound, Washington, and ordered to Bureau of Medicine and Surgery, Navy Department. **Stoops, W. E.**, Assistant Surgeon, Medical Reserve Corps. Ordered to Great Lakes Hospital. **Wheatley, C.**, Assistant Surgeon, Medical Reserve Corps. Commissioned an assistant surgeon from May 8, 1914. **White, E. C.**, Passed Assistant Surgeon. Ordered to Navy Recruiting Station, N. Y. **Whitmore, G. B.**, Surgeon. Detached from the Naval Hospital, Puget Sound, Washington, and ordered to the Pacific Fleet.

Births, Marriages, and Deaths.

Married.

Boone—Koch.—In Pottsville, Pa., on Saturday, June 20th, Dr. Joel T. Boone, of St. Clair, and Miss Helen Elizabeth Koch. **Bradford—Elliott.**—In Nashville, Tenn., Wednesday, June 24th, Dr. Ferdinand D. Bradford, of Birmingham, Ala., and Miss Ida Virginia Elliott, of Worcester, Mass. **Devereux—Salfingere.**—In Philadelphia, on Wednesday, June 17th, Dr. Robert T. Devereux and Miss Blanche E. Salfingere. **Gibbes—Salley.**—In Orangeburg, S. C., on Wednesday, June 10th, Dr. James Heyward Gibbes, of Columbia, S. C., and Miss Eugenia Felder Salley. **Heathwole—Latham.**—In Baltimore, Md., on Wednesday, June 17th, Dr. T. O. Heathwole and Mrs. Annie B. Latham. **McCarthy—Langley.**—In Fall River, Mass., on Wednesday, June 17th, Dr. Eugene Ambrose McCarthy and Miss Carrie Clayton Langley. **McDonald—Blackwell.**—In Trenton, N. J., on Wednesday, June 24th, Dr. John Oliver McDonald and Miss Grace Hunt Blackwell. **Macomber—Jaynes.**—In West Newton, Mass., on Wednesday, June 17th, Dr. Donald Macomber and Miss Ethel Jaynes. **Miller—Clarry.**—In Liberty, N. Y., on Thursday, June 18th, Dr. Raymond A. Miller, of New York, and Miss Edith Clarry. **Randle—Bacon.**—In Philadelphia, on Wednesday, June 17th, Dr. William Randle and Mrs. Alexander Bacon. **Schoepfle—Loesch.**—In Cincinnati, Ohio, on Tuesday, June 16th, Dr. Henry C. Schoepfle, of Sandusky, and Miss Elsie Loesch. **Silva—Sullivan.**—In Charlestown, Mass., on Wednesday, June 24th, Dr. Francis Pierce Silva and Miss Anna Louise Sullivan. **Whittle—Whittle.**—In Baltimore, Md., on Monday, June 15th, Dr. Harry Lyman Whittle and Miss Juanita Whittle.

Died.

Barker.—In Camden, Tenn., on Saturday, June 13th, Dr. R. L. Barker. **Brown.**—In Clinton, Iowa, on Sunday, June 14th, Dr. Marcus E. Brown, aged seventy-six years. **Bussey.**—In Longview, Tex., on Thursday, June 11th, Dr. J. Lewis Bussey. **Carroll.**—In Chicago, Ill., on Saturday, May 30th, Dr. W. B. Carroll, aged fifty-seven years. **Cook.**—In Knoxville, Tenn., on Monday, June 15th, Dr. H. J. Cook. **Davis.**—In Memphis, Tenn., on Monday, June 15th, Dr. John S. Davis, aged forty-seven years. **Floyd.**—In Roanoke, Ala., on Monday, June 15th, Dr. W. G. Floyd, Jr. **Fox.**—In Hummelstown, Pa., on Thursday, June 18th, Dr. Thomas G. Fox, aged eighty-seven years. **Harvey.**—In Spokane, Wash., on Monday, June 15th, Dr. Benjamin Franklin Harvey, aged sixty-two years. **Langan.**—In Clinton, Iowa, on Saturday, June 13th, Dr. Daniel Langan, aged seventy-nine years. **Linstedt.**—In New York, on Wednesday, June 17th, Dr. William E. Linstedt, of Greenwich, Conn., aged fifty-nine years. **Mann.**—In Cambridge, Mass., on Saturday, June 6th, Dr. Cyrus Sweetser Mann, aged ninety-four years. **Mendoza.**—In Piper City, Ill., on Friday, June 12th, Dr. Mendoza. **Middleton.**—In Ardmore, Pa., on Wednesday, June 24th, Dr. Caleb S. Middleton, aged seventy-six years. **Moore.**—In Indianapolis, Ind., on Monday, June 15th, Dr. Samuel H. Moore, aged seventy-one years. **Morgan.**—In Wilmington, Del., on Wednesday, June 17th, Dr. James H. Morgan, aged fifty-six years. **Norton.**—In Baltimore, Md., on Saturday, June 20th, Dr. Rupert Norton, aged forty-seven years. **Palmer.**—In New York, on Saturday, June 20th, Dr. Marvin R. Palmer, aged forty-eight years. **Reilly.**—In Memphis, Tenn., on Wednesday, June 17th, Dr. James H. Reilly, of Albany, N. Y., aged fifty-five years. **Roberts.**—In Pavo, Ga., on Friday, June 12th, Dr. J. S. Roberts. **Shipp.**—In Puget Sound, Wash., on Thursday, June 18th, Surgeon Edward M. Shipp, United States Navy, aged forty-six years. **Trigg.**—In Lockhart, Texas, on Monday, June 15th, Dr. A. L. Trigg, aged seventy-nine years. **Van Altena.**—In Cedar Grove, Wis., on Thursday, June 11th, Dr. L. A. Van Altena. **Van Duzer.**—In Arena, Col., on Tuesday, June 16th, Dr. F. H. Van Duzer. **Weist.**—In Schuylkill Haven, Pa., on Thursday, June 18th, Dr. Harry G. Weist, aged sixty-four years. **Willis.**—In Summerfield, N. C., on Sunday, June 14th, Dr. Hugh Willis, aged sixty years.

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Original Communications.

THE TREATMENT OF THE SUMMER DIARRHEAS OF CHILDREN.

By FLOYD M. CRANDALL, M. D.,
New York.

It is the object of this paper to consider the treatment of the condition commonly known as summer diarrhea of children. It is sometimes known as gastroenteritis or mycotic diarrhea. The most appropriate name is that adopted by Holt, acute gastroenteric intoxication. Symptoms and pathology are referred to only as required in explaining the reasons for treatment. It should be clearly understood at the outset that in diarrhea of this type, in the earlier stages at least, we are not dealing with an inflammatory condition, but with an acute intoxication. By intoxication we mean in modern medicine the absorption of poisonous ptomaines from a putrefying source. The bacteria do not enter the blood, but their toxins do. They are active poisons and produce conditions similar to those resulting from repeated alkaloidal injections. The symptoms depend upon the frequency or intensity of the dose injected or absorbed. The germs producing the intoxication in summer diarrheas have their habitat in the intestinal tract. They rarely enter the blood and do not generate there. The disease results from the absorption of the ptomaines alone, and is, therefore, not a septicemia nor an inflammatory condition. In the later stages, inflammation sometimes arises from irritation of the mucous membranes by acrid secretions or poisons. In the earlier stages we have to do simply with an intoxication. This statement cannot be too strongly implanted in the mind of the practitioner, for upon its realization must largely depend successful treatment.

The child with summer diarrhea is suffering from intoxication or arrest of digestion, either one or both. The arrest of digestive secretion very early in the infection is a most important factor. The power of digestion is annulled. By the time the physician makes his first visit, Nature has already taken the case in hand by emptying the stomach and bowels and taking away the appetite for food, which would add fuel to the flames. It is the wise course of the physician to follow the path pointed out to him. Four general measures of treatment, therefore, are indicated: Mechanical, dietetic, hygienic, and medicinal. Although a considerable proportion of space will necessarily be devoted in this

article to other measures, it cannot be too strongly insisted that dietetic treatment is the most important.

At the outset, mechanical measures are usually indicated to clear the digestive tract of fermenting material. Stomach washing is rarely necessary, but should be resorted to should the child continue to vomit curds or food or sour and putrefying matter. Liberal drafts of warm water are usually well taken by the patient and obviate the necessity of the stomach tube. Rectal irrigation by means of a catheter or long tube is usually advisable; warm saline solution or boiled water with borax is to be used. Strong antiseptics are unnecessary and unsafe. Prompt unloading of the lower bowel by means of irrigation is very important. High irrigations are valuable until convalescence is thoroughly established. One thorough irrigation a day is more effective than many rectal injections. In the late stages, when the child has been depleted by large watery stools, it is well to leave as much water as possible in the colon for absorption.

Two facts indicate very clearly the line of dietetic treatment. First, digestion is at a standstill; second, the food, be it ever so perfect, is prone to become infected in the digestive tract and continue the fermentation. The old illustration of fresh milk in a sour bottle, cannot be too frequently repeated. Be the milk or the food ever so fresh and perfect, it will undergo putrefaction when brought into contact with putrefying matter.

The indications for feeding, therefore, are clear. First, keep all food out of the digestive tract as long as possible; second, in resuming the food, select that food capable of the least chemical change and putrefactive action. The changes in the food may be either fermentation of the carbohydrates and hydrocarbons, or putrefaction of the protein elements. Therefore, milk should be positively interdicted in summer diarrhea. It is true that milk is an admirable food for children. It is also true that beefsteak and potatoes are an admirable food for adults, but when the adult is stricken with fever, diarrhea, and vomiting, the beefsteak and potatoes are eliminated from the diet. The reasons for eliminating milk from the diet of the child under similar conditions are equally strong, but do not seem always to be recognized by practitioners.

At the outset of an acute diarrhea, therefore, all food should be prohibited, but water should be given freely, unless it induces vomiting. Even if a part of it is vomited, it is best to give some, for a portion may be retained and aid in preventing depletion of the tissues by excessive watery stools.

Milk should be resumed with great caution and sometimes must be long withheld. Even a wet-nurse is not to be sought in the first stages. Among the substitutes are barley water or rice water, which should be dextrinized for very young children. Thin broths made of chicken or lamb may be tried, and later farinaceous foods may be added. Some of the malted foods may aid in tiding over the crisis, and some of the proprietary beef extracts or foods may answer the same purpose. In some instances matzoon or kumyss may be tolerated before plain milk can be borne. In few other conditions must more judgment be used than in the selection of food after one of these diarrheal attacks. Repeated attempts may alone give the only solution of the problem. Attempts must be made cautiously and with diluted food, and the physician must feel his way in each case.

The medicinal treatment should follow the indications already referred to. As a rule a laxative at the outset is strongly indicated. Castor oil has time out of mind been the standard and is usually the one to be selected, as it does the work required more efficiently and more easily than any other. When the stomach is irritable, however, it is sometimes not retained and is usually repugnant to older children. A saline may fulfil the requirements very well. Citrate of magnesium and Rochelle salts are among the best. When the stomach is irritable, calomel in small divided doses is frequently the laxative to be chosen. It will sometimes quiet the vomiting and relieve the bowels more perfectly than any other remedy. A laxative may be indicated at intervals throughout the disease. If the passages diminish or cease and the temperature begins to rise, a laxative should at once be administered. In these later stages the salines are especially useful.

The type of disease should influence largely the treatment. Several years ago I made an extensive study, based on 3,000 cases, of the types of summer diarrhea prevalent in New York. In the last half of June and the first half of July the prevailing type is the serous diarrhea, marked by large watery passages, ranging from a few up to twenty or thirty a day. During the following six weeks these serous cases are comparatively rare and true enterocolitis is more common. This means that the acute cases of the earlier summer have settled down to a true organic or inflammatory disease. During August the passages are of the thicker and more grumous type. New cases are much less frequent than in the earlier summer. In the late summer and early fall, colitis appears and the passages are of the so called dysenteric type. They consist largely of mucus and blood and are accompanied by tenesmus and high fever.

With cases of the serous type, with twenty or thirty large movements a day, it is often a question whether it is wise to administer a laxative. One is sometimes in doubt as to whether it is not better to check the profuse loss if possible. In the other types, however, there is no question whatever of the advisability of sweeping the intestinal tract clean of all putrefying material. When mucus and blood appear in the stools, castor oil should be given

and persisted in, even at the expense of some nausea and vomiting. We have no other agent which will accomplish the results obtained by castor oil in those conditions.

Astringents, so much used in the past, are irrational and ineffective. The mere checking of the number and size of the passages, is not what we should primarily seek. When that end can be attained by removing putrefying matter and restoring a normal condition, it is very desirable, but the mere constringing of the intestines and imprisoning of poisonous matter is the last thing to be desired. Occasionally with an excessive choleraic state or in a colliquative condition, in the later stages, I have resorted to a few drops of pernitrate of iron, but the necessity of this treatment is very rare.

The fact that these summer diarrheas are due largely to germ action naturally led to the feeling that antiseptic measures should be employed. They have on the whole proved almost as disappointing as the astringent treatment. Most antiseptics are absorbed before they reach the source of infection. The possibility of disinfecting a twisted and corrugated tube twenty feet long, by any antiseptic which will not at the same time kill the child, has thus far proved visionary. Still something can be done by antiseptics, and some practitioners use them to a considerable extent. Salol, resorcin, and the salicylates have been the most commonly employed. Salol will not diffuse in a mixture and is difficult of administration to a young child. Resorcin must be given with caution, but it does not penetrate far into the intestines. The salicylates are absorbed in the stomach and are prone to irritate that organ. Bismuth is insoluble and the only drug which will be carried through the intestinal canal. It has come to be largely used, and I believe it to be the most efficient remedy in diarrhea. The subnitrate is probably the most largely used, but I prefer the subgallate, particularly if there is gas or flatulence. The dose of either should be larger than those formerly given. Three grains may be given every two hours to a child of one year. I usually prescribe it with a few drops of chalk mixture without mucilage. The addition of ten drops of aromatic syrup of rhubarb to the prescription is sometimes advantageous and renders the mixture somewhat more palatable. Bismuth, either alone or with some simple adjuvant, is today the most commonly used drug in summer diarrhea. Opium is one of the most valuable remedies in the treatment of diarrhea. It has been so much abused, however, that some practitioners have become imbued with the belief that it should not be employed. This is too sweeping; it must be employed with especial intelligence.

Intelligent use of any drug requires a knowledge of its physiological actions. This is particularly true of so complex a drug as opium. A brief review of those actions is, therefore, not out of place. The following are the most important: It stimulates the heart; weakens the respiration by acting upon the respiratory centre of the medulla; blunts the sensory nerves; decreases the secretion of the digestive tract, the bronchi, all the mucous surfaces,

the liver, and various glands; increases often the secretion of the skin and kidneys; decreases the action of unstriated muscular fibre, thus checking peristalsis and intestinal spasm, spasm of the ducts, and action of the bronchi and bladder. It requires no argument to prove that a drug possessing such varied and apparently contradictory powers can be used heedlessly only with disastrous results.

In diarrhea the actions chiefly desired from opium are its power to relieve pain, to stimulate the heart, to decrease the secretion of the intestinal tract, and to check peristalsis. Of these the first and the last are the most important. When the disease has continued for a long time, and the colon and rectum have become irritable, so that small, frequent, nagging movements occur, an opiate may do much to check the disease, and may aid in preventing the child from wearing out. It may also be used in small doses in cases in which the bowels act as soon as food is taken into the stomach. In these cases the child seems to wear out because the rapid passage of the food through the alimentary canal does not permit of digestion and absorption. A study of these conditions seems to warrant the following conclusions regarding the indications for the use of opium in the diarrheal diseases of children: It is contraindicated, 1, in the first stages of acute diarrhea, before the intestinal canal has been freed from decomposing matter; 2, when the passages are infrequent or of bad odor; 3, when there is a high temperature or cerebral symptoms are present; 4, when its use is followed by increase of temperature or the passages become more offensive.

It is indicated, 1, when the passages are very frequent, with pain; 2, when the passages are excessively frequent, large, and watery; 3, in dysenteric diarrhea, in which case it should be preceded by castor oil or a saline; 4, in late stages with small, frequent, nagging passages; 5, when the passages consist largely of undigested food, and the bowels act soon after the food is taken into the stomach.

The method of administration is important. The opiate should not be added to the ordinary diarrheal mixture, which is usually repeated at short intervals. It should be given alone; the dose can thus be regulated with much more certainty. This permits of the diarrheal mixture being largely increased if the exigencies require. Intervals should be sufficient to permit the effect partially to subside before the dose is repeated. They should rarely be less than three hours, while four hours are more commonly advantageous. Lack of precision and exactness has been the cause of much of the harm that has resulted from the use of opium in diarrhea. Opium is too potent a drug to be administered with the inexactness with which chalk mixture, bismuth, and the astringents are commonly prescribed. The dose varies greatly, and it is impossible to lay down positive rules. It should be as small as possible, the object being to check peristalsis and relieve excessive pain. Narcotism should be strictly avoided. The preparations most available for young children are paregoric and the deodorized tincture. As a general rule, one minim of paregoric (equivalent to two drops) may be given for each month of the baby's age. At one year three fourths of one minim of the

deodorized tincture is a full dose, or three fourths of a grain of Dover's powder. The initial dose of opium should be small, and its effects should be noted before it is repeated.

113 WEST NINETY-FIFTH STREET.

OBSTETRICAL PARALYSIS.*

By T. TURNER THOMAS, M. D.,
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I have little new to offer on the much disputed question of obstetrical paralysis since I published, in the February number of the *Annals of Surgery*, about the last word on the subject I had to say. I have published ten papers on traumatic conditions of the shoulder, beginning in 1909 with the first on recurrent dislocations, and I have been anxious lest the very radical views offered should not receive serious consideration from the conservative members of the profession. I have at no time lacked confidence in them myself, but their value must depend upon the confidence which others place in them. Everyone of the shoulder conditions I have discussed, involves a problem which still remains unsolved. My chief purpose has been to show that all these conditions are closely related to each other, etiologically, and that the varying clinical signs can be traced to an essentially common anatomical basis. For this reason, I find it difficult or impossible to speak of one condition without referring to some of the others.

In passing judgment on the boldness of my course, I want placed to my credit the fact that I had given more than ten years to cadaver study of surgical conditions, the best part of which I regard the years spent in association with Professor G. G. Davis, who conceived and put into practice the idea of teaching applied anatomy, by reproducing, as far as possible, surgical conditions on the cadaver. The best results were obtained with what I like to call "breaks" in the skeleton, including fractures and dislocations. In this connection, I prefer to think of the skeleton as a whole, the ligaments which unite the bones at the joints being as much a part of the skeleton as the bones themselves, so that dislocations become fractures of the skeleton with displacement, and sprains become fractures without displacement. Dislocations of the shoulder early attracted my attention and many were made and dissected. Our best knowledge of dislocations of the shoulder and hip has come from cadaver study and I feel that I am justified in discussing with confidence some of the anatomical features of dislocations of the shoulder. For instance, I am convinced that the dislocation of the shoulder produced in the cadaver by hyperabduction is typical of those which occur most frequently in life.

The great majority of dislocations of the shoulder are anterior, because they are due to hyperabduction which cannot produce a posterior dislocation. Most anterior dislocations are subcoracoid because, after the arm falls to the side of the body, the usually untorn upper and posterior portion of the capsule prevents the head from passing further for-

*Read before the New York Academy of Medicine, May 7, 1914.

ward. What we call a subglenoid dislocation is a low anterior. The long head of the triceps muscle will not permit the head to rest immediately below the glenoid cavity. The statement, probably universally accepted, that the shoulder capsule is too



FIG. 1. Sister of patient shown in Fig. 2. No dislocation of right shoulder, although there is still slight limitation of abduction and external rotation at this joint. Right arm paralyzed early in life. Some limitation of movement in right elbow joint from injury at birth. Right arm as strong and used as vigorously as left.

lax to maintain contact between the humeral head and glenoid cavity, in my opinion, is not strictly true. When the movement of the joint is carried to the extreme in any direction, the opposite part of the capsule becomes tense and maintains firm contact between the two bones. Thus when the arm is hanging at the side which is about the limit of adduction, the tense upper part of the capsule becomes an important factor in supporting the weight and resting the muscles. Because of the wide range of movement in this joint, some part of the capsule is tense and maintains the contact only in the extremes of movement.

An anterior dislocation is the end result of hyperabduction, when the skeleton breaks at the joint, and requires an extensive tear of the capsule which includes all the ligaments of the joint. Many dislocations are spontaneously reduced as the arm falls to the side. In many more cases, the hyperabducting force does not carry the mechanism far enough to produce a dislocation and extensive tear of the capsule, but does produce a tear of minor degree. These constitute sprains of the shoulder. The dislocations, persisting and spontaneously reduced with the sprains, will probably explain most of the stiff and painful shoulders, the etiology of which has been the subject of so much discussion. The cicatrization of the capsule tear tends to fix the limb in the position it occupied during the healing period, i. e., at the side in adduction and internal rotation. Hence the characteristic limitation of abduction and external rotation. The extravasation of the blood from the torn tissues and of the synovial fluid from the opened joint into the loose axillary tissues around the branches of the brachial plexus, produces inflammation and compression of these nerves in the early stages and cicatricial compression and adhesions in the later stages. Varying grades of pain and palsy result. I have yet to see an early case of stiff and painful shoulder following an injury to the shoulder region, which did not exhibit a noticeable palsy of the limb of varying grade and distribution. Usually the shoulder region muscles are most involved, but occasionally the hand and forearm are chiefly affected. I have ceased to regard the palsy as serious and have long since

ceased to keep records, except of the most interesting cases. I have two cases in which I believe that the circumflex nerve was ruptured.

Küstner,¹ in 1889, suggested that the mild cases of obstetrical palsy, in which the paralysis disappeared in a few days, might have been due to blood extravasations, the pressure of which paralyzed the nerves. Further symptoms, he says, depend on nerve pressure by a diaphyseal fragment in an epiphyseal separation. He believes that in most of the cases, we are dealing not with paralyses, but with undiagnosed epiphyseal separations. Von Bramann² quotes Vogt as seeing in so called congenital dislocations of the shoulder, a paresis consequent upon a displacement in the shoulder joint. The object of the quotation was to refute it, von Bramann believing that the muscles suffered from their inactivity without being paralyzed. I employ these few references to show that injuries to the brachial plexus have not been universally accepted as accounting for obstetrical palsies, and that injuries to the skeleton in the shoulder region have long been considered as a cause of this condition.

Claude Bernard said "When you meet with a fact opposed to a prevailing theory, you should adhere to the fact and abandon the theory, even when the latter is supported by great authorities and generally adopted." That which I regard as a fact and opposed to a prevailing theory is that we frequently have palsies of the upper extremity which are not due to actual nerve injury and which may be very severe. Space will not permit me to offer evidence for the adult cases, which are most frequent, and I must ask the reader to test the fact for himself. Restore the normal motion to the shoulder joint and you will see the paralysis disappear in the great majority of cases. A little investigation will convince you that most of the adult cases ascribed to injuries of the brachial plexus belong to this class.

Injury to the plexus will not account for the stiffness and pain at the shoulder joint, the practically always normal sensation, the appearance of the palsy, not immediately after the accident, but a day or two later, nor the fact that it disappears with the restoration of the normal motion in the shoulder joint or long before the motion is normal. This does not apply to the flail shoulder joint type.



FIG. 2. Incomplete reduction of posterior subluxation of right shoulder, August 8, 1911, when obstructing portion of acromion had not been recognized. Arm then of little use and in characteristic position. Now has vigorous power in all muscles and uses this limb more than left. Restriction of movement could be largely overcome by removal of bent down portion of acromion. No paralysis now.

¹Handbuch d. r. Geburtshilfe, 1889.

²Archiv für klinische Chirurgie, cxviii, 357, 1906.

The fact that the obstetrical palsies were generally agreed to be essentially of the same nature and due to the same cause as the adult cases, led me to study the obstetrical palsies. Both are clearly due to injury to the shoulder region, but it was not likely



FIG. 3.—Same patient as in Fig. 1, but picture taken more recently. By aid of other hand levers humerus over obstructing anterior portion of acromion to upright position, showing what the arm could do, unaided, if this portion of acromion was removed. Right hand not as high as left, although right limb about as long as left.

that one was caused by injury to the shoulder joint and the other by injury to the brachial plexus. The key to my conclusions concerning the adult cases was the anterior luxation of the shoulder. I am now convinced that the usually overlooked posterior and incomplete dislocations of the shoulder, will prove to be the key to the problem in connection with the obscure obstetrical palsies. I am not excluding ruptures of the brachial plexus in obstetrical palsy, but merely maintaining that it probably did not occur in any of my thirteen cases and that it probably is not responsible for most of the cases. In three of my four cases without displacement in the shoulder joint, the motion in the

shoulder joint and power of the limb have long been normal, except in one in which there is evidence of an old injury at the elbow, restriction of abduction and external rotation at the shoulder and some atrophy of the infraspinous scapular muscles. (Fig. 1.) In the fourth case they are returning so rapidly that I have no doubt that normal function will be obtained. In this case at six weeks, there was no movement in the whole limb, except very little in the fingers. Under ether, I manipulated the arm into abduction to a right angle and full external rotation, fixing it in this position in a plaster cast for six weeks. There was marked gain in movement and power of the hand while the arm was still in the cast, and two weeks after the cast was removed the child was carrying the hand to its mouth and eyes easily. The gain has continued at about the same rate since, except in the motion at the shoulder, which is still considerably limited.

In six of the nine cases with subluxation, the treatment was directed toward restoring normal motion in the shoulder joint, the first principle of which consists in restoring normal relations. In two, incomplete reduction of the dislocation and much improvement in motion and power were accomplished. The bending down of the acromion, anteriorly, which prevents complete reduction, was not recognized at that time. (See Figs. 2 and 3). In three others, the reduction was complete or practically complete, but the return of motion and power

is not yet as good as in the two cases incompletely reduced, because they were much more recently operated in. In all three of these cases the progress is very encouraging. (Fig. 4.) In the sixth case, nearly normal motion in the shoulder has been established by exercises, without any attempt at reduction of the subluxation, which is so mild that it was overlooked when the treatment was begun about three years ago. The improvement was so gratifying to the parents that they have not yet been willing to permit operative reduction and I have not been particularly urgent about it. The power and nutrition of the previously palsied limb are, apparently, as good as in the normal arm, the only impairment of function being due to a mild restriction of movement in the shoulder joint. The prevailing view that these palsies are due to injuries of the roots of the brachial plexus, has led to an increasing number of operations on the plexus. The theory of a shoulder joint origin for most cases can gain favor only by showing better results from treatment. I should like to see two similar cases treated, one by the one method and the other by the other method. Such an experiment, however, is not justifiable, because one should treat every case by the method he considers best. We must, therefore, wait upon the published results of both methods.

My small experience and considerable study compel me to stand for the shoulder joint origin of most cases, and my purpose will be to win support for it. F. Lange,³ the German orthopedic surgeon, has adopted it, but did not give me any credit for my work, although my first paper appeared about a year and a half before his. I believe, however, that the matter of priority will take care of itself. In my first paper⁴ I emphasized the capsule lesion as in the adult cases, without knowing that the subluxations were frequently associated. Lange contended that dislocations did not occur, but that epiphyseal separations did. Fairbank, who found twenty-eight cases of subluxation in thirty-seven patients, argued for a brachial plexus origin of the palsy with secondary subluxation.



FIG. 4.—Typical paralysis and position of limb with posterior subluxation of shoulder on right side, before operation. Complete reduction and fixation in normal position by operation, five months ago. Obstructing portion of acromion removed. Still considerable rigidity at shoulder from contracted muscles and ligaments, which will disappear more rapidly when the child is older, more able to use it vigorously, and can permit more forcible exercises. Very marked improvement in power and movement since operation. Practically normal arm may be expected later. No paralysis now.

³*Münchener medizinische Wochenschrift*, 20, June, 1912.

⁴*Annals of Surgery*, January, 1911.

He says, "anatomically, there is no doubt about the subluxation" and this agrees with my observations. The plexus theory rests, today, on the evidence offered by those who have operated on the plexus in these cases. Boyer reported recently a case in which an autopsy showed intraspinal tearing of the roots from the cord, and called attention to the fact that the usual excision of a part of a nerve trunk, as Kennedy suggests, would have done not good, but harm. Kennedy, probably, more than anyone else is responsible for the operation. I would attribute the presence of adhesions about the plexus, which has been accepted as evidence of nerve rupture, to the extension a few inches upward in the newborn of the blood, lymph, and synovial fluid from an opened shoulder joint. Lange exposed the nerves in the axilla in one case and found the adhesions there. I know of no other case in which the nerves were exposed in the axilla, but I venture to say that the adhesions will be more marked there than above the clavicle. I believe that we should wait for further evidence of actual rupture of nerve trunks found at operation. Fairbank, a supporter of the plexus theory, operated in five of his forty cases, and found rupture of the roots in only one. Even in that case, electrical stimulation before operation, and of the nerves directly at operation, showed apparently that the rupture could not have been complete, although dissection showed that it was complete. It cannot be easy to decide with sufficient exactness the presence or absence of rupture in delicate and interweaving nerves enveloped in old adhesions.

The evidence is growing that posterior subluxations of the shoulder are frequently overlooked in these cases. According to my knowledge, Whitman first called attention to the frequent association with obstetrical palsy of what he called congenital dislocations of the shoulder, although they developed later and were secondary to injuries of the brachial plexus. I ought to say that I am not an orthopedic surgeon, but a general surgeon interested in a few joint conditions, particularly because of my anatomical work and probably because much of that work was done with an orthopedic surgeon, Doctor Davis, who is well known. My interest in traumatic brachial paralyses in adults compelled me to study the obstetrical palsies, as I have already said, in defence of the views I had entertained. I was forced to make this defence on the basis of one case, that of a boy about seven and a half years old, with a posterior subluxation of the shoulder which had never been recognized before, although it had passed through the hands of several competent neurologists. I argued that the dislocation probably occurred at birth and was the cause and not the result of the paralysis. Fairbank, as already stated, argued for a paralytic origin. In the preparation of my recent paper, I found that Stimson in his great work on fractures and dislocations, had suggested that congenital dislocations of the shoulder usually developed at birth, were sometimes associated with paralysis, and that they probably resulted from the pressure of the child's shoulder against the maternal pelvis during delivery. This gave me much encouragement for here is the crux of the whole situation:

If the dislocation occurs at birth it cannot be due to the paralysis. If a dislocation of the shoulder in the adult without injury to the nerves can produce a brachial paralysis, which, I believe, has been clearly shown, then a dislocation of the shoulder in the newborn ought to produce a more serious palsy because of the more delicate nature of the nerves and muscles. The occurrence of the dislocation at birth, in my opinion, is greatly strengthened by the finding of a bending downward of the anterior portion of the acromion which could only be due to a pressure and cannot be accounted for by an injury to the brachial plexus. The same pressure which bent the acromion down pushed the humeral head backward and downward. Lange believes that we cannot have a subluxation of the shoulder joint, which I think is true of the adult cases. I believe that in them the humeral head cannot remain resting on the glenoid margin, but must pass far enough over the margin to lock in the dislocated position when the arm comes to the side, or slip back into the socket. But in the newborn the causative direct pressure pushed the head back and bent the acromion down in front of it, so that this portion of the acromion held it back resting on the posterior glenoid margin, and prevented the head from slipping forward into the socket, as it would have done if there had been no such obstruction.

As I have already acknowledged, I did not appreciate the importance of the literature of congenital luxations of the shoulder in this discussion, and such of it as I am familiar with has been called to my attention chiefly by others. Only recently Doctor Stimson gave me the reference to von Bramann's paper published in 1906. It is interesting to note the varying conceptions concerning the origin of these dislocations. Both Doctor Stimson and Doctor Whitman agreed that the true congenital variety, due to defective development, was rare. Doctor Stimson believed that those resulting from trauma during delivery were most common, while Doctor Whitman thought that those secondary to the paralysis from an injury to the brachial plexus at birth were most frequent. Von Bramann, however, regarded all four of his cases as of the true congenital variety, due to defective development. We thus find these three observers differing as widely as possible on this very important point, yet the contributions of all three are very valuable. If my cases are of the same kind as theirs, and I believe they are, I take the same position as Doctor Stimson, that most of them develop at birth.

I thought that I was the first to call attention to the bending downward and forward of the acromion in these cases with posterior dislocation, but I now know that von Bramann observed it in two of his four cases. I found it in eight of my nine cases, and in the ninth case that the acromion had lost its normal inclination from above downward and backward, and was horizontal or slightly curved from before backward, indicating that it had sustained the same kind of pressure as in the other cases. Moreover, it was bent downward as a whole and inclined downward and outward, somewhat. Von Bramann believed his cases to be due to defective development because of the abnormal changes in the hu-

meral head and glenoid process, shown by the x ray. These changes have been found frequently and have been variously interpreted. Küstner believed they were due to epiphyseal separations with displacement of the diaphyseal fragment forward or backward. We are practically all agreed now that we are dealing here with dislocations in most cases and that they are practically all posterior. The evidence in one of von Bramann's cases, if I may be permitted to express an opinion, is strongly in favor of a traumatic origin at birth. There was at birth a fracture of the surgical neck of the humerus on the opposite, the right side, and positive evidence of injury on the left side, which was found palsied soon after birth. The humerus was also in marked internal rotation and the forearm pronated. One would infer from the report that von Bramann first found the dislocation on this side when the boy was thirteen years old. Our greatest need now is careful examination, by competent observers, of these shoulders immediately after birth. I believe that we shall soon obtain this, now that attention is being directed to these shoulders.

SUMMARY.

I should summarize briefly my reasons for believing that most obstetrical palsies are of shoulder joint origin, as follows:

1. In all of my cases in which the parents could recall the facts, their testimony was that following birth the children cried violently when the affected shoulder was manipulated.

2. Dr. J. W. McConnell, who has examined most of my cases, did not find abnormal electrical reactions in any. Fairbank, who reported forty cases, found that electrical examinations were not advisable before the end of the second month, when an anesthetic was essential, and that by that time the signs of recovery would render electrical examinations unnecessary. Sherren did not test the electrical reactions until the end of the third month. The exact electrical findings in reported cases are probably very rare. I cannot recall one.

3. All of my cases without subluxation ended in complete recovery, except one with some restriction of abduction and external rotation at the shoulder and an old injury at the elbow, and another about six months old, which is rapidly improving. All my cases in which there seemed to be a permanent palsy, showed posterior subluxation of the shoulder joint.

4. The chief evidence supporting the plexus theory, is that obtained at operation on the plexus, all of which can be explained by the joint lesion, except the actual rupture of the roots found in a few cases which, I believe, need further confirmation.

5. The frequent occurrence of posterior subluxation of the shoulder joint was not taken into account by those most favorable to the plexus theory.

6. The presence of the bent down condition of the acromion, in my opinion, will establish the occurrence of the subluxation at birth and, therefore, the dependence of the palsy upon the joint lesion.

7. Since the roots of the plexus are all mixed motor and sensory nerves, sensation should be frequently and seriously disturbed if the cause is a

rupture of the plexus; yet sensation is rarely disturbed.

8. The Duchenne-Erb type of paralysis is generally agreed to be common to the frequent adult cases and the obstetrical palsies. The plexus lesion and the muscles paralyzed are agreed to be the same in both groups, yet the very frequent posterior subluxation in the obstetrical palsies, accounted for by the effects of the paralysis, never occurs in the adult cases. Why not the same effect from the same paralysis in both groups?

9. It is well known that traumatic dislocations of the shoulder frequently precede the paralysis in the adult cases, yet according to the present day supporters of the plexus theory, the dislocation in the children always follows and is due to the paralysis. Why this important difference? The establishment of a traumatic origin at birth would clear up all the difficulty.

10. Duchenne, who first described obstetrical palsies and ascribed them to injuries of the brachial plexus, found these posterior dislocations frequently associated. He said that many of them were due to the manipulations of the physician during delivery, i. e., they were traumatic in origin and occurred at birth.

In my opinion, the plexus theory is the greatest obstacle to the complete recovery of most of these cases, and if these dislocations were recognized at birth and completely reduced, there would be few permanent obstetrical palsies.

2005 CHESTNUT STREET.

TRANSPLANTATION OF A TESTICLE FROM THE DEAD TO THE LIVING BODY.

Suggestiveness of Results in Their Relation to the Etiology and Treatment of Psoriasis, Carcinoma, Etc. (A Preliminary Report.)

BY G. FRANK LYDSTON, M. D.,
Chicago.

Encouraged by certain results of sex gland implantation, a full report of which has for some time been in the hands of the editor of the NEW YORK MEDICAL JOURNAL and will shortly appear, I recently made an additional experiment which led to some very interesting observations. As noted when the paper referred to is published, it arrived at the conclusion from the apparent logical effect of my earlier implantations that obstinate chronic skin diseases, notably psoriasis, were a promising field for the therapeutic application of the sex gland hormone via injection.

The idea suggested itself that perversion of the sex gland function, primarily due, perhaps, to an abnormal quality and quantity of internal secretions of the sex or other glands—underlay skin lesions of the psoriasis class in question. The obvious inference was that stimulation by the sex hormone would to prove beneficial. Reasoning from the results upon skin nutrition which I had observed following sex gland implantation, I concluded that chronic disease might be benefited by injection of sex glands. Inasmuch as the sex gland powerfully stimulates the nutrition of the skin,

probably also the action of other internal secretory glands—it would seem logical to infer that a similar action might be expected in other tissues.

In my paper which is shortly to appear I have suggested that arteriosclerosis, chronic renal disease, diabetes, tuberculosis, and even carcinoma, and numerous other conditions involving perverted cell structure and function, may offer a suitable field for the use of sex gland hormone—notably by implantation. The germ theory of the etiology of carcinoma has not seemed to me well grounded. Indeed, I am of opinion that the nearer we come to a perfect knowledge of the internal secretions, the nearer we will be to the true etiology and rational therapeutics of carcinoma. In any event, whatever the abnormal impulse may be, the result is perverted cell growth, and we may at least regard hopefully any remedial measure that promises improvement in cell nutrition.

To put my view of the etiology of malignant disease concretely: I believe that there is more than a chronological coincidence in the association of sarcoma with childhood and youth and of carcinoma with later life. A disturbance of cell nutritive equilibrium from perverted quantity or quality—or both—of internal secretion—probably of the sex gland, the thyroid perhaps playing an important part—in my opinion underlies both varieties of malignant disease. The sex gland hormone theoretically should restore this equilibrium, making in effect the cells of the sarcomata older and stronger and those of the true carcinomata younger and stronger.

In the light of the foregoing view of malignant disease, the theory of Cohnheim is especially apt in its application to malignant disease of early life, and to sarcoma and the softer varieties of carcinoma at any age.

The association of cancer with the approach or occurrence of the menopause, and with advancing age in the male, is suggestive of change in the sex gland hormone as the chief underlying factor. Epithelioma of the skin especially may be compared to psoriasis in that a defect of nutrition due to perversion of internal secretion and localized by special factors of irritation is a reasonable underlying cause.

Role of microorganisms in carcinoma may be merely that of a special determining factor—perverted cell growth through the irritated, and no more specific than traumatic—so often appears to be the point of departure of malignant disease. Thyroid extract has been found to have cured psoriasis. This is not surprising.

The thyroid and sex gland hormones are complementary. Thyroid defect may be the more important factor in malignancy of early life.

Due to defective quantity and quality of both hormones, perhaps may be cured and may require a combination of both. Hormone needful in thyroid implantation may be supplemented by simultaneous sex gland implantation. It is my conviction that the administration of sex gland hormone by implantation—with or without thyroid hormone—as events may prove—is the logical indication well worthy of trial in malignant disease. Whether beneficial results will follow organo-

therapy, this naturally will be determined by many factors independent of the etiology of the disease.

CASE. Man, aged fifty-three years, musician, consulted me June 10, 1914; hard drinker and a gourmand; no history of syphilis; Wassermann negative; history of two tappings for ascites, six years before. A diagnosis of cirrhosis of the liver was made at that time. When the patient first consulted me, his abdomen was enormously distended with fluid. Jaundice had appeared a few days before and had become quite pronounced. No pain was complained of, nor was there any history of pain previously. The subject was very weak and markedly incommoded by the enormous bulk of his abdomen. His appetite had been excellent until a few days before, since when it had failed. June 14th, I removed nearly six gallons of bile stained transudate from the abdominal cavity, affording the patient great relief. The liver was found to be greatly enlarged and hard. The gallbladder was greatly distended and its walls much thickened and hard. In the left iliohypochondriac region was a hard, elongated tumor mass extending downward from the under surface of the liver for about four inches. This tumor might have been renal or even omental. It could not be definitely determined that it was attached to the liver. The tumor seemed probably malignant. There was a good sized umbilical hernia, evidently containing only fluid, which freely flowed back and forth under pressure. This had been unsuccessfully operated upon. The urine contained bile in large amount and a small quantity of albumin, but no casts.

The patient's heart was very weak following the operation and strychnine was given hypodermically for several days. On the backs of the arms and forearms, the front of the right leg, the buttocks, the lumbar region, and the back were large patches of typical psoriasis from which the patient had suffered for many years. A patch of psoriasis of the size of the palm of one's hand existed on the abdomen, involving a small portion of the skin covering the umbilical hernia.

On June 19 I implanted in the patient's right scrotal sac a testicle—with the epididymis excised—removed from an apparently healthy subject about twenty-one years of age, dead thirty hours before from contact with a live wire. The operation was done ten hours after removal of the testis from the dead subject—i. e., forty hours after death. The postoperative course was uneventful. The wound healed by primary union and there was very little swelling about the site of the implantation. The highest temperature recorded was 100° F. Today—the eighth day—the implantation *per se* would seem to be successful.

On the third day after the implantation improvement was noted in the psoriasis. At present writing, the eighth day after operation, the lesions are so improved that they scarcely can be recognized as psoriasis. The skin over one elbow is nearly normal. The patches upon the back have entirely disappeared. The jaundice has improved, the blood pressure—which was low on account of the patient's debilitated condition—has increased, the pulse is perceptibly stronger, appetite has greatly increased, the hemoglobin, which was approximately sixty per cent., is now seventy per cent., and there is a distinct improvement in color, aside from the lessening of the jaundice. A considerable reaccumulation of fluid has occurred and a second tapping probably will become necessary.

I submit without further comment this brief preliminary report of the foregoing results of the primary or initial dose of sex hormone. What I have to say of sex gland hormone therapy in general will, I hope, shortly appear in this JOURNAL.

32 NORTH STATE STREET.

A PLEA FOR SANER METHODS IN THE TREATMENT OF PULMONARY CONSUMPTION.

BY THOMAS J. MAYS, M. D.,
Philadelphia.

It does not require a long experience to enable one to predicate that of the many hundreds of remedies that are used as cures for pulmonary consumption, at the present time, there is not one that can be recommended with the same degree of confidence in this disease as quinine in malaria, or mercury, the iodides, and arsenic in other well known diseases. Notwithstanding its preponderating importance, the treatment of consumption remains a riddle—a chaotic whirlpool, which swallows everything within its grasp, but gives no indication of a therapeutic cleavage between the useful and the worthless.

The principal reason for this remedial haziness and uncertainty lies in the incontestable fact that we are following a theory of the cause of this disease which, at the very best, rests on a vague and questionable foundation; and no treatment can be expected to be successful in any disease unless it is underlaid by a well defined pathology. This is self evident to any one who takes a liberal and unprejudiced retrospect of the history of consumption covering a period of the last thirty or forty years.

What then are the facts on which the foregoing statements are based, so far as the origin and treatment of consumption are concerned? In furnishing these it is hardly necessary to cite a long roll of facts to prove that the contagion or infection theory of consumption is contradicted by the experience of all consumption hospitals; by that of health and mountain resorts which lodge and board consumptives; by that of married consumptive people; by that of the inhabitants of towns in which are consumption hospitals; and by that of the many eminent physicians who have made a special lifelong study of this disease, and who have written special works on this subject, either in English or German. Nor is it necessary to dwell very long on the well known historical circumstance that the crusade against consumption, which has been in vogue in this country for the last ten or fifteen years, and which has been exploited as a new and original measure, is really nothing but a plagiarized edition of a sanitary law which flourished for many years in Italy over a century ago, and which left nothing but ruin and desolation in its trail.

We may grow eloquent over the eleemosynary and self denying instincts which so nobly and honorably animate our profession, but we must be consistent and not close our eyes to the fact that by pillorying every consumptive as a menace to the public health, we cause him to be shunned, avoided, and ostracised by family, friends, and associates, on evidence so fragile that it would not receive a moment's sober consideration from any impartial tribunal in the land. The many infirmities which consumptives are compelled to bear, are already too burdensome without the addition of any artificial obloquy. Our country comprises probably half a million of such unfortunate fellow beings, and it behooves us to take a calm and deliberate inventory of our posi-

tion and to ascertain whither we are drifting relative to this problem.

It has already been intimated that practically there is no danger of contracting this disease through contagion or infection, and evidence will be submitted which, it is believed, will demonstrate that the contagion doctrine of this disease is actually responsible for diverting its management into abnormal channels, and that, as a consequence, we are confronted today by the lamentable situation that this disease is less skilfully treated than it was thirty or forty years ago, and that instead of its mortality getting less, it is truly on the increase.

In order to meet the objection—that the Italian episode just referred to can have no possible bearing on the present movement, because it was not based on the ultrascientific knowledge which we possess at present in regard to this disease—practically it may be said that this is a distinction without a difference. It is true that the Italians knew nothing of the tubercle bacillus, but is that any evidence that the disease was not as well known to them as it is today? Have the contagionists of today shown any greater wisdom in the manipulation of this disease than was done then? They called it *l'ulcera pulmonale*, or pulmonary ulcer, which is the equivalent of pulmonary consumption. Moreover, did not the disease arise under the same conditions, and was it not characterized by the same symptoms and physical signs? And was not the program of prevention, from the care and the disinfection of the sputum, to the forced imprisonment of the sufferers in closed institutions from which they never escaped, the exact counterpart of that which is carried out and proposed today? This delusional epidemic of Italy was pursued with extreme rigor and cruelty for more than fifty years, but like all kindred obsessions, after wrecking all that was hoped from it, and after perpetrating irreparable injury, it was compelled to yield to the inevitable return of ripe judgment and reflection.

In estimating the value of medicinal treatment in any disease, it is essential to ascertain, at least approximately, how much of the recovery that goes with it is attributable to the normal resistance of the bodily forces, and how much to the drug forces? The normal tendency to recovery was worked out in a number of diseases on a large scale by a number of Vienna hospital physicians, forty or fifty years ago, in a time when patients were treated on the expectant plan, which meant practically no treatment of any kind. In pneumonia, for example, it was found that of all patients about ninety per cent. recover without any medication. It is obvious, therefore, that so far as pneumonia is concerned, all treatment is worthless that fails to reduce the mortality below ten per cent.

Unfortunately very few data of such a nature are on record in regard to pulmonary consumption, for it seems that comparatively few of those afflicted with this disease escape treatment. The elder Flint, in his work on *Phthisis*, page 301, comments on thirty-one out of 670 cases, the histories of which are detailed in previous pages of that work, of which 45.16 per cent. ended in recovery, or in a state of nonprogressiveness, and 54.84 per cent. in death—

the latter cases ending fatally from six months to twelve years after they came under his notice. He also states that "in these thirty-one cases the disease was allowed to go on without any active interference in the way of medical or hygienic treatment," and "are, therefore, particularly interesting with reference to the study of the natural history of phthisis." These cases were collected from an experience covering thirty-four years, and comprising all stages of the disease, and while not very large in number, tend to establish, 1, that there is an intrinsic tendency to recover from this disease, and, 2, that any treatment which does not force the percentage of cures above fifty, may be disregarded.

In addition to these cases, which Doctor Flint states were a portion of 670 cases of phthisis which he treated in the course of thirty-four years (previous to 1870), and of which he kept notes—of this whole number 391 patients, or 58.35 per cent., were living, and 279, or 41.64 per cent., had died. Beside the thirty-one cases given above, he details the histories of sixty-three other cases; nine of which were acute miliary tuberculosis, all of which were fatal; of forty-four recovered cases, of which twelve lasted from one to two years, twenty-two lasted from two to ten years, and eight from twelve to twenty-seven years; of ten slowly progressive cases, the average duration of which was twelve and a half years.

In his work on *Pulmonary Consumption*, page 312, published in 1887, Dr. C. Theodore Williams selected 1,000 cases of phthisis which had been under his father's and his own medical care for twelve months and upward, from 1842 to 1864—a period of twenty-two years. When these cases came under treatment, 660, or sixty per cent., were in the first stage; 181, or eighteen per cent., in the second; and 145, or 14.50 per cent. were in the third stage. Fourteen presented physical signs of other pulmonary diseases, but in these phthisis supervened after the first visit. During the twenty-two years, 198, or 19.80 per cent., of the 1,000 patients died, and at the end of that time 802, or 80.20 per cent., were living. Of those who died, thirty lived from three to nine years; forty-three from ten to nineteen years; and nine from twenty to thirty years. The average duration of life in the 198 patients was seven years and seven months.

Of the 802 patients who were alive when last heard of, 168 lived from one to three years; 388 from four to ten years; 178 from ten to twenty years; sixty-five from twenty to thirty years; and three, thirty years and upward. Furthermore, of those living, 578, or 72.06 per cent., were "well," and "tolerably well," i. e., 285, or 35.53 per cent., were able to follow their occupations without the recurrence of symptoms, and 293, or 36.53 per cent., were able to follow their occupations, but were obliged to use precautions and to limit their exertions; and 224, or 27.93 per cent., were invalids who had to devote their entire time to the care of their health.

The most remarkable presentation of this whole list is that out of 1,000 patients with phthisis, without any selection in regard to the various stages of the disease, 802, or 80.20 per cent., were living during an investigation that extended over twenty-two

years; and that 578, or 72.06 per cent., of these were physically qualified to follow their occupations. On the other hand let us compare with the foregoing, the end results of the treatment of this disease, which were obtained in probably the best of our modern sanatoriums, the only one, so far as the writer knows, which has published an extensive record of its work. This institution is that of Dr. E. L. Trudeau, of Saranac Lake, New York, and comprises the results of the treatment of 1,066 cases from 1885 to 1903—a series of seventeen years. At the end of this period 46.70 per cent. of the 1,066 patients were living, and 53.30 per cent. had died.

In comparing the end results in these three interesting collections of consumptive cases, several points of importance present themselves for comment. The first of which is the remarkably successful treatment of Doctor Williams's cases, and the second is the meagre showing of the Saranac institution in this respect—an institution, too, which from its very beginning strongly represented that type of treatment that consists of antiseptics, tuberculin injections, and very little other medicine or advice except living and sleeping in cold air and eating eggs and an abundance of milk. Indeed, if it is at all relevant to take Doctor Flint's thirty-one cases as a standard of comparison, which received neither medical nor hygienic treatment, and which give us a good idea of the natural reacting power of the bodily forces against this disease, then the results which were obtained in the Saranac institution are only slightly superior to those which are obtained when the disease is left to take its own unaided course. See the following table:

	Flint.	Williams.	Trudeau.	Flint's cases without treatment.
Number of cases under observation	670	1,000	1,060	31
Time of observation....	1833 to 1870 (34 years)	1842 to 1864 (22 years)	1885 to 1903 (17 years)	1834 to 1870 (34 years)
Per cent. of living.....	58.35	80.50	46.70	45.10
Per cent. of dead.....	41.64	19.50	53.30	54.83

This table shows that Flint's collection has 11.60 per cent. more living, and 12.16 per cent. less number of deaths than Trudeau's; while Williams's collection gives 33.80 per cent. more living, and 34.30 per cent. less number of deaths than Trudeau's. So far as the writer is aware, the end results of treatment obtained in the Saranac sanatorium, are about equal to those which are procured in other institutions of the same kind throughout our country at the present day, in which the treatment is also strictly drawn on infection lines. Such an extraordinary variation in the end results of this disease can have but one explanation—there must be a broad fundamental cause underlying it. It is surely singular that compared with the natural progression of other phases of medicine, we should have a retrogression instead of an improvement in this respect. This is not, however, an isolated experience in the recent career of this disease; for in the writer's article on *The Control of Pulmonary Consumption* (NEW YORK MEDICAL JOURNAL, July 4, 1914) it has been shown that, during the last ten or fifteen years, when every possible effort reinforced by unstinted financial assistance was put forth to annihilate this disease on the ground of its contagiousness

or infectiousness, there has been a general increase in the mortality, both in this country and in England and Wales; while, during the previous ten or fifteen years, when hardly a thought was given to its direct prevention, the death rate was decidedly smaller.

Now the only basis on which this difference in end results may be accounted for, is the radical revolution which the pathological theory of this disease has undergone during the last thirty or forty years. From being regarded as a disease which arises within the body and is due to some constitutional nutritive error, it has swung to the other extreme, and is now looked upon as being caused by a germ introduced into the body from without, and has, hence, become for us a contagious and an infectious disease. Instead of being treated as a constitutional disorder by remedies which, like codliver oil, hypophosphites, strychnine, stimulants, counter-stimulants, etc., upbuild the body; it has become the fashion to treat it with germ destroying agents such as creosote, carbolic acid, thymol, eucalyptol, gaseous rectal injections, inhalation of nonpathogenic germs, tuberculin injections, serums, vaccines, and bacillicides of all kinds.

So long as we believe in the equivalence of cause and effect, just so long must we accept that the change in the pathological theory of this disease is the deplorable but forceful answer to the query, why there exists such a widely marked difference in the end results between the case collections of Flint and Williams on the one hand, and those of Trudeau on the other.

The foregoing facts and figures stand directly opposed to the causative relation of the tubercle bacillus to pulmonary consumption, both from a curative and a preventive standpoint, and are a strong confirmation of the opinion that this disease is largely, if not altogether, the product of a disturbance of the physiological forces within the body, or of those which play on the body from without, or of both. In other words, they mean that it is not dependent on contagion or infection for its existence, but it is the natural outcome of an aberration of the forces which constitute our heredity and environment.

Again, from a practical point, consumption is not so much a question of lung disease as it is of constitutional depravity. The wasting, the general weakness, the ready fatigue, the painful tiredness of the whole body on the slightest exertion, the shortness of breath, which is out of all proportion to the lung area that is involved, the early slight rise of temperature, the loss of appetite, and the chilly and creepy sensations, all show very plainly that the whole constitution is at fault from the very beginning, and that consumption is a wasting disease, not only of the lungs, but of the whole body. The fact that the consumptive's strength is so easily dissipated, leads one to suspect the existence of a serious error in that portion of the body which has to do with the accumulation and distribution of the bodily energy—the nervous system.

The view that this disease is closely allied with the nervous system seems to explain why consumption is more closely associated with disease of the brain and nervous system than with any other class

of diseases. This is true of insanity, idiocy, hysteria, epilepsy, locomotor ataxia, multiple neuritis, peripheral neuritis, leprosy, diabetes, etc.; with certain acute infectious disease, the toxins of which deteriorate the nervous system, like, for example, typhoid fever, diphtheria, cerebrospinal meningitis, measles, mumps, whooping cough, influenza, beriberi, etc.; and with certain poisons which possess a deleterious action on the brain and nervous system, alcohol, mercury, lead, etc., in fact it may be shown that any agent or influence which tends to destroy the integrity of the brain and the nervous system, becomes a potential cause of pulmonary consumption.

There is no doubt that the superior skill which the older physicians displayed in managing this disease, was largely, if not solely due, to their determined and persistent belief in the building up of the wasted and impaired constitution with appropriate remedies, like codliver oil, hypophosphites, stimulants, tonics, etc. It must not be inferred, however, that the implication is set forth here that the foregoing class of agents are the last word in the therapeutics of this disease; but rather that they should be regarded as an index to the path which is to be trodden in the future investigation of new and still more formidable weapons with which to combat this disease, and as a plea to forsake the present methods which give such a hopeless and dispiriting outlook on this whole subject. And without any intention of posing as a prophet, I may express the conviction here, that if this finger board is followed, the time is not far distant when measures and means will be found which will act as specifically on this disease as quinine does on malaria.

On the other hand, there is very little doubt that if only a small portion of the energy and wealth, which have recently been dissipated in efforts to utilize the effete and worthless contagion theory as an instrument of cure and prevention, had been devoted to the study of agents which act on this disease from a constitutional and not from a contagious or infectious standpoint, no one would today be under the painful necessity of chronicling the ominous evidence that the tide of reduction in the consumption mortality, which had been in progress before that theory came into power, has been turned back by it many years.

Finally, no theory of the pathology of consumption or of any other disease, is true unless it points out the path of cure and prevention. Has the bacillus theory rendered such service to medical science? Can any one aver that it has not been accorded a fair and generous hearing? Was ever a medical theory launched under more favorable auspices or received with greater enthusiasm? The medical profession, prompted by the hope, long deferred, that a knowledge of the tubercle bacillus would accomplish for consumption what the germ idea had done for practical surgery and for a number of infectious diseases, eagerly and frankly grasped and thoroughly tested it; yet never was an *ignis fatuus* pursued which left more promises broken and greater anticipations unfulfilled than this delusion.

1829 SPRUCE STREET.

MYASTHENIA GRAVIS.*

With Report of a Case.

By S. P. GOODHART, PH. B., M. D.,

New York,

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Myasthenia gravis as a disease entity was first described over thirty years ago, but the clinical picture and its pathology have greatly extended in this time, the manifestations having reached very wide limits of description. At first only bulbar symptoms with negative pathological findings were reported, then bulbospinal involvement which included the nervous system, and finally the large viscera generally showed clinical symptoms of participation. In cases now reported we find typical disturbances of the organs of special sense and, though rarely, psychic disturbances of a peculiar character. The manifestations, wherever found, bear the characteristic symptoms of the disease, that is rapid fatigue.

In 1894, Jolly described the true myasthenic or myototic reaction of the affected muscles, that is rapid fatigue upon repeated faradic stimuli. In 1901, Oppenheim published his comprehensive monograph on the subject; he considered the pathological process confined to the voluntary muscles, excluding changes in the organs of special sense and the psychic sphere. He regarded anomalies of glandular development and secondary toxic processes as the etiological factors. In 1901, Weigert demonstrated lymphoid masses in the affected muscles and regarded these as metastases of malignant thyroid growth. Since that time, however, many others have demonstrated these lymphoid cell masses in the nervous system and in the large viscera, such as the liver and heart. They are always metastatic, but not necessarily, of course, always malignant.

The comparatively recent theory of Knoblauch as to the pathogenesis of the disease has been favored by some writers. According to him, the disease is due to degeneration of the red fibres of the affected muscles; the white fibres remaining intact. This explains the myasthenic reaction, since the white fibres respond actively to faradism, but are easily exhausted, while the red fibres react slowly, but tire less easily.

CASE. A case under my own observation, presenting some unusual features, one indeed which is decidedly atypical and thus of special interest, is that of a woman, aged thirty-eight years. Her family and personal history are negative. She has always been physically robust, presenting no nervous or mental symptoms. Her present illness dates back to May, 1912. There was at that time an enlarged thyroid of rather acute onset and a tremor of hands, arms, and legs, increased upon excitement. There was gradually noticed a weakness, but only after effort of the muscles of arms and hands, especially the extensors of the forearms; after moderate use of these muscles the hands dropped in flexion and only after rest could action be continued. Likewise, after walking some exhaustion gradually followed; then rapid fatigue; she observed the same fatigue in deglutition and in phonation. In drinking tea and other liquids, which she did frequently, the facial muscles, especially the buccal, would rapidly tire so that the fluid would drool from her mouth. A few moments' rest would always restore the power of these muscles. A

characteristic feature was the great variation of these phenomena. On some days and for variable periods she would notice rapid fatigue in walking a short distance, especially in going up stairs. My associate in the clinic, Doctor Dryfoos, who first saw the case, regarded it as one of probable myasthenia, a diagnosis with which I concurred.

In October, the patient was observed in the hospital. Some weeks after her discharge there developed a ptosis of both lids, which at its height was most marked and continued for some weeks. At a subsequent date, upon examination of the levator orbicularis and of the facial muscles, there was a strong suggestion of the Jolly myotonic reaction. This reaction was variable.

About one month ago the patient noticed that she saw double in certain positions of the eyeball; examination revealed marked internal rectus paresis of the right eye. It was also observed at this time that the action of the muscle became rapidly less when it was in constant operation, that is when I asked her repeatedly to follow my finger to the extreme nasal side of the right eye. This is, of course, a very suggestive symptom and is really of the myototic reaction. This internal rectus paresis is still slightly in evidence and for the past several weeks there is onset of slight ptosis of the left eye again. The ocular examination was made by Doctor Wolff, of the Mt. Sinai Hospital.

According to Markeloff, there are numerous facts indicative of participation of the involuntary muscle tissue in the fatigue phenomena. In one instance he observed well marked cardiac myasthenia and in another, considerable, easy exhaustibility of the ocular muscle of accommodation. Disturbances of the bladder and intestine were also observed. From his report, however, it is not clear that this disturbance was due to the same pathological process. The myasthenic process attacks the several forms of muscle tissue, the voluntary striped as well as the unstriped involuntary. Disturbances of the reflex movements have been observed in the form of easy exhaustion of the tendon reflexes and frequently rapid fatigue of the Achilles tendon reflex.

Twenty-eight cases are reported by various observers as showing atrophy of one or more muscles. There is a marked resemblance between the myasthenic and the dystrophic type of the disease. The two forms, according to Markeloff, belong to the same group and are dependent upon more or less similar causes. Periodical, evanescent paralysis or paresis, is also occasionally observed in myasthenia. The organs of special sense, sight and hearing, may participate in the myasthenic process. Restriction of the visual field and rapid exhaustion of the perceptions of taste, hearing, and vision have been noted. The general cutaneous sensibility may likewise present the symptoms of abnormal exhaustibility. There are often, as before stated, psychic symptoms.

In order to ascertain the nature of myasthenia, Markeloff investigated the calcium metabolism in two cases. In both of these the urine was found to contain enormously increased amounts of lime salts. An excess in calcium salts must be assumed in myasthenia. The conclusion is that the parathyroid glands play a certain part in myasthenia, though not exclusively; but it is probable that myasthenia represents a glandular disease.

Markeloff also refers to two instructive cases of myasthenia, one of which presented diminished electric irritability, muscular atrophy of nondegenerative character, ready exhaustion of the tendon reflexes, and symptoms of myxedema. Both cases

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presented evidence of myasthenia of the heart muscle, to which one of the patients succumbed. Vesical, and especially intestinal disturbances, are described. Examination of the urine showed greatly increased calcium contents in both cases. Markeloff inclines to the belief that the etiology of myasthenia includes the thyroid, thymus, and suprarenal glands beside the parathyroids, the clinical picture varying according to the participation of the different glands.

Curschmann reports an interesting case with autopsy; that of a peasant woman, forty-eight years of age with hypoplasia of the genital organs and the breasts; she had never menstruated. Death occurred in an attack of asphyxia. No trace of the thymus was found at the autopsy and not the slightest changes were noted in the examined portions of the brain, the cord, nor in the peripheral nerves. The muscles were free from degenerative changes, but the well known round cell collections were seen in the ocular muscles as well as in the muscles of the tongue and the small muscles of the hand. The foci of lymphoid cells were situated rather in the internal perimysium, penetrating between the fibrils, especially where the nerve enters into the muscle and breaks up into fibres. The largest infiltrates were found in the intramuscular nerve terminals. The cell collections may occur without tumors or enlargement of the thymus as shown by this case; they should not be interpreted as metastases, but are perhaps referable to chemotactic influences on the part of the end apparatus of the nerves upon the leucocytes of the muscle capillaries. They are secondary products of chemotaxis, through endoneural influences of toxic character. These cell foci are not the cause of myasthenia motor disturbance, but secondary changes; though characteristic of the disease, they possess no pathogenic significance. The congenital developmental disturbances of the genital organs and the lungs (a four lobed enlarged lung was found on the left side) strongly suggest the importance of endogenous factors in the origin of the disease.

Noica and Enesen report a case of myasthenia, associated with ocular symptoms in the form of involvement of the palpebral muscles. These muscles, although they could be moved in the normal manner, became rapidly fatigued on repeated opening and closing of the eyelids. Diplopia appeared only when the eyes became fatigued. Fatigue of the muscles of the mouth was also noted when the mouth was kept open for a long time. The cervical muscles were promptly relaxed and the head dropped backward. The tongue, the pharyngeal muscles, and the uvula presented the same phenomenon of rapid fatigue. The myasthenic reaction was distinctly demonstrable on the muscles of the cheeks.

A typical case of myasthenia was observed by Moorhead in a woman. It was associated with the unusual features of atrophy of the tongue, the deltoids, and the gluteal muscles. The patient died of dyspnea. The autopsy showed a persistent thymus gland of normal structure. The thyroid gland was increased in size and very rich in cells. The ovaries were enlarged with cystic degenerative changes. The nervous system was normal. Lymph-

oid collections of cells were found in the individual muscles, such as the pectorals and levator palpebrarum, but these cellular accumulations were very scanty and in no way comparable to those which have been observed and described in other cases of myasthenia.

Hoffmann, in a typical case of myasthenia, carried out electrical experiments which showed by direct faradic stimulation of the muscles, as well as by stimulation of the nerves, the existence of a marked difference between the effect of frequent currents (twenty-five interruptions of the primary current a second) and of infrequent currents (fifteen interruptions a second). The infrequent currents provoked strong muscular contractions which did not markedly decrease in height on several repetitions; whereas the frequent currents brought on tetany, which decreased markedly after several repetitions, and even in unaffected muscles did not attain the height of the tetany of frequent stimulation. The typical phenomenon of Wedensky, consisting of rapid subsidence of the tetanus on stimulation with frequent strong currents, was not demonstrable.

Myasthenic muscle behaves like a fatigued, directly stimulated muscle, the nerve control of which has been inhibited by means of curare. Experimental investigation points to the conclusion that the cause of the myasthenic reaction in the reported cases is due to a change of the muscle itself, rather than of the nerve terminals.

In discussing myasthenia and its relation to the glands of internal secretion, Tobias points out that congenital or infectious toxic causes enter into consideration as etiological factors. A clinical and anatomical distinction can be made between two groups, one with the classical symptoms, but without anatomical findings, and the other with both clinical and anatomicopathological changes, usually neoplasms. The chronological relationship between the glandular changes and the appearance of the symptoms is variable. Pregnancy is said favorably to influence the myasthenic symptoms. The thyroid and thymus and, far less frequently, the parathyroids are involved.

Reiss's contribution to the pathological anatomy of myasthenia is based upon his findings in one post mortem case. Nissl stain showed normal findings throughout, and no degeneration could be found anywhere in the nervous system by staining according to Pal and Marchi. On the other hand, considerable pathological changes were found on examination of the muscles. In longitudinal sections, the muscle fibres appeared undulating and irregularly swollen as in Zenker's degeneration. The transverse striation was imperfectly marked. The sarcolemma nuclei were increased locally; the muscle substance contained small gaps. No fatty degeneration was found with the Sudan staining method. Reiss favors the myogenic theory of myasthenia.

In 1912, Landouzy presented a case of myasthenia before the Paris Neurological Society of a woman forty-one years of age, with ptosis, diplopia, weakness of masseters, and general myasthenia, without a distinct myasthenic reaction. There was some pigmentation of the skin. Tuberculosis of the suprarenal glands was diagnosed as the cause of the

myasthenia. The diagnosis was considered certain, on account of the apparently favorable effect of suprarenal gland in powder form (0.4 to 0.6 gram daily during two weeks). This improvement was followed by a relapse in which the same treatment gave no benefit, but the subcutaneous injection of suprarenal extract had a favorable effect.

Roussy had a patient, a girl ten years of age, in whose case the disease ran a progressive course in one year, under the usual symptoms, with a fatal outcome due to bronchopneumonia. At the autopsy a thymus gland weighing five grams was found. The muscles of the tongue contained well marked infiltrations with embryonic lymph cells in the interfascicular spaces. The central as well as the peripheral nervous system was intact. Muscular infiltrates are the most constant findings in myasthenia and are noted in sixty-five per. cent. of the cases.

Symes reports the case of a woman, twenty-one years of age, who died thirteen days after the acute onset of the clinical picture of myasthenia. At the autopsy, an enlarged thymus was found which was microscopically normal, without Hassall's bodies. The nervous system could not be examined at the autopsy. The thyroid gland and the spleen were found to be enlarged. Capillary dilatations and small hemorrhages were noted in the liver, duodenum, ileum, and pancreas. The disease in this case was interpreted as a toxemia of gastrointestinal origin.

Two very interesting cases, with clinical and post mortem reports, are those contributed by Tilney and Smith. They describe clinical manifestations of characteristic fatigue reaction of the special senses with successive narrowing of the field of vision. These are doubtless fatigue reactions in the psychic sphere. The acoustic perception was likewise retarded, especially for high notes. Nowhere have I been able to find mention of fatigue of the intellectual faculties. In these cases, as in a case reported by Kennedy, it is noteworthy that some years elapsed between the onset of the disease and its exit. Kennedy's case had been persistently diagnosed as one of hysteria. These cases showed long periods of remission and even of improvement.

The pathological findings of Tilney and Smith confirm the reports of Mandlebaum and Celler, who, although finding no degenerative changes in either the brain or the cord, were the first, I believe, to describe infiltrations of a lymphocytic character in the medulla oblongata. They likewise found a more or less widespread mass like infiltration of lymphocytes throughout the organism. The usual changes in the muscle fibres, including the lymphoid infiltration, were also described in these cases.

Kuh and Braude recently published a full report with pathological findings of a case of myasthenia gravis which contains some unusual and interesting features. The first symptom noticed in the patient, a physician fifty years of age, was occasional dropping forward of the head; there was some difficulty in movements of the tongue and a drooping of the right eyelid; bulbar symptoms followed, all of which showed the characteristic recurrence upon exertion, with disappearance upon rest. However, called to their attention by the patient himself and not pre-

viously noted in this disease, there was a sensation of fatigue in the affected muscles induced *both* by passive and by active movement. A marked myasthenic reaction was shown by the faradic current, though not by the galvanic.

Among the unusual pathological findings was an aberrant bundle of fibres in the cervical region of the cord. At the levels of the cord corresponding to the innervation of the affected muscles, polymorphonuclear thrombi were found in the capillaries, also finer pathological changes in the nerve cells. A large number of these capillary thrombi were found in the upper cervical and in the medulla oblongata section; likewise in the pyramidal and sensory tracts. The chromatolytic and pigmentary changes in the nerve cells were especially abundant as the number of these capillary thrombi increased. Examination of the muscles showed the changes usually described in this disease.

The authors conclude that the vascular changes and probably the secondary changes in the nerve cells furnish the pathological basis of this disease, and that myasthenia gravis is a disease of neurogenic rather than of myogenic origin.

34 WEST EIGHTY-SEVENTH STREET.

A COMBINED FRACTURE AND ORTHOPEDIC OPERATING TABLE.*

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The present knowledge of the treatment of congenital dislocation of the hip was derived from a study of the efforts of Paci, Hoffa, Lorenz, Buckminster-Brown, Adams, and Bradford. These representatives of orthopedic surgery labored long at the problem. Until 1890 attempts to reduce and maintain a reduction of congenital dislocation of the hip were, for the most part, futile. The first successes were obtained by the open method, by which Hoffa and Lorenz, in Europe, and Bradford and Burrell, in America, early obtained fair success in results and much detailed knowledge of the anatomical pathology of the affection. Paci experimented with the purely manipulation method and met with such success as to interest Lorenz so that the manipulation method has gradually forced the open method into the background.

With the advent of the manipulation method it became the one to be tried first, and as the mechanics of the various movements became better understood, the ingenuity of many orthopedic surgeons was stimulated to devising mechanical aid. With this desire for mechanical aid there have been many new machines devised and many old ones perfected. The idea of using mechanical pressure in the re-

*Demonstrated before the orthopedic section of the Academy of Medicine, New York, February 20, 1914, and the Clinical Society of The German Hospital and Dispensary, New York, February 13, 1914.

duction of congenital dislocation is not new. There must have been many methods of weights, screw devices, sand bags, and pulleys which gave the desired power, the record of which has been lost. These did not allow their power to be applied at the same time that it was possible to move the limb

of the hip as an ambulatory splint. Doctor Ridlon, of Chicago, and Doctor Hibbs, of New York, have both described tables which more nearly meet the requirements.

In an article published in the *American Journal of Orthopedic Surgery* for August, 1909, Dr. E. H. Bradford stated that "abnormally shortened ligaments, or what may be termed perverted ilio-femoral ligaments, maintaining the dislocated posture of the limb must be thoroughly stretched and for this considerable force is essential. That this be effective, it is important that the pelvis be well fixed. Manual fixation by means of the hands of assistants will be found inferior to that furnished by mechanical means where the latter are simple and do not interfere with manipulation. Furthermore, it is important in forcible abduction of the limb, which should not only stretch the adductors but also utilize the head as an implement, to force open the contracted capsule, that some resistance be placed above the trochanter to prevent the head of the femur from slipping upward as the limb is abducted and manipulated." In presenting this new mechanical aid for the reduction of dislocated hips, we wish, first of all, to acknowledge the debt we owe to all those surgeons who have previously published accounts of congenital hip reductions. We have striven for the principles which Doctor Bradford has expressed—for absolute fixation of the pelvis; constant traction obtainable in any direction and absolutely under the surgeon's hand; pressure at the trochanter obtainable as desired, and that these should be obtainable by and upon a machine which would permit an efficient plaster to be applied with the hip reduced and held in position.

In designing this table, the object in view was to facilitate the reduction of congenital dislocations of

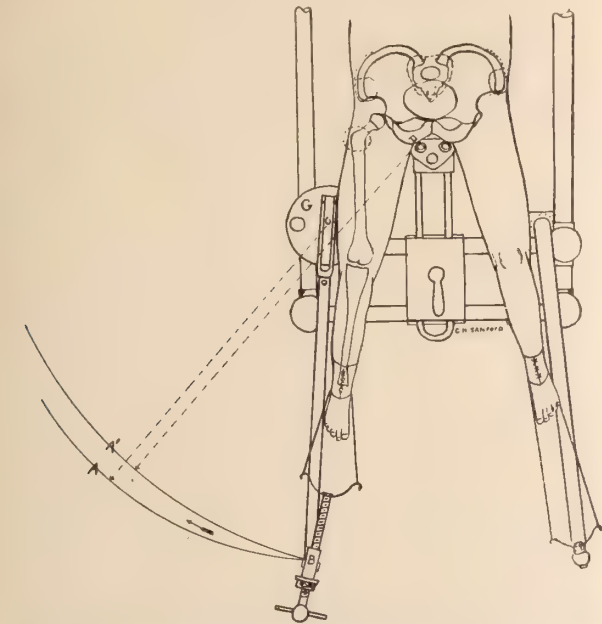


FIG. 1.—Diagrammatic drawing, showing the method of making traction on the dislocated limb and countertraction on the sound limb; also position of the pelvis in relation to the perineal post, sacrum, anterior superior spine grips, and the trochanteric push to the trochanter—all shown by dotted lines. It is especially drawn to show two of three ways of making traction on the contracted muscles; one, by the use of the screw *B*; the second, by simply abducting on a horizontal plane. Moving *B*, to which the leg is attached, in the direction of the arrow, it will be seen that the distance between *A* and *A'* becomes greater, up to the point where *D*, *C*, and *B* come into the same line. This represents the amount of traction made during abduction. If abduction was made with a sliding bar through *B*, the foot would travel parallel to the arc *B-A'*; but with the screw set firmly in *B*, the foot is forced to follow parallel to the arc *B-A*.

or the record of their successes would have been permanent. Motion and the proper amount of force directed, as desired and when desired, are absolutely essential to the permanent success of any form of mechanical help in the reduction of congenital dislocation of the hip.

Dr. E. H. Bradford was probably the first to think of any form of mechanical reduction. He and Mr. Ralph N. Bartlett worked out the Bartlett machine, an account of which was published in the *Journal of Medical Research* for December, 1903. This machine was further modified by Doctor Bradford to the present perfection of the so called Bradford machine. Dr. L. Heusner described, in 1897, an extension table in *Zeitschrift für orthopädische Chirurgie*, v, p. 290. This apparatus gave extension, but required the pelvis to be held manually. Professor Schede, in the *Zeitschrift für praktische Aerzte*, 14, 1898, described a table with which it was possible to obtain extension in one plane. This table did not hold the pelvis. Doctor Heusner, in the *Deutsche medizinische Wochenschrift*, 8, 1903, described a modification of his table previously mentioned: he combined the traction features of Schede's table with the addition of a trochanteric grip that resembled the *Hüftgürth* used by Professor Lange in unreduced dislocations

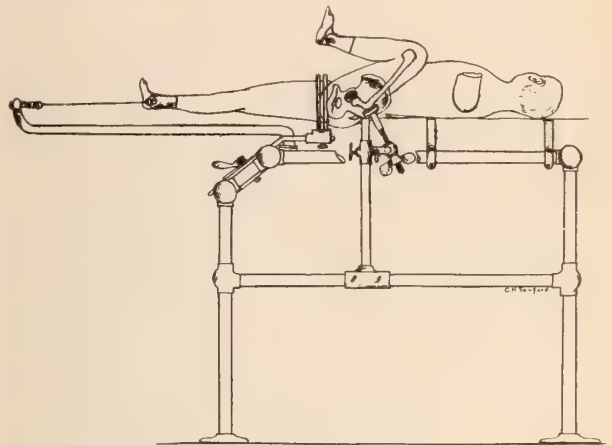


FIG. 2.—Diagrammatic drawing, showing the trochanteric push used as a fulcrum during manipulation, after sufficient traction has been made. The trochanteric push is shown set at the angle required to aid in pushing the head of the femur into the acetabular cavity.

the hip, which were either very difficult or impossible by manual manipulation alone; and to maintain the reduction and apply the plaster of Paris dressing without removing the patient from the table. At the same time simplicity of construction was sought; no gears are used and all adjustments are positive, being made by thumb screws

and wing nuts. It was further sought to reduce the number of assistants to a minimum. This is made possible by being able to maintain any desired position during any degree of traction. This



FIG. 3.—Perspective view of the table with reference figures.

feature of the table makes it especially valuable to the general surgeon for all fracture work on the long bones of the lower extremity, whether by the open method or the closed, as it enables him to make the reduction by traction, as advocated by Martin, maintain it accurately during repair, and apply the desired dressing without disturbing the relationship of the fragments, which so often happens when an assistant holds the part. The traction apparatus is so designed that the surgeon has free access to all aspects of the limb, and changes of position and degree of traction are possible without disturbing the field of operation or interfering with the asepsis.

It may be used for the application of plaster of Paris bandages to any part of the lower extremity, and is especially serviceable in applying a full spica which includes the foot and extends well up on the chest. All working parts of the table are easily

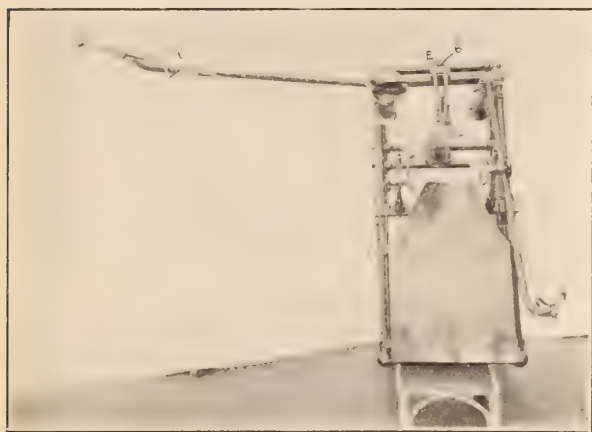


FIG. 4.—Top view of table showing distribution of the various parts.

and quickly removed, thus presenting no obstacle to the free application of the plaster; the parts of the table included in the bandage are easily removed without cutting, thus maintaining the full strength of the plaster.

In reducing dislocated hips, it is not always

necessary to use the traction device and one may depend entirely on manipulation and the use of the trochanteric push, which is so constructed and fastened to the post of the sacral rest, that it may be set at various angles and a direct force applied. To use it for either side, it is necessary only to loosen the thumb screw and swing it around under the dislocated hip.

THE TABLE.

The table is made of iron pipe and is 18 inches wide, 34 inches high, and 44 inches long, considerably smaller than any operating table, thus taking up very little space. The body rest A—Fig. 3—is made of sheet steel and is adjustable by sliding it along the top bars of the table; is curved at the lower end to fit the trunk closely, and tapered to allow its easy removal when a high spica has been applied. It is removed from the table by pulling out the bar No. 2, which is used in the holes at the head end of the rest to prevent tipping. B represents the two polished plates which fit accurately the anterior superior spines and crest of the iliac bones, are adjustable in all directions, and are carried on a hollow square steel bar so arranged that they may be set laterally and longitudinally along the top bars of the table. The sacral rest C is shaped to the body and fitted loosely in the post 5, so that it may be removed with the plaster, from which it is released by slipping it out through the perineal opening. The post 5 also carries

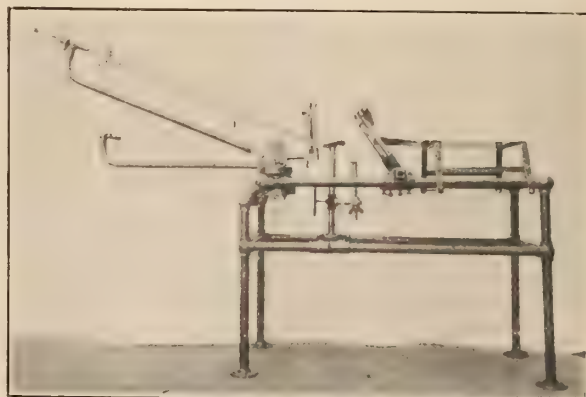


FIG. 5. Side elevation of table. The tape, attached to the sacral rest and the tractor, represents the lower extremity, and was used to demonstrate the principle of traction set forth in Fig. 1.

the trochanteric push J, and the whole is adjustable by sliding along the lower bars of the table. The perineal post D is composed of three bars, set, two in front and one behind, on a block which is adjustable toward or away from the perineum. The forward bars are fitted with rollers or sleeves, to prevent abrasions of the skin when traction is used. The rear post is independent of the other two and carries a plate to steady the symphysis pubis. This, however, is seldom needed. These posts are so mounted that they may be raised or lowered or pushed backward or forward to fit the pelvis. The handle 6—Fig. 4—holds the post on the table and at the same time controls the adjustment. Unscrewing the handle releases the entire apparatus E—Fig. 4—from the table. F—Fig. 3—serves to hold the sound extremity in extension and is adjustable for adduction and abduction only, though traction may be added, if desired, by tightening the traction straps on the leg. F and G are interchangeable in their sockets.

G is a turnstile by means of which the various positions are obtained and maintained. It is composed of a plate fastened vertically on a horizontal plate which, in turn, is set into a disc on which it turns, and fastened in a square socket at the corner of the table. The vertical plate and the disc have drilled and reamed holes, flexion and extension being controlled by setting the pin 4 in the desired hole in the vertical plate, and abduction and adduction, by lifting the pin 3 and setting it in the desired hole in the disc; 3 works automatically and may be disengaged from the disc by placing a collar provided for the purpose, under

the head of the pin. To obtain an absolutely free motion in all directions, pin 4 is taken out and pin 3 released with the collar.

H is an extension bar made of Shelby steel tubing 1/16 inch thick and one inch in diameter, making it light and strong; 7 is a threaded pin passing through the bar H and the shank of the fork attached to G. By taking out this pin, H becomes freely movable and I may then be dropped down, permitting of hyperextension when H is in the horizontal position. The bar H may now also be pulled off G, thus releasing at once all traction and giving the operator full control of the extremity. If now extreme hyperextension is desired, G may be swung around 180°, so that the straight surface of the vertical plate faces the foot end of the table, the fork is swung over the arc of the plate and H attached to it as before. The traction apparatus I may then be lowered to a distance within one foot from the floor.

I is the device for making powerful traction by means of a fairly rapid square thread. It is so mounted that a direct pull is maintained in all positions between the hip and the spreading fork on the end of the screw bar during forcible or mechanical manipulation. By means of the split nut 8 all traction may at once be released or the "slack" taken up, the threaded bar becoming then a simple sliding rod.

J is the trochanteric push, and is raised or lowered to the approximate height on the post 5 by means of a small thumb screw which locks it; further upward pressure on the trochanter is then made by means of a large "wing" nut and thread bar, which permits a finer adjustment. The cup in which the great trochanter rests, is screwed on to a sleeve which fits loosely on the thread bar. When applying the plaster a string is passed through a hole in the cup and led out over the perineal bars, and the cup with its shank, incorporated in the plaster. To remove it from the spica, the shank is unscrewed, and the cup pulled out by the string through the perineal opening in the plaster.

METHOD OF PROCEDURE.

The patient is anesthetized and placed upon the table, a piece of felt is placed on the rounded part of the body rest and on the sacral rest. The perineal post and sacral rest having been approximately adjusted, the legs are fastened to the tractors; the turnstile and trochanteric push are on the dislocated side. Next the anterior superior spine grips are firmly secured without padding under them. These secured, the perineal post is shoved hard against the pelvis to prevent the anterior spines from slipping out of the grips. The final adjustment of the perineal post should be made by sliding the block along the two rods which support the post, thus bringing it up snugly against the sacral rest. The tractor is now made to take up all slack and the split nut closed. Abduction is now made, as described under Fig. 1, thus causing traction to be made on the contracted muscles. During this stage the collar should be placed under the pin 3, but pin 4 should be in place; this allows the operator to judge the amount of force being used. Further and more powerful traction may be made by using the thread bar I. When the muscles have been sufficiently stretched in this manner, an attempt may be made to push the head into the acetabular cavity by means of the trochanteric push. The push is properly set by allowing all the thread to pass downward through the wing nut before starting, pushing the cup firmly against the trochanter, and locking on the bar. The direction of the trochanteric push is obtained at the ball and socket joint, and secured by the handle affixed. The upward thrust is made by turning the wing nut to the left. If it is impossible to reduce the hip by this method, open the split nut 8, Fig. 3, and release the limb. Any of the

manipulation methods may now be tried, using the trochanteric push as a lever or as a fulcrum.

Having succeeded in reducing the dislocation, remove the turnstile entirely from the table; also the anterior superior spine grips by drawing out the square steel bar upon which they are mounted. An assistant now holds the limb in the desired position for the application of the bandage. The bandage is applied as on any spica post, and the cup of the trochanteric push as well as the sacral rest are included, care having been taken that the string in the cup has been wound once or twice around the perineal post; the latter should not be included in the bandage, but if it has for any reason been included, it should be removed before lifting the child from the table. This may be done by loosening the thumb screw under the block holding the post, and releasing the clamp E, Fig. 4, and working the post out of the plaster. The sound limb is now released and the child lifted off the table and placed upon its abdomen. The sacral rest can usually be slid out through the perineal opening. Holding the string, the shank of the cup is unscrewed and pulled out of the plaster; pulling the string retrieves the cup.

The table has now been in use at the Children's Hospital, Boston, for several months, where it has proved itself a great help, not only in reducing dislocated hips, but also in stretching operations and in fractures where traction was necessary for the approximation of the fragments. The fundamental principles of the table having proved successful, new designs and improvements are under way, which will permit the use of the table in work upon the upper extremity; better adjustments, etc., which, it is hoped, will make the table still more practicable, without a material increase in the cost of construction.

109 EAST EIGHTIETH STREET, NEW YORK.
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HYGIENE OF NUTRITION.*

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A little over a year ago it was my good fortune, as a member of the Public Health Education Committee of the County of New York, to participate in a series of public lectures given at the Academy of Medicine in which Dr. Harvey Washington Wiley, of Washington, was the guest of honor and the chief speaker. The hygiene of food then, as now, was the topic of the evening, and Doctor Wiley's address upon Common Food Adulterants and their Effect on Public Health was one which will long be remembered by those who had the good fortune to hear it. Many changes have taken place since that time. Doctor Wiley is no longer in the government service, although he is still recognized as the highest American authority upon this subject; a presidential campaign has taken place and a new President has been elected; a war has begun and is still in progress; many other important events

*Read at the request of the Public Health Education Committee of the Medical Society of the Borough of the Bronx at the Morris High School, Tuesday, February 4, 1914.

have occurred, but in the past, in the present, and in the years to come, no more vital question can be considered than the topic, food hygiene. In the sunshine of Doctor Wiley's presence I must have shone by reflected light, and to that may be due

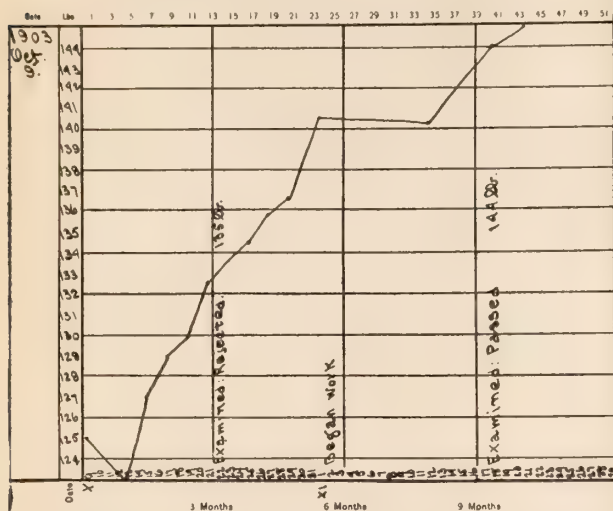


FIG. 1.—Daily weight chart, showing gain of twenty-one pounds in thirty-six days.

the honor of being asked to speak again upon the hygiene of nutrition.

Food is essential for the preservation of life, but in the present state of civilization, it is not enough simply to say "food"; we are expected to tell definitely just what kind is required by different persons under varying conditions to supply the maximum amount of energy with the minimum amount of effort. The food that is best suited for use in the tropics is by no means the best to take on a polar expedition. The food supply for a man engaged in laborious work is not suited to the needs of a convalescent woman. That the active carnivora live exclusively upon raw meat is no more to be taken as an infallible guide for the diet of mankind than is the similar conclusion that, inasmuch as all horses can live and thrive on grass alone, this is proof positive that we should all follow the classical example of Nebuchadnezzar. The pendulum of life swings to and fro, and at each point of its arc there collect from time to time groups of persons who think that they have at last discovered the one essential class of foods, which, if eaten to the exclusion of all other forms of diet, will surely ward off disease and cause each person to become at least a centenarian. Unfortunately the mortality tables of the life insurance companies by no means bear out these claims, and the only common ground on which meat eaters, nut eaters, and vegetarians meet is the wayside station where each can get three meals a day.

To medical men falls the task of deciding definitely just the class of food that individuals may require. Here again there is a wide variety of opinion. Lists are prepared for fluid diet, for soft diet, for fluid and farinaceous diet, and for full diet; and there are also to be considered diets for persons suffering from rheumatism, diabetes, Bright's disease, and anemia, as well as the ever

present class of persons who wish either to become fat or thin. For each one the physician must decide what food is best suited to this person to supply the maximum amount of energy with the minimum amount of digestive force. Whatever the answer may be, so far as the component parts of the dietary are concerned, other factors of equal importance must also be considered if a satisfactory result is to be obtained.

The food itself must be pure and free from poisonous or deleterious ingredients. The teeth and mouth of the patient must be in the best of condition, and the patient must take care that the process of mastication is thoroughly performed. "Fletcherism" by other names has aided in preserving good health since mankind began. The quantity of food taken must not be excessive, nor must the stomach and other organs of digestion be called upon to perform more work than is actually needed to supply body waste or needed growth. Indigestible food must be avoided, since this leads to useless effort on the part of the digestive organs and results in functional impairment. A certain amount of coarse food must be taken, or the intestines are not stimulated to proper activity, and constipation and kindred ills result.

Sufficient fluid must be taken to furnish ample blood and tissue moisture, not in excessive amounts at meal time, as is so often the case, but properly distributed throughout the day. If these requirements are complied with, and the food varies in character with the climate and with the demands for bodily energy, it seems to make but little difference what the actual food elements are. Carbohydrates, nitrogen bearing foods, and water are the essentials, and each can be supplied in many different ways. If the proper hygiene of nutrition is observed, the physiological processes of insaliva-

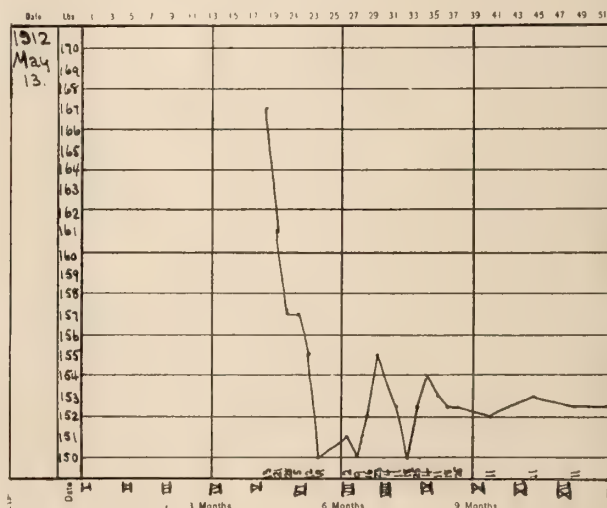


FIG. 2.—Weekly weight chart, showing loss of seventeen pounds in four weeks.

tion, chymification, chylification, absorption, and excretion progress smoothly, and good health is maintained.

If any portion of this necessary hygiene is systematically neglected, dyspepsia, at first acute and

later chronic, is practically certain to ensue. Technically the term "dyspepsia" may properly be limited in application to disturbance of the normal function of the stomach, but this disturbance is dependent in many cases upon impairment in other processes of digestion.

If, for instance, the food is eaten hastily, but slightly chewed, imperfectly mixed with the saliva, and swallowed hastily and in large sized masses, the saliva does not get a chance to act properly upon the starches, the gastric juice can act but slowly upon the large particles of food, food remains too long in the stomach, fermentation may result, and the usual symptoms of dyspepsia ensue.

The food must be pure, and to secure that much to be desired condition, no one has done as much in this country as Doctor Wiley. When the excitement of the Spanish War was fresh in our minds, "embalmed beef" became a synonym for all that was bad in bad food, fraudulent devices, and dishonest contractors. A few army officials, more or less to blame, were dismissed; a few more learned through fear or increased knowledge to improve the army food supply, and in a short time the term "embalmed beef" became more of a jest than a sad and caustic commentary upon our foolish system of mere political preferment, instead of progressive advancement upon the sound basis of merit. Let us not deceive ourselves with the belief that "embalmed beef" has ceased to exist, save as a name. Doctor Wiley has shown that the term may be properly applied to other articles that are really not beef at all, and that formaldehyde, salicylic acid, borax, benzoic acid, and benzoate of sodium, copper salts, and coal-tar dyes are ingredients that are still used in large quantities, and that the percentage of food products free from any of these harmful agents is still far too low.

The time allowed for meals is too short and the hours are too irregular in this ever crowding life of ours. From the suburbanite, who eats for a certain number of minutes by the clock and then runs for the morning train, to the shop girl or clerk who consumes a mixture of an egg with malted milk and calls it a lunch, and on again to those who hurry home, devour a dinner, and hasten to an entertainment, the list of those who are candidates for the degree of Dyspeptic Invalids is steadily becoming longer. In the matter of irregular hours, doctors themselves are among the worst sinners. Their work may serve as an excuse, for all of them know better, but few will act upon their knowledge.

In the matter of the use of too finely prepared foods, women are the greatest offenders, and as a result are the greatest sufferers. The vast number of prepared foods that are on the market, each claiming to be better than all the others, have almost done away with the need for teeth, so far as chewing is concerned. The result is that not only is the food swallowed without mastication, but there is so little solid material left to pass into the large intestine that that organ has but little work to do, and retires from business. Add to this improper food, the indoor life, the lack of active exercise in the open air, the modes of dress, and the limited amount of water that is habitually taken, it

is little wonder that dyspepsia and constipation are common among women.

Other common causes of chronic gastritis are the persistent use of certain articles of diet, such as very fat substances or foods containing too much of the carbohydrates. New England pie and the hot breads of the southern States are responsible for many cases of chronic dyspepsia. The use in excess of tea or coffee, and, above all, alcohol in its various forms, is also a cause. A common cause of chronic catarrh of the stomach is drinking too freely of iced water during meals, a practice which plays no small part in the prevalence of dyspepsia in America. Another frequent cause is the abuse of tobacco, particularly by chewing.

I shall not dwell upon the purely medical conditions that cause chronic dyspepsia, anemia, tuberculosis, Bright's disease, gout, ulcer or dilatation of the stomach, and disturbances of circulation—all contribute their share to the total result.

Strangely enough no less an authority than Osler makes the statement, "In this country excess in eating does more damage than excess in drinking." Any careful observer will agree with this statement. My own experience of ten years as a surgeon in the police department fully corroborates it. Contrary to the common belief, excess in drinking is extremely rare among policemen. In my own district, which contained between five and six hundred men, I had not a single case of intoxication in several years. As regards a professional club to which I belong, with about the same membership, I wonder if the same statement could truthfully be made. On the other hand, the outdoor life, the moderate exercise, the hasty and irregular meals all conspire to make policemen eat heartily, gain in weight, and become much more subject to gout, rheumatism, and chronic dyspepsia than any other class of the community.

The results of chronic dyspepsia are as varied as the causes. The affection persists indefinitely, and, as is the case with most chronic diseases, changes from time to time. The appetite is variable, sometimes greatly impaired, at other times very good. Among early symptoms are feelings of distress or oppression after eating, which may become aggravated and amount to actual pain. When the stomach is empty there may also be a painful feeling; the pain differs in different cases, and may be trifling or of extreme severity. When localized and felt beneath the breast bone or below the heart, it is known as "heartburn," and not infrequently the person so afflicted thinks he has actual heart disease, when really the stomach is the only organ that is to blame. Pressure over the stomach is usually painful. The tongue is coated and there is a bad taste in the mouth. The tip and margin of the tongue are often red. There may be an increase in the amount of saliva, or catarrh may be present. Nausea is common, especially in the morning. Eructation of gas, which may continue for some hours after taking food, is a very prominent feature in cases of so called flatulent dyspepsia, and there may be marked distention of the intestines. With the gas, bitter fluids may be brought up. Vomiting, which is not very frequent,

occurs either immediately after eating or an hour or two later. In the chronic catarrh of old toppers, a bout of morning vomiting is common, in which a slimy mucus appears. Digestion is much delayed, and as late as seven hours after eating, portions of food are still in the stomach. This prolonged retention of food favors decomposition, the stomach becomes distended with gas, and permanent dilatation of the stomach may result. Absorption of food or of medicine is slow, and results of treatment are often difficult to secure. Constipation is usually present, but in some instances there is diarrhea, and undigested food passes rapidly through the bowels. The urine is often scanty, high colored, and on standing deposits a heavy reddish sediment.

Among other symptoms, headache is common, and the patient feels constantly out of sorts, indisposed for exercise, and low spirited. In severe cases melancholia may develop. Fever does not usually occur. The so called "stomach cough" of chronic dyspeptics is usually dependent upon the chronic nasal catarrh so frequently present. All bodily activities suffer as a result of imperfect digestion and absorption. There is usually a progressive and steady loss of weight. The nervous system suffers also, and the disposition becomes more and more irritable. Ultimately the friends of the victim are quite as much afflicted as the patient himself.

It is not the intention in this article to dwell upon the treatment of disease. In this particular instance it would require a small volume and several evenings to discuss the many measures in the way of food, rest, massage and exercise, medicine, and the now popular process of laundering the stomach that must be chosen to suit the needs of each individual. The importance of this subject in some of the practical activities of life are well illustrated by the following extract from a recent morning paper:

Out of 4,808 men who filed their application for the position of firemen in the city of New York, only 1,679 have survived the physical test. In the last test held August 4, 1909, only 1,450 candidates passed the physical test out of 5,220 who filed their application, and of this number but 1,122 passed the mental examination, and actually were enrolled on the civil service list for appointment in the fire department.

Each man receives at the time of his appointment as a fireman the salary of \$1,000 a year. This, at the present rate of taxation (1.81) with the additional cost of collection and distribution means that at least \$50,000 of taxable property must be assessed each year to provide the salary for a single man. If every one of the 5,220 applicants had received an appointment, the enormous amount of \$261,000,000 in taxable property would be demanded in this city to pay the salary of these first year appointments. Even with the 1,122 successful candidates whose names appeared upon the list of the civil service and who were appointed, taxable property to the amount of \$51,100,000 is required for each year of maintenance, and this does not provide for the progressive increase in salary as the years go by.

The physical standard required of men who seek to enter the police department, or the fire department, in the city of New York is the highest of any

similar standard in the world. The fact that practically seventy-five per cent. of all men who take the examination fail to pass for physical reasons, fully supports this statement. If the causes for rejection are studied, it is soon apparent that disorders of nutrition resulting in maldevelopment, malnutrition, and failure to be of the minimum weight standard required in proportion to the height, are more numerous than all of the other causes combined. The unhealthy surroundings of the young men who apply for the position, the poor food, the irregular hours, the hard work in badly lighted and poorly ventilated shops and factories, all combine to produce anemia, poor muscular development, light weight, and often serious bodily infirmities. On the other hand, certain occupations and possibly certain hereditary influences act in some instances to produce overweight. Obesity is often another cause for rejection.

It is sometimes surprising to see how much can be done to put the machinery of the human system in good working order, provided none of its essential parts are organically diseased. The accompanying weight chart illustrates this very well. (Fig. 1.) This man, J. V., a candidate for the position of fireman, when first seen, October 9th, weighed, stripped, but 125 pounds, and was in a general condition of extreme malnutrition. He stopped work and devoted himself to improving his physique. He lost two pounds in weight in the first four days, but on October 22nd he weighed 135 pounds, tried the examination, and was rejected, as had been expected. He asked for a reexamination, and this was granted. He continued his training, and on the first of November, weighed 140.5 pounds. He was then compelled to resume work and remained stationary until the twelfth of November, when he again began to gain, and on the eighteenth of November his reexamination occurred. He then weighed 144 pounds, four pounds above the requisite standard for his height of five feet eight inches, passed the examination, and was finally appointed. The record shows that he had gained twenty-one pounds in actual weight during the five weeks which elapsed between October 13th and November 18th. This is not an unusual occurrence, for many similar results can be shown where systematic exercise and proper nutriment are taken.

Reduction in weight is much more difficult to achieve, for, as a rule, people who are overfat find it difficult to deny themselves the satisfaction of a hearty meal, and are averse to a rigid diet or active exercise. Here again suitable exercises and carefully restricted diet can reduce weight from five to ten pounds a month, not only without loss of strength, but with material benefit to all bodily functions.

Occasionally persons are found who are willing to conform to a carefully considered plan, and with them the results are most satisfactory, as is shown in the accompanying weight chart of Mrs. C. W., who, when first seen May 13th, although only four feet, ten and one half inches in height, weighed 167 pounds. (Fig. 2.) Locomotion was difficult because of this excessive weight, and she decided to make the effort required. A careful diet, moderate exercise at first, with more active exercise as she

lost weight, reduced her weight to 150 pounds, a loss of seventeen pounds in exactly one month. Thereafter her weight has remained practically unchanged until the present time, and her health is now better than for years.

It is therefore a comfort to know that there are a few conditions in medicine which, with proper care and patience and attention to seemingly unimportant details, will give such satisfactory results in the restoration of health as in the cases of chronic dyspepsia and malnutrition.

150 WEST FORTY-SEVENTH STREET.

THE PHYSIOLOGICAL TREATMENT OF CATARRHAL DEAFNESS.*

BY ALBERT C. GEYSER, M. D.,
New York,

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There is hardly another condition about which the prognosis is usually so gloomy from the average aurist's point of view as deafness due to or the result of chronic nasal catarrh. The question arises, Why is it that these cases receive such a hopeless prognosis at the hands of the aural specialist, and yet these same cases make most brilliant recoveries when treated by physiological therapeutics? The answer is this: The aural specialist treats this affection from a pathological viewpoint, he recognizes the impossibility of restoring the normal physiological condition of the parts, either with drugs or surgical operations. Other measures, such as heat, vibration, and electricity are either too complicated or seem to suggest quackery and are therefore beneath his dignity.

It will be my purpose to call attention to the physiological methods of treating these cases. Some of these patients who have kindly volunteered to come here will exhibit the various phases of this subject. All of these have suffered from chronic nose catarrh for years; some have been deaf in one ear only, others in both, ranging from five to fifteen years. All have been under treatment more or less constantly, and all were told that there was little hope of improvement.

Some of these patients will tell you that they could not hear an ordinary alarm clock half an inch from the affected ear, while now there is not one of them but can hear a watch tick six to twelve inches from the same ear. For all of this there must be a reason. I shall call attention to just so much anatomy and physiology as seems necessary to elucidate the physiological therapy.

ANATOMY OF THE NOSE.

The mucous membrane lining the nasal fossæ is called the Schneiderian membrane. Schneider pointed out the fact that the secretions of the nose proceeded from the mucous glands and not from the brain. The mucous membrane is continuous with the mucous membrane of the eye through the nasal and lacrymal duct, with the membrane of the tympanum and the mastoid cells through the Eustachian tube. It is further connected with the frontal,

ethmoidal, sphenoidal, and the antrum of Highmore through the several openings in the meatus. It is a continuation of the mucous membrane of the bronchial tube and through the esophagus with that of the gastrointestinal tract.

The mucous membrane is thickest and most vascular over the turbinated bones, fairly thick over the septum, but thin between these and the floor of the fossæ. Near the orifice, where common sensation is chiefly required, the epithelium is of the pavement variety, but in the rest of the nose, in all that portion of it engaged in the function of respiration, the mucous membrane is covered by columnar ciliated epithelium; also the passages leading to the various sinuses. In the olfactory region, the epithelium is columnar but not ciliated. The mucous glands, while differing in size according to the location, are evenly distributed throughout the membrane.

The nerves are the olfactory, the nasal branch of the ophthalmic, anterior dental, superior maxillary, the Vidian, nasal palatine or nasal branches from Meckel's ganglion. The sphenopalatine or Meckel's ganglion is the largest of the cranial ganglia. Like other ganglia it possesses a motor, sensory, and sympathetic root. Meckel's ganglion communicates by two ascending branches with the superior maxillary branch of the fifth or trifacial, which comes from the Gasserian ganglion.

PHYSIOLOGY OF THE NOSE.

The physiology of any part is always dependent upon the anatomy. Certain tissues and cells have a certain physiological function to perform; they must perform that function and no other should be expected of them. The formation of the mucous membrane over the turbinates is for the purpose of increasing the radiating surface. The turbinates are so arranged that the air current from the outside enters their funnelshaped openings and is then broken up into several streams. When all of these broken air streams have passed over the large area of this intensely vascular membrane, it has been filtered of its impurities which have lodged upon the filtering passages; it has been warmed or cooled as the case may be, so as to arrive in the lungs at body temperature or nearly so.

The intake force of the stream has been properly retarded to prevent injury to the distending air cells. The impurities of the inspired air have lodged upon the mucous membrane, which is supplied with mucous glands and ciliated epithelium. This ciliated epithelium possesses the faculty of always waving everything in an outward direction. Whatever causes an irritation of this mucous membrane, causes an increase in the performance of its physiological function which is an extra excretion of mucus and an overactivity of the ciliæ. The sudden change of temperature from a hot room to the cold outside air immediately causes an increase of the flow of mucus; the deposit of dust, irritating substances, odors, and bacteria cause the same phenomenon. This is spoken of as "catching cold," whatever that means, when in reality it is an attempt upon the part of the economy to prevent something injurious from happening.

From the anatomical nerve supply we see that the nose, or at least the upper part of it, serves another

*Read at the meeting of the Bronx Medical Association, March 4, 1914.

physiological purpose. The branches of the olfactory nerve are distributed in the upper, out of harm's way sort of place, to furnish the special sense of smell. While the development of this special sense of smell is in every way desirable, in the human being it is not a necessity. Nature abhors anything that is not necessary or useful, so the sense of smell in the human being has been more or less obtunded. If, however, the noxiousness of anything is great enough, we receive certain warnings that such substances are not desirable for the lung or for the intestinal tract.

It is for that reason that we find a branch of the sympathetic ganglion emerging from between the eighth, and the ninth vertebra, connecting directly with the Schneiderian membrane. It is there to warn us by the sense of smell that whatever is not good for the intestinal tract, should not pass further than the nose. Another physiological function, and this includes the entire nose, is to act as a sounding chamber to give resonance to the voice. For this purpose the nasal chambers must be free so as to emit the voice without hindrance. One frequently hears the remark that so and so talks through his nose. Whenever that remark is made, it is a sure sign that so and so does not talk through his nose, for that is just what we all should do, but many of us cannot. There may be other functions, but for our purpose interference with those enumerated will be all sufficient.

NASAL PATHOLOGY.

As physiology is the result of anatomical structure, so is the pathology the result of interference with physiological function or due to structural anatomical changes. Our principal pathological condition is inflammation of the mucous membrane of the nose and pharynx, in other words catarrh of the nose.

Morell Mackenzie considers two principal causes for this affection, first, foreign matter, such as dust and bacteria lodging upon a mucous membrane, second, the habit of fast eating and drinking. Doctor Freudenthal, on the other hand, considers only dry, overheated, badly ventilated rooms. From the anatomy and the subsequent physiology, it must be apparent that both of these writers are correct. We will therefore say that anything that is capable of acting as a long continued or oft repeated irritation of the Schneiderian membrane must eventually cause catarrh through overactivity and hypertrophy.

Neither is it necessary that this irritation affect primarily the mucous membrane of the nose; chronic constipation will sooner or later cause a colitis. Pulmonary tuberculosis usually causes an overactivity of the respiratory tract by direct extension of the inflammation or through the sympathetic fibres reflexly. Any one of these, or all of them acting in concert, produce a hypertrophy of the nasal mucous membrane. At first, as a direct result of the enormous increase in the vascularity, we have a pouring out of mucus in abundance, and the patient complains of nothing worse than a running nose.

If this process is long continued, there is a gradual extension in all directions. The discharge, instead of finding its way out by the natural channels, now drops into the nasopharynx; it accumulates in the upper and posterior portion of the nose, in-

vades the sinuses, and the patient complains of frontal headaches. When this pain is at the brow and bridge of the nose, it is almost certain that it is due to gastrointestinal and secondary nose involvement. The accumulation of mucus laden with bacteria and detritus, is especially marked upon awakening in the morning, and is always worse if the patient has been imbibing alcoholic liquors the night before.

By gradual extension of the process, the entire nasopharynx becomes involved and the Eustachian tube shares in this process. Either the opening of the tube becomes filled with mucus or, through swelling of the parts, becomes occluded. At this time the patient complains of noises or ringing in one or the other ear. These noises may be relieved by forcibly blowing the nose, only to return again soon after. If this forcible blowing of the nose is persisted in, or if Valsalva's method of inflation is practised, there is every possibility of forcing some of the germ laden mucus into the stenosed Eustachian tube and thereby laying a foundation for a future otitis media.

Assuming that this does not occur on account of complete closure of the tube, then the air contained within the same is gradually absorbed, the tube collapses throughout its entire length, with the result that we have a more or less of a vacuum on one side of the membrana tympani and the air pressure of fifteen pounds maintained on the other side. The changes are self evident. The ear drum is bound to bulge inward from the external air pressure and the decreased resistance on the inside. This bulging drives before it the ossicles, which finally communicate through the stapes with the fenestrum ovale. Not only have we now the extension of the inflammatory process from within, but the added factor of pressure in all of the articulations of the chain of ossicles.

It is true, these bones and joints are very small, nevertheless they are articulations and obey the laws of pressure as much as the knee or the elbow joint. A very little pressure, but long continued, sets up an interarticular inflammation which causes adhesions and stiffness. At this time, the patient complains of acute hearing; in fact slight noises and sounds inaudible to other people are not only magnified, but distorted. With a susceptible person these sounds are interpreted as "some one calling them, or as some one talking about them."

The rest of the story does not concern us here, but I am satisfied from my contact with patients in the Manhattan State Hospital, that only too many started on their way across the river, through nothing more than an unrecognized nasal catarrh. If the process continues, retrogression takes place. A tympanic membrane that does not vibrate, a chain of ossicles that do not move, require little or no blood supply. Atrophy causes a drying and blanching of the ear drum; instead of giving that shiny, mother of pearl appearance, we see a bony, lustreless, or chalky membrane. At the same time we have an atrophic mucous membrane in the anterior portion of the nose, while in the posterior we have a hypertrophic rhinitis with more or less loss of hearing in one or both ears.

Such is the clinical pathology of a case of catarrhal deafness.

TREATMENT.

Physiological function is based upon anatomical construction. Pathology is the deviation from the normal of either one of these, while treatment has for its object the removal of the cause and the restoration of physiological function and anatomical structure. Pathologically, we are confronted with an atrophic or hypertrophic mucous membrane functioning abnormally; a chain of bony articulations having become ankylosed as a result of positive pressure on the outside and a negative pressure on the inside; the membrana tympani is atrophied and nonvascular; the Eustachian tube may be either open, narrowed, or closed.

In summarizing the treatment I shall confine myself to personal experiences only. There is no doubt that all of this treatment has been advocated by others, either in fragments or as a whole; this treatment is not a fixed one, but must be varied as the circumstances demand. I shall also assume that the case is one that falls into this category, thereby barring complications or unsuitable cases.

The normal discharge from the nose is alkaline. Any kind of an alkaline solution as a ten to twenty per cent. solution of bicarbonate of soda will dissolve the mucus, whether thin, viscid, or even in crusts. An ordinary nose spray is used; the patient vigorously uses the handkerchief or a good sized piece of cheesecloth. I have no cuspidors in my office; they are unclean, disgusting and unnecessary. As soon as all the mucus has thus been removed, if there is atrophy present, an oily solution of iodine is then blown on to the parts from a vaporizer. If hypertrophy predominates, an oily solution of acetozone is in the same manner vaporized. The iodine irritates and stimulates tissue increase, and is a good germicide. The acetozone is a sedative to the mucous membrane, at the same time germicide, antiseptic, anodyne, emollient.

When the nasal mucous membrane has thus been prepared, the patient is treated electrically. If atrophy is present, the stimulating action of the vacuum high frequency tube is used; if hypertrophy prevails, then the heating, tissue contracting effect of the diathermic current is indicated. Assuming that the hypertrophy has so occluded the nasal fossæ that these electrodes will not enter, we have recourse to electrolysis. Two, three or more fine cambric needles are attached to the negative pole of the galvanic current and inserted into the hypertrophic tissue. The electrolysis takes place between the cartilage and the mucous membrane; immediate shrinking is the result.

It will be noted that in all of these procedures the physiological integrity of the parts is strictly preserved, so that the mucous membrane of the nose and pharynx is in a condition to perform a normal physiological act. Having cleared the nasopharynx, we give our attention to the ankylosis of the ossicles. An ankylosis is a certain condition of bony joints, no matter where situated. We treat this ankylosis the same as an ankylosis of the elbow. Our agents in either case are dry heat and passive motion.

From an instrument devised for this purpose, a stream of dry hot air is forced against the drum membrane and the adjacent parts. The instrument must fit snugly into the external auditory canal, and

by a vacuum pump arrangement, this hot air is blown into the canal, then again withdrawn to the point of forming a vacuum. In this manner the ear drum is made to vibrate, and through its attachments with the ossicles they are loosened up; thus returning the parts to their normal anatomical and physiological condition.

The membrana tympani is next treated. The external canal is freed from all fats by a thorough washing with a warm alkaline soap water solution. The patient is placed in a horizontal position and the ear filled with a warm clean alkaline solution. A small piece of rubber tubing is inserted into the external canal, almost up to the ear drum. The negative pole of the galvanic current is placed into this rubber tube. The contact with the ear drum is made through the water.

The positive pole is placed on the nape of the neck. The current is turned on slowly up to one half of a millampère, gradually as tolerance has been established, it is increased to one or even two millampères for at least fifteen minutes. This procedure has the effect of softening and again revascularizing the membrane. During this procedure, which lasts from three to six weeks, the patients frequently complain of increasing deafness due to the softening of the membrane; this regulates itself as soon as normal and efficient circulation has been re-established.

The Eustachian tube is the last to receive direct attention, for frequently this is made unnecessary by the treatment of the adjacent parts. The most common condition is stenosis of the tube. A Eustachian catheter attached to the negative pole, and under the guidance of the operator's eye, is inserted into the opening in the pharynx. One quarter to one half of a millampère is allowed to flow for five minutes. This procedure is continued until the canal is entirely patulous. All the parts are now anatomically and physiologically again intact. Patients who could not hear an alarm clock tick one inch from the external meatus, frequently after such treatment can hear a watch tick six to twelve inches from the affected ear.

231 WEST NINETY-SIXTH STREET.

HEREDITARY CEREBELLAR ATAXIA.*

By S. A. BIAUNER, M. D.,

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The history of three children presenting the familiar condition of Friedrich's ataxia, is sufficiently interesting and rare to justify, I feel, its report for record. It is interesting, because in this family the disease has assumed the rarer form of the disease, namely, hereditary cerebellar ataxia, and, secondly because, of the three children attacked, each child presented different symptoms. In the first child, the eldest, the disease from the very beginning until his death showed the cerebellar tendency, and diagnosis was simple. In the second child, however, the diagnosis was more difficult and in abeyance until six months ago, when the cere-

*Read before Lebanon Alumni Society, April 7, 1914.

bellar gait and the peculiar carriage characteristic of the cerebellar ataxia began to manifest itself. All along until six months ago, the symptoms present were more those of a multiple sclerosis, and were it not that his elder brother had the frank symptoms of familial ataxia, the probability of hereditary multiple sclerosis would have had to be considered.

In the third child, the youngest, death intervened too soon for the symptoms to become classical, but sufficient were present to justify the assumption that with time, typical symptoms would have presented themselves.

Inasmuch as no autopsy was obtained, it will be unnecessary to enter into a discussion of the pathological anatomy of this condition; it must be assumed as the symptoms in the eldest child were typical, that the disease was one of the cerebellar type of Friedrich's ataxia, and that the pathological changes were no different from those usually found in this disease.

CASE. Father and mother English Jews; middle aged people, healthy and well; neither remembered any previous illness. Mother a strong robust woman of average height and weight, but somewhat neurasthenic, as the result of the affliction to her children. Father was a strong, well built man, but somewhat undersized, being shorter than his wife. Socially their position could be placed among the middle strata of society, both intellectually and economically. No consanguineous marriage; no nervous disease in any branch of the family; no history of lues. Wassermann negative on mother (1914). Mother had three children, and one abortion five years after birth of the third child.

The first child was a healthy baby at birth; no history of convulsions. It was breast fed until the fifth month. The baby developed normally as a baby should, with the exception that after five months, it became considerably heavier than the average infant; began to notice objects at six months, sat up at eight months and had several teeth by the end of the first year. It walked at fifteen months and spoke early (time not given). Had measles and pertussis during third year. *Present history.*—Outside of its increase in weight, child developed normally until its third year. But even before the attack of measles and pertussis, mother noticed stoop to child's walk, but speech was not impaired. A little later, however, speech had begun to alter, attended with a constant protrusion of the tongue. Presently his walking became involved, accompanied by shuffling feet and a constant tendency to fall. With the development of these physical symptoms, there was a constant and gradual decline of his mentality, so that at ten years he was unfitted to attend school. I saw this boy at the age of nine and a half years for the first time, and the impression he gave me before the examination was that of an imbecile. The facial expression and the protruding tongue were similar to that seen in idiots. His carriage was peculiar. His chest was thrown forward, head backward and somewhat to one side, one shoulder being slightly higher than the other. His gait was unsteady and ataxic, a sort of rolling gait, not unlike that of the drunkard, with a constant tendency to fall. An examination showed innumerable scars of previous injuries. His feet were always shuffled, not raised, and widely separated at the tips; what the Germans call *Spitz Fuss*. His speech was short and explosive, with enunciation thick and unintelligible. There was no nystagmus, but a very slight intentional tremor of both hands, sufficient to make taking of liquid food difficult. Patellar reflex was present, but was not exaggerated. There was no Babinski, no Oppenheim, no Gordon. His teeth were normal in number, but showed caries at the junction with the gums. There were no Hutchinson's indentations. Beside the rolling, swinging gait, the child must have been attacked with dizzy spells, for at intervals he would suddenly fall to the floor and remain in a dazed condition for a variable period. He would have no difficulty in getting up; there was no frothing at the mouth, no bitten nor scarred tongue, no incontinence of urine and feces. It must have been these dizzy spells that led to the diagnosis of epilepsy by other physicians. This child was under my observation until six months before his death,

when he was taken to an institution and died of pneumonia at the age of fourteen.

The history of the foregoing case makes a diagnosis of cerebellar ataxia most certain. A history of the familial disease, with ataxia, presence of reflexes, explosive speech, characteristic carriage, rolling drunkenlike gait, with attacks of dizziness is observable in no other condition than hereditary cerebellar ataxia.

The third child was a healthy boy of normal delivery; was breast fed until the sixth month. There was no history of convulsions. The child developed normally, physically, and mentally, in every respect until his fourth year. Then during convalescence after a slight infectious disease, mother noticed a slight intentional tremor of both hands, which increased with time so that the child ultimately found it difficult to take liquid food. Subsequent to the tremor, mother noticed a slight protrusion of his tongue and an increasing ataxia upon walking. His gait was uncertain, with frequent falls, and his mentality declined with the onset of the physical symptoms. His symptoms were still undecided when he died of pneumonia at the age of six and a half years.

The second child was also a healthy boy, with development as normal as should be. Nothing was noticed until after an attack of acute ileocolitis, in his fifth year, when his mother noticed a tremor of his hands, and soon after a change in his speech. It was for these symptoms that she called to see me. Examination showed a well nourished and well built child. His gait and posture were normal. There was no nystagmus nor strabismus. His tongue was not protruding, but there was a slight tremor. His speech was slow and scanning. His hearing was good. His hands show a decided tremor upon intentional movements. His walking showed no signs of ataxia and the position of his feet was normal. His deep reflexes were present, and slightly exaggerated with a slight Babinski. Fundi of both eyes normal; no optic atrophy, Wassermann negative (taken 1914), heart, lungs, and urine negative, his mentality slightly defective. The child was under my constant observation for five years and showed no deviation from the foregoing symptoms until one year ago. Then his gait and posture began to change. Where formerly he would stand erect and walk with a firm step, he would now walk with head thrown slightly backward and a little to one side, with his gait ataxic and somewhat unsteady, and feet widely separated. He simulated moderately the posture of his eldest brother. His speech, on the other hand, had become less scanning, and when he was last seen, two months ago, had become thicker and less intelligible. The tremor of his tongue had disappeared, but the intentional tremor of his hands remained.

A decided change also became noticeable with his deep reflexes, which became markedly exaggerated, with a decidedly stiff gait, and a very active Babinski. Perhaps it would be reasonable to say that his ataxia was due mainly to this spasticity.

The question of diagnosis in the last case was not easy. His symptoms simulated more a multiple sclerosis, yet in the presence of a familial condition, it is more logical to unite all three cases into one condition than into separate diseases. Alone, without the two other children, the probability of hereditary multiple sclerosis would have to be considered, but where the eldest child manifested indisputable symptoms of hereditary ataxia, it is more than likely that the second child, too, is suffering with the same condition, for hereditary cerebellar ataxia is a familial disease and any child suffering with a familial condition would likely have the same disease. Furthermore, the child did not have any partial optic atrophy, which is almost diagnostic of multiple sclerosis, and when we consider that hereditary ataxia often begins with symptoms simulating multiple sclerosis, it is reasonably certain that this case too, and especially where the symptoms have already begun to change, is one of hereditary cerebellar ataxia.

22 MOUNT MORRIS PARK, WEST.

HOURGLASS CONTRACTION OF THE UTERUS FOLLOWING THE USE OF PITUITARY EXTRACT.

By THOMAS H. CHERRY, M. D.,
New York.

CASE. Mrs. C., Para I. Previous history negative, menstrual history of no import. Physical examination and pelvic measurements normal. Due October 24, 1913; presentation vertex; position, left occipital posterior. The patient was admitted to the obstetrical service of Dr. G. L. Brodhead, at the Post-Graduate Hospital; she was in labor on November 9, 1913. The pains during the first twenty-four hours were of an intermittent and irregular type. Examination at this time showed a cervix admitting two fingers, with the membranes intact.

During the course of the following day the uterine contractions increased somewhat in force and frequency after the administration of quinine five grains, and strychnine sulphate one thirtieth grain. The cervix dilated very slowly, admitting three fingers, but was of considerable thickness.

Morphine sulphate one sixth of a grain was given in the evening, the patient resting somewhat during the night. The next morning, as the cervix admitted four fingers and the head was well engaged in the brim of the pelvis, the membranes were ruptured. At the same time an unsuccessful attempt was made manually to rotate the position to a left anterior. The cervix had softened considerably by this time, and as there were no contraindications, one ampoule of pituitary extract was given intramuscularly with no effect on uterine contractions. During the day the pains occurred very irregularly, with little force and frequency, and with no further advancement of the head or dilatation of the cervix.

At 5 p. m. it was decided to use pituitary extract again. This was injected in one c. c. doses at twenty minute intervals—the patient getting in all seven c. c. or 105 grains of the extract. These injections made no impression upon the uterine contractions. The blood pressure, however, rose to 180 mm. and the maternal pulse to 120 and the fetal heart to 180. Two hours after these administrations of the pituitary, meconium was passed by vagina and a forceps delivery was decided upon. Chloroform anesthesia was given, and on examination, the cervix was found to have contracted to three fingers' dilatation, meconium was being passed, and the vertex was presenting in midpelvis in left occipital posterior position. After a manual dilatation of cervix, and on introducing the hand into the uterus to serve as a guide to the first blade of the forceps, the occiput rotated spontaneously to a left occipital anterior position. The forceps blades were applied to the sides of the fetal head, and after thirty minutes of intermittent traction, an eight and one half pound male child was extracted, with a moderate degree of asphyxia livida, which responded readily to spanking. After twenty minutes of waiting, an attempt was made to express the placenta by the Credé method, without success. On palpating the uterus through the abdomen, it was found to be firmly contracted, and a mass the size of a grape fruit was felt on the right fundus and thought at the time to be a fibroid and the etiological factor of the uterine inertia and the retention of the placenta. After many ineffectual attempts at expression during the subsequent one and a half hour, a manual extraction was decided upon. With the patient under chloroform anesthesia, the gloved hand was introduced into the vagina, and on entering the uterus, the cervix and lower segment seemed to be in an atonic state which had not recovered from the dilating influence of the passage of the fetus. As the hand was inserted further into the fundus, a constricting band or ring was encountered. This readily admitted the hand and was found to lead into a second cavity at the right cornu of the uterus, and over which the hard mass could be easily felt by the abdominal hand. This cavity contained the placenta which was not adherent and was easily extracted.

This irregular contraction of the uterus was probably due to the stimulation of that portion of the uterus containing the placenta; and exaggerated efforts on Nature's part induced by pituitary ex-

tract caused a tetanic state of that part, not allowing the postplacental hematoma to form and separate it from the uterine wall.

The patient withstood these operative procedures with very little shock, the pulse rising to 140 and later dropping to 120. A normal puerperium ensued. An interesting feature is, that on the day following delivery, the mass thought to be a fibroid had entirely disappeared.

As pituitary extract is being used so extensively to augment uterine contractions during labor, I thought it would be of interest to report this case with a complicated third stage following the use of large doses of the extract.

255 WEST 108TH STREET.

Lectures and Addresses.

THE LADIES.*

By GEORGE F. BUTLER, M. D.,
Kramer, Ind.,
Medical Director, Mudlavia.

Why it is I have been selected so often to respond to this toast, I do not know. It is possible that among all the members of the American Medical Editors' Association I am believed to be the only man impervious to the wiles of woman.

It seemed necessary to have some one unrestrained by conscience who could eulogize the ladies without backing over the precipice to a terrible hereafter. I was informed that many of the ladies would be accompanied by their husbands, and anything said to make *them* feel better would be appreciated. It is a work of kindness of heart to raise some women in the estimation of their husbands.

Tradition says there was a scarcity of solid elements at the time woman was created. At the beginning of time, Twashtri, the Vulcan of the Hindu mythology, created the world, but when he wished to create a woman he found that he had employed all his materials in the creation of man. He, therefore, took the roundness of the moon, the undulations of the serpent, the entwining of climbing plants, the trembling of the grass, the slenderness of the rose vine, and the velvet of the pansy, the lightness of the thistledown, and the glance of the fawn, the gaiety of the sun's rays and the tears of the mist, the inconstancy of the wind and the timidity of the hare, the vanity of the peacock, the modesty of the wren, the softness of the down on the throat of a swallow, the hardness of the diamond, the sweetness of honey and the bitterness of gall, the innocence of the lamb and the cruelty of the tiger, the warmth of fire, the chill of snow, the chatter of the jay and the cooing of the turtledove. He united all these and formed a woman. Then, he sent her to where Adam, the first man, lay sleeping. And as the woman bent over the form of the man there burst upon the silent night a heavenly melody. "Her fragrant breath on Adam's cheek was sweeter than ever swooned in the rose garden of Cashmere; there was a touch upon his forehead softer than the

*An address delivered at the banquet of the American Medical Editors' Association, Atlantic City, June 23, 1914.

white dove's fluttering bosom." He was awakened by a voice in his lonesome ear crying, "Get up, Adam, it is time to start the fire." And he got up, and he has been doing things she wanted him to do ever since.

Eight days later the man came to Twashtri and said, "My Lord, the creature you sent to me poisons my existence. She chatters without rest, she takes all my time and is always complaining."

Twashtri received the woman again. But eight days later the man came to the god and said, "My Lord, my life is very solitary since I returned this creature. I remember how she danced before me amid the sensuous perfume of dew bespangled flowers. I still feel the mesmeric touch of her hands and the wild thrill of heart pulsing against heart as we "tangoed" together. I recall how we sat in the mellow moonlight by the river's bank and walked in the forest aisles by day, how she murmured sweet nothings to me in a voice low and sweet as the thrush's song, and I cannot give her up, my Lord."

And Twashtri returned the woman to him. Three days only passed and Twashtri saw Adam coming again. "My Lord," said he, "I do not understand exactly how, but I am sure the woman causes me more annoyance than pleasure. I beg of you to relieve me of her." But Twashtri cried, "Go your way and do your best." And the man cried, "I cannot live with her!" "Neither can you live without her," replied Twashtri. And Adam was sorrowful, murmuring: "Woe is me, I can neither live with her nor without her."

I know about how the man felt at times, and so does every other man here. I well remember how some thirty odd years ago a girl played with a skilled hand on all my senses until the last one of them passed in music out of sight and left me a mental bankrupt. She made me drunk with the music of her voice. Her every posture was a living picture, her slightest movement a sensuous symphony, and when I harrowed the peachbloom on her cheek with my whiskers, I was uncertain whether I had hit the lottery for the capital prize or had been nominated for justice of the peace. It was then I acquired the pernicious habit of writing poetry. This sweet period of irresponsibility and incoherence of thought ended soon after she married me, and I gradually returned to the normal, and again became a sane man and a moderately useful member of society, with a rapidly increasing appreciation of the value of a dollar.

But that girl is now Empress of my home, but never satisfied until she has fooled me into the belief that I am the real ruler.

Not satisfied with being empress of the home, the true helpmate, stirring the man to fight always for his better nature, rousing ever his highest aspirations, woman precipitates on this unhappy land the suffrage question. She insists upon voting, even though she may know less of political economy than does a prohibition orator. Her example has bred a train of ills or benefits whose culmination even the wisest philosopher cannot foresee. Already there is many a town she has made as dry as the Sahara. The suffragette is quite the antithesis of the soft, clinging creature who makes glad the heart of man by handing him buckwheat cakes hot

off the griddle, winter mornings, and who meekly follows him to the door, asking him for a quarter to buy some castoria for the baby.

Yet, from the meek woman of the past to the militant woman of today, women have been the queens of our lives. Queens they must ever be—queens to their lovers, queens to their husbands and sons, queens of higher mystery to the world beyond, which bows itself, and will forever bow, before the myrtle crown and stainless sceptre of womanhood—yet always a mystery.

Uncomprehended and uncomprehending.

The darling, but the despot, of our days—

Smiling, she smites us—fondling us she flays;

Still madly loving us, yet still contending.

And proudest when her conquered heart is bending,

And most unyielding when she most obeys—

She is so fashioned that her face betrays

The struggle ended, long before the ending.

She's like a bubble borne along the air.

Forever brightest just before it breaks—

Or like a lute that's mute ere it wakes

In trembling ecstasies of love divine;

Woman is always just across the line

Of her own purposes. Beware! Beware!

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXLVII.—How do you treat tetanus? (Closed.)

CXLVIII.—How do you treat sunstroke and heat exhaustion? (Answers due not later than July 15th.)

CXLIX.—How do you treat the opium habit, viewed as a neurosis? (Answers due not later than August 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$22 for the best essay submitted in answer to Question CXLVI was awarded to Dr. William C. Calhoun, of New York, whose article appeared on page 25.

PRIZE QUESTION NO. CXLVI.

THE TREATMENT OF SCARLET FEVER.

(Continued from page 27.)

Dr. Alfred Kahn, of New York, states:

There are two primary causes of death—toxemia and nephritis, the latter the result of the former. For the toxemia, aid in supporting the system and at the same time eliminate the poisons as quickly as possible. Support Nature as much as possible. Keep a watchful eye on the kidneys. Elimination is most important, and this must be done mainly through the skin and bowels. The urine should be tested at the outset for albumin, and if the fever is running high, every day or every few days. This is a reliable index as to whether your patient is to re-

cover or is slipping away. As soon as the diagnosis is made, rid the system of as much excretory substance as possible, the sooner the better; early in the disease while the patient is strong, and not late in disease when he is weak. Promote sweating. Put the patient on a diet of milk, water, and occasionally a little orange juice, and this only—no other diet. This is important. At the same time advise a hot mustard foot bath, hot saffron tea, and administer the following:

℞ Quininæ sulphatis, }
Dover's powder, . } ãã grs. v.
M. ft. pulv.

The bowels are stimulated by the following:

℞ Hydrargyri chloridi mitis, ...gr. i;
Sodii bicarbonatis, ...grs. x.

Sig.: One every half hour, followed six hours after the last by Rochelle salts.

This is routine, whether the bowels have moved or not, and assures a clean intestinal tract.

The urinary way is washed by the following:

℞ Tincturæ aconiti, ...℥xii;
Spiritus ætheris nitrosi, ...3vi;
Potassii citratis, ...grs. lxxxi;
Syrupi tolutani, ...3i;
Aque, q. s. ad.....3iii.
M. ft. mist. Sig.: Teaspoonful every two hours.

which I continue for several days at the outset of the disease. The system is now thoroughly clear and ready to eliminate the poisons as they are formed. The organs of elimination must not be allowed to be irritated (the kidneys especially); the diet is important and should be mostly milk, water, and orange juice. It is well to make a primary urinary examination for albumin.

General considerations: 1. Patient should be isolated, quarantine established, and disinfection encouraged. 2. Room should be quiet and well ventilated. 3. Clothing light and warm. 4. Warm bath—nasal spray of warm water (containing two teaspoonfuls of salt and two of bicarbonate of soda to pint), and followed by spray of menthol and camphoræ, three grains of each; liquid petrolatum, ounces three.

℞ Argenti nitratis, ...grs. x;
Acidi carbolic, ...grs. ii;
Potassii chlorati, ...grs. v;
Alcoholis, }
Aque, ... } q. s. ad 3ii.

Sig.: Mouth wash; tablespoonful to glass of hot water as a gargle and mouth wash.

Irrigate the ears with solution of bichloride of mercury, one to 10,000.

5. Diet: First to third week, milk eight ounces every two hours, 6 a. m. to midnight; afterward farinaceous foods; gradually giving more, and a heavier diet providing there are no complications. I never give nitrogenous foods (only in extremely small doses) until fifth week. Change diet as much as possible and give as great a variety as possible. Water freely—not too much at once. Do not overload stomach with water. Dose, eight ounces every two hours from 7 a. m. to 11 at night. If specific gravity of the urine is high, increase water; add lime (lime water), and give orange juice occasionally.

SPECIAL CONSIDERATIONS.

1. The digestive tract. For vomiting give the following:

℞ Bismuthi subnitrat, ...5iii;
Tincturæ aconiti, ...℥x;
Ft. chartæ, No. X.
Sig.: One powder every thirty minutes.

If pain is associated with vomiting, add: Cocainæ, grain one eighth; silver nitrate, grain one quarter. If pain is due to excess of hydrochloric acid, give:

℞ Magnesii oxidi, ...grs. v;
Sodii bicarbonatis, ...grs. x;
Lithii bromidi, ...grs. iii;
M. ft. chartæ No. i.

Sig.: One half hour after nourishment.

If due to lactic acid fermentation, give:

℞ Resorcinolis, ...5i;
Aque chloroformi, ...3iii.

M. Sig.: Teaspoonful in water as required.

For intestinal putrefaction, when indican is present in urine, diminish nourishment and give calomel in small doses. For tenderness over bowels, give ichthyol, salol, hexamethylenamine, and castor oil in small, frequent doses. For diarrhea, irrigate with normal saline solution to which is added a little sodium bicarbonate. Give a large dose of bismuth subnitrate combined with Dover's powder, grains five. For constipation, give of Epsom salts and cream of tartar, one to two drams twice daily. If feces are impacted, give enema of soap water, glycerin, and, if necessary, use manipulation.

If fever is higher than 102° F., an ice bag to the head will give comfort and a tepid sponge is indicated, but if specific gravity of urine is high; if there is albumin in urine; if there is much toxemia, I do not sponge with cold or tepid water, but rather prefer water at the temperature of the body. If the body is chilled, the kidneys have a tendency to become congested and are compelled to do more work; when, if the cold sponge was not given, the skin would carry off excretory matter.

If patient is irritable and has a tendency to become delirious or has congestive headache, try the following prescription in addition to cold bag to head:

℞ Morphinæ sulphatis, ...grs. i to ii;
Chlorali hydratis, ...3ss to iss;
Aque cinnamomi, ...3i to ii.
M. Sig.: Teaspoonful in water.

This has a tendency to ease the patient, steady the nervous system, and indirectly reduce the fever. If heart is weak, follow with strychnine sulphate, grain 1/120 to grain 1/60 hypodermically, or the following *per os*:

℞ Caffeinæ, ...3i;
Strychninæ sulphatis, ...gr. ss;
Sparteïnæ sulphatis, ...grs. ii.
M. et. divide in capsules No. xii. Sig.: One every three to four hours, as indicated.

In heart complications, the symptoms of which are diffuse apex beat and a soft blowing murmur (relaxation of heart muscles), give the Murphy drip, off and on, and strychnine in small doses, hypodermically.

For endocarditis, an ice bag over heart; morphine in small doses; the preceding morphine and chloral mixture. If heart is feeble, use strychnine, digitalis, ergot, and adrenaline chloride. The foregoing prescription (caffeine, strychnine, etc.), can also be used to advantage. If associated with joint symp-

toms, use salicylates in moderate dose. For pericarditis, use the ice bag, morphine, stimulants, or sedatives as indicated.

Do not use emollients on the skin if specific gravity of urine is high or if much albumin is present; otherwise cacao butter is useful for dry or peeling skin.

For pruritus, when skin is dry, use ichthyol in wool fat, or calamine lotion.

If the nose and throat become involved, irrigate through anterior nares, using a Davidson's syringe with a solution of common salt and bicarbonate of soda, equal parts to a pint of water at a temperature of 105° F. Use about two quarts at each treatment, which should be about two hours apart from morning till midnight. Each irrigation should be followed by an oily spray of menthol and camphor, such as I have indicated early in this paper. Before each irrigation I often use a spray of cocaine ten per cent. This dilates the nasal passages, reduces pain and irritation, and enables my solution to flow freely.

The ears should be examined daily. If there are signs of otitis media, incise drums early and irrigate ears with bichloride solution, one to 10,000 every three to four hours. Watch for mastoid complication, associated with otitis; if present, mastoid operation is indicated.

Nephritis is not apt to occur if the prophylactic treatment has been carefully carried out. The specific gravity of the urine should be kept low, from the outset; if it is high or has a tendency to increase, administer water in large doses.

In the treatment of a developed attack, give:

R Hydrargyri chloridi mitis, ...gr. i;
Sodii bicarbonatis, ...grs. x.
M. et div. in pulv. No. vi. Sig.: One every half hour.
Follow last dose six hours later with Rochelle salts.

Dr. L. K. Hirshberg, of Baltimore, observes:

A stream never rises higher than its source, and an effect must contain something of its cause. The treatment of scarlet fever, therefore, in the end must concern itself with some part or all of its causes. Since scarlet fever is due to microbes of a most infectious kind, it follows that the first consideration is to reduce, weaken, destroy, and completely annihilate the invading parasites.

There is a popular medical delusion that scarlet fever is a self limited malady which is better left severely alone. The protagonist of this *laissez faire* attitude, the leader of this do nothing anarchy is Sir William Osler. The reaction against the widely disseminated "I cured" and "I pulled through" point of view of a score of years ago, naturally evolved a supernihilist, who teaches "I do nothing," no matter what is done. Thus comes Sir William Osler with his dictum of "watchful waiting."

Yet it is not so. Much may be done in the way of treating scarlet fever; indeed, much may be done really, despite the arched eyebrow skeptics, in the way of cure. As soon as the earliest certain sign of scarlet fever makes itself known to the practical and nonacademic physician, it is his plain duty not to do too much or nothing, but to be aggressively keen for action that aims at the rapidly multiplying

animalcules (*sic*). The end is to combat these parasites and the rapidly formed poisons.

Professor Fisher and Professor Abderhalden recently found that the chemical nucleus of chlorophyll—the green stuff of leaves—is exactly the same as the chemical nucleus of hemoglobin. This basic building stone of both leaves and blood is called pyrrhol.

The first essential at the onset of scarlatina is to make up for the rapidly arising anemia. This anemia helps the microbes, because the weakened blood becomes more and more defenseless against the severe onslaughts of the assaulting germs. It must be plain that the thing to do is to furnish the patient at once with some safe ration or medication to fill up the loss of blood. Green vegetables such as spinach, lettuce, peas, asparagus, cress, and the like may, therefore, be given the child in the first few days of the onset.

In these early hours of the infection calomel and soda, hexamethylenamine, and citrate of soda are particularly helpful in destroying the little invading demons. The citrates, of lithia or any other mineral, are first aids to hexamethylenamine. They break up the clots and coagula and thus keep the germs at a distance from each other. Thus disorganized, they are more easily destroyed.

As the fever mounts, ice, ice water, and other liquids which cool and evaporate rapidly—alcohol, vinegar, and volatile oils—must be liberally applied. Crushed ice, snow balls, frozen custards, drinks of frigid milk, meat juices, soft pabulum, and copious draughts of water, whey lemonade, and buttermilk are among the comforts and helps in the treatment of scarlatina.

A salt free and meat free diet becomes necessary after the fourth day of high fever. From this moment onward, the treatment of the eruptive ailment must include a careful guard of the kidneys, middle ear, mastoid, and glands, although the time is not yet ripe and the evidence far from conclusive to indicate the removal of infected tonsils and adenoids while the disease is at its height. Yet certain radical surgeons maintain that, since these are foci of scarlatina microbes, they should be taken out to save the glands, ears, and kidneys.

Eggs, like meats, are taboo until ten days after the temperature has been lowered to normal. Sugar is good, and with cottage cheese, whey, and green vegetables, really helps in the treatment. Ice baths are no longer allowable, because the damage more than outweighs any possible good. Mustard foot baths, saline infusion, and hot baths often bring a happy turning point in malignant instances of this distemper.

The ears must be watched in the treatment to anticipate spontaneous puncture, by needling or acupuncture; although the new treatment of this malady with hexamethylenamine seems to have abbreviated and also eliminated many middle ear and kidney complications.

Streptococci vaccines and scarlet fever mixed serums have had their ups and downs of popularity and ostracism, but if Dr. Rufus I. Cole's pneumonia, mixed pneumococci serum is a criterion, there is every justification for the use of these serums in the treatment of scarlet fever.

No account of treatment can be complete without emphasis being laid upon the care of others and the prevention of this childhood's scourge. There are no doubt many associated causes and various ways by which the scarlatina microparasite inaugurates its contagious onslaught. The nose, throat, and alimentary canal, however, are where the first lines of defense must be thrown out. A rigid quarantine of all infected individuals and a firm guard of these points with boric acid water or the antiseptic alkaline liquor as well as the use of sterile clothing and disinfected skins will protect others. It is the treatment by prevention.

Dr. M. A. Lee, of Superior, Wis., advises:

The treatment of scarlet fever should be directed first to relieving symptoms that need attention and the possible sequelæ; second, to the household and the community. While the patient's prodromic and early symptoms are not always urgent enough to demand a physician's attention, there are cases with severe headache, throat trouble, vomiting, pain in neck, etc., with considerable fever, which have aroused the patient's parents or friends to sufficient anxiety to send for the doctor. The treatment is usually a free calomel purge and some suitable sedative, preferably some paraffin papers of effervescent potassium bromide with caffeine, dose according to age from five grains to ninety, in half a glass of water drank while effervescing, repeated as necessary every two or three hours. The throat symptoms are relieved by a suitable spray or swab, such as menthol, grains five, camphor, grains ten, phenol (crystals), grains ten, liquid petrolatum, one ounce. This solution sweetened with saccharin and flavoured with oil of cassia is more palatable as a swab and will not injure as a spray. The patient's bed should be so placed as not to face the light and this matter attended to during the first visit.

At the end of twenty-four to forty-eight hours the eruption is complete and usually remains for four or five days, the fever usually at 102° to 104° F. with often some delirium which can be relieved by a mixture containing according to age and requirements aconite, potassium bromide, cascara sagrada, potassium citrate in simple elixir, and aqua cassiæ. Administered with a little water this will readily dispose of the fever, delirium, anorexia, and nausea as well as the pain usually present in the joints and neck.

Earache, which probably develops at the same time, is usually readily aborted by dropping into auditory meatus five to ten minims of equal parts of tincture of belladonna and tincture of opium. If the pain continues, the ear should be frequently examined and when a bulging of the tympanum takes place paracentesis should be done early rather than await rupture.

The intolerable itching of the skin that occurs in some cases can usually be controlled by sponging with tepid water or a one to 1000 solution of liquefied phenol, having one half ounce of spirit of camphor added to the gallon, an immediate alcohol rub, and massage with cold cream. After the crisis, usually four or five days, a daily bath with an alcohol (dilute) rub and cold cream inunctions facilitates scaling and lessens the free dissipation of desquamated material about the premises.

The urine should be noted frequently as to quantity, specific gravity and the pathological elements met by copious draughts of water and mildly citrated refreshing drinks by freely alkalinizing the urine with acetate and citrate of potassium and sodium or moderate doses of the liquor ferri et ammonii acetatis, three times a day, or if further stimulation is necessary, tincture of iron chloride from five to twenty minims should be given in a suitable vehicle which must be devoid of tannates; all these therapeutic agents must be well diluted and will usually obviate or ameliorate the nephritic trouble.

Considerable coryza is usually present in the early part, and throughout the attack may be treated with the spray previously recommended for the throat. A few drops of equal parts of solution of suprarenal extract and solution of boric acid instilled into the nares a few minutes before using the atomizer will be more effective. This boric acid and adrenal solution, if conjunctival trouble is present, may be used to advantage after first cleansing the eyelids of any adherent purulent material with a pledget of cotton saturated with a lukewarm ten per cent. solution of sodium bicarbonate, avoiding in this manner further conjunctival disturbances and keratitis.

Should cardiac complications occur, depressants must be avoided and digitalis or strychnine according to condition in suitable therapeutic doses exhibited with the bromides when the latter are necessary to control nervous disturbances. Two to five drop doses of spirit of nitrous ether every three or four hours becomes an excellent stimulant, both cardiac and renal, for children.

Cervical adenopathy usually disappears without further attention. When present it is evidence of infection in the nasopharynx or in the middle ear. When suppuration and final breaking down of the glands occur, the only thing to do is to open and drain them.

Diet should be of milk, buttermilk, and of a vegetable and cereal nature, fish being given during convalescence, but meats restricted until after the first month of recovery.

During the attack, absolute rest in bed the first week is required and if nephritic symptoms appear, the patient should be kept in bed until the symptoms have disappeared or, if the cardiac condition is serious, the same should be insisted upon until it disappears or compensatory changes have taken place.

As to the household and the community, there should be absolute quarantine of the patient's premises, isolation of the patient to one room until desquamation is complete. An attendant for himself alone should be provided, and the latter subjected to the same restrictions as the patient, so far as leaving the premises is concerned. Utensils, used in conveying food that enter and leave the patient's quarters and come in contact with the patient's attendant, should be sterilized by boiling or immersion in a suitable antiseptic solution. There must be isolation of all persons exposed, not immune, the clothing of all sterilized, and those isolated, whose immunity has not been established, should be watched for a period of ten days. When the quar-

antine of the premises is to be raised, proper fumigation should be done; the patient and attendant, bathed and furnished with sterile clothing, may leave the premises. The attendant, if his immunity has not been established from knowledge of a prior attack of the disease, should be watched for ten days and the family and all associated with him and the patient should be interdicted from attending public gatherings for a period of ten days. No one and more especially the patient should be allowed to sleep in the place for twenty-four hours after opening the house, else an incipient nephritis may be precipitated.

The physician should on all visits be clad in his special dress for contagious cases, and before leaving the place clean his hands and instruments in appropriate antiseptic solutions. It is not only convenient but a necessity for the physician to have a separate bag for his outfit for attending contagious cases.

As to the fumigation of the premises, the various State boards of health have adopted certain methods of procedure. In cities of some size this is usually taken care of by the local authorities in the known cases, but in the rural communities everything depends upon the physician. If the windows are thoroughly sealed, one pint of formaldehyde solution vaporized for each 1,000 cubic feet and left ten hours, is sufficient. In the country the quarantine enforcement makes the physician the object of malignant hatred in the community. To each case of scarlet fever in the rural district that is known to the local physician and the village authorities, there are a score that are unknown and perpetuate the disease by ignorant and selfish jealousy. The same is true of cities that have little or no school inspection and no visiting nurses for the poor. Our individualistic and capitalistic form of government will never be capable of abolishing this and other contagious diseases while the items of profit in time and labor exploitation are basic principles. Do I report my cases? Yes. I comply with the law like all my professional colleagues, but I realize its futility. The system undermines our humane efforts, and scarlet fever will continue to crop out.

(To be concluded.)

Therapeutic Notes.

Treatment of Furunculosis of the External Auditory Canal.—O. A. Lothrop, in the *Boston Medical and Surgical Journal* for October 30, 1913, advises the following procedure in these cases: The canal is first cleansed of cerumen, desquamated material, discharge, and foreign bodies or polyps. If the lumen is partly closed by one or more distinct ripe furuncles, these should be fully incised in their centres and evacuated. A wick, consisting of gauze if there is a discharge, and of cotton if there is not, is then snugly inserted into the canal, nearly to the drum membrane, so as completely to fill the lumen. This wick is saturated with alcohol, pure or containing boric acid in solution, and the patient instructed to keep it wet by dropping alcohol upon it at short intervals. The wick should be removed daily by the physician and

a fresh one inserted. Not only does the antiseptic action of the alcohol prevent spreading of the infection, but the saturated wick serves the purpose of a small poultice in the canal. Following this form of treatment, some of the early mild cases become abortive without the necessity of incisions.

Whenever a pocket of pus can be located, however, it should be incised. The alcohol should then be applied previous to recovery from the anesthesia, as it causes smarting when brought in contact with freshly cut or abraded surfaces for the first time. Very little discomfort is experienced at later applications. After apparent cure the canal should be moistened with alcohol for a time to prevent recurrence.

Treatment of Gastric Hyperacidity.—F. W. Rolph, in the *Canadian Medical Association Journal* for January, 1914, expresses the opinion that too much attention has been paid to the gastric mucous membrane in this condition. In its simple form, hyperacidity represents a constitutional weakness associated with nervous instability, and treatment of this is definitely indicated.

Only reasonable care is needed in the diet, too strict a dietary doing more harm than good. Milk is to be recommended, because of its capacity of neutralizing acid. The author found that ten c. c. of ordinary milk would neutralize about twenty-five c. c. of two per cent. hydrochloric acid. Peptonized milk, owing to its content of aminoacids, has an even greater combining power.

Alkalies are indicated to prevent or lessen pyloric spasm, pyrosis, and waterbrash. A combination of magnesium oxide and sodium citrate is best. Belladonna or its alkaloid, atropine, may also be used. Their principal action is not on the gastric glands, limiting secretion, but on the pneumogastric nerves, on which they exert a sedative effect. That chemical hyperacidity is not in itself of great importance is shown by the fact that even with the abatement of symptoms, the acidity usually persists.

It is when a complicating gastritis or ulceration is present that further treatment is advisable. Bismuth, olive oil, silver nitrate, hydrogen peroxide, and aluminum silicate all have their uses. The last named substance reacts with the hydrochloric acid to form aluminum chloride, and has not only a powerful neutralizing effect, but is also astringent and antiseptic. For constipation, an important hindrance to recovery, artificial Carlsbad salts are useful.

In the cases in which organic changes elsewhere in the abdomen can be found, surgical intervention will often yield an apparent cure, though frequently this is only temporary. Sometimes an operation seemingly having no relation to the gastric condition will bring relief, as in a case of the author's in which well marked gastric ulcer symptoms—pain, tenderness, stasis, vomiting, and repeated hemorrhages—disappeared after the opening of a small acute abscess in the thigh, and had not recurred two years later. Where adhesions follow abdominal operations, on the other hand, the patients are left in a worse condition as regards digestion than before. Not infrequently hyperacidity is due to the presence of a small epigastric hernia; the possibility of this should be kept in mind.

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AMÆBÆ AND PYORRHÆA ALVEOLARIS.

A somewhat startling announcement was made with regard to the etiology of pyorrhœa alveolaris at the recent meeting of the Pennsylvania Dental Association, held in Philadelphia. Professor Allen J. Smith, of the University of Pennsylvania, and Dr. M. T. Barrett, a Philadelphia dentist, made a preliminary report upon their researches during the past year. They have found amebas present in scrapings from the pyorrhea pockets in about fifty cases, while in the gum margins of persons free from pyorrhœa alveolaris they have discovered no such organism.

The technic is simple; material collected from the pocket by means of a small platinum spoon is suspended in a drop of saline solution upon an ordinary microscope slide. A cover glass is dropped lightly over this without pressing it down. Since the amebas stop moving at a low temperature, the saline solution and slide should be warm, and it is better to make the examination on a warm stage. The examination is made with a one sixth inch objective and with the field darkened as in the examination of urinary sediments. The amebas are fairly active; sometimes the first indication of an ameba in the field is caused by red corpuscles or cells being pushed aside.

The identity of the ameba has not been deter-

mined and the mere presence of this unicellular organism is obviously not sufficient evidence that it bears any etiological relationship to the disease; so far no inoculation experiments have been made. On the other hand, the results of some therapeutic trials have been so distinctly encouraging that the authors decided to present this preliminary report in order that their findings may be further investigated by others. Having in mind the amebicidal action of emetine hydrochloride in amebic dysentery and abscess of the liver, the effect of this drug was tested in the patients under observation. No other treatment was instituted; the roots of the teeth were not even scaled. A 0.5 per cent. solution of emetine hydrochloride was injected locally into the apical pocket, filling it with the fluid as the syringe needle was withdrawn. This treatment was carried out every day or every other day. The improvement in the patient was marked; suppuration ceased and the gums rapidly assumed a healthy appearance; and there was simultaneous improvement in systemic symptoms.

It is probably too early to accept this recent development in the study of pyorrhœa alveolaris as more than an interesting observation. It was suggested by the authors that even if amebas were not the sole cause, they might exercise the function of conveying bacteria to the diseased tissues. If this is the case, one is apt to permit one's imagination to wander throughout the whole gamut of infections and dream about the possibilities of animal parasites as factors in other infections, especially in the carrier state.

We lack an explanation of the fact that the chronic intoxications accompanying pyorrhœa alveolaris may be rapidly improved by the administration of appropriate bacterial vaccines, but local conditions must receive local treatment. May it be that the amebas release the bacterial poisons, while protecting a sufficient number of bacteria to continue the infection?

THYROID GRAFTING.

The reported grafting of the right lobe of a simian thyroid into that of a cretin, with results comparable to those afforded by the internal use of thyroid gland, does not, as is often the case with such reports, overstep the boundary of available scientific support. Provided the use of a heterogenous graft proves eventually to have been warranted, which is more likely to be the case with the thyroid than certain other structures, the possibility of using such grafts will provide permanent cure, where at present we can sustain health only by means of constant resort to organotherapy. This

applies not only to cretinism or infantile myxedema, but also to myxedema in the adult, and to the very numerous disorders which are traceable to an underlying hypothyroidism.

The long bones have so far been favorite sites for the implantation of thyroid tissue. Kocher found experimentally that after implantation of a piece of thyroid no larger than a bean in the tibia of the dog, the thyroids and parathyroids could be totally removed without disturbing the health of the animal, but that it succumbed as soon as the stretch of bone containing the graft was resected. Since then this procedure has repeatedly been resorted to in practice. Bramann, for example, used it successfully in three cases. He carefully scraped out all marrow from the neighborhood of the thyroid segment, which was one by six cm. in length, and implanted it in the tibia so as to cause the osseous tissue to be in direct contact with the graft. Kotzenberg obtained similar results in two cases of congenital myxedema by means of tibial and splenic grafts, obtained from the mother.

The use of simian thyroid may necessitate the establishment of baboon farms owing to the paucity of available human material, but if it proves as effective as the data available suggest, another great step will have been made in constructive surgery.

BOOTS AND SHOES—ANCIENT AND MODERN.

"The custom of wearing some form of foot covering is much older than history," says E. Muirhead Little in the *Lancet* for June 20, 1914, "and probably it dates from the dawn of civilization," yet, in spite of the great antiquity of this human practice, the shoes of the present are, from a surgical point of view, far from perfection. The functions of the foot are not only to support the weight of the body, but to act as a lever, to play the part of a buffer to protect the nervous system and large joints of the lower extremity from the effects of tremendous shocks, and among primitive peoples to act, to a limited extent, in a prehensile capacity. The foot of the average civilized adult has been so materially altered in its form by the fashions of the day in footwear as to have lost many of its original functions in more or less degree, and it must be considered quite apart from the physiologically normal member of the bare footed savage. Curiously, some of the leading anatomies of today picture as normal the deformed foot of modern man instead of the truly normal foot of the sandaled Oriental—a fact which speaks volumes concerning the neglect of the proper consideration given to the anatomy of one of our most important members.

Little has made a study of the forms of footwear preserved in the museums and covering a period of more than 3,000 years. So long ago as this, man seems to have had an understanding of the proper principles of the construction of a covering for the feet, and the ancient Egyptian sandals have the straight inner side and leave an abundance of room for the full play of the foot under the varying circumstances of locomotion. The transition from the sandal to the shoe has been traced from the early days of Egypt, in which there was merely a large sole which was attached to the foot by straps, one of which passed between the great toe and its neighbor, thus maintaining the large toe in the ideal position of adduction toward the centre line of the body. With time the sides were turned up and a cap was made forward of the toes, but still the toe strap was preserved, even up to the twelfth century A. D. Beginning about this time fashion invaded footwear, and Viollet-le-Duc has pictured the several changes which took place between the eleventh and fourteenth centuries, during which time the *poulaine* was developed and passed away. It was not, however, until the early part of the fourteenth century that the practice of curving the inner margin of the sole outward made its appearance.

With the passing of the *poulaine* there was a change to the extreme in the breadth of the forward part of the shoe, and shoes from the time of Henry VIII measured up to six inches in their greatest breadth. In the fifteenth or sixteenth century, heels made their appearance and the shoemakers began to forget that the two feet are not alike, and to make both shoes of the same shape. This practice was in vogue in the British army as late as the seventies of the last century, as shoes still in existence show.

As the shoe began to assume the form of a sheath for the foot, the desire arose to make it fit closely, and with this came the necessary evil of an unavoidable compression of the foot with the production of hallux valgus and a material sacrifice in functional capacity. It is not remarkable that we have so many deformities and painful affections of the feet to contend with at the present time, but rather that we do not have far more, a fact which shows the truly remarkable capacity of the foot to work under difficulties.

In the course of his interesting study of man's footwear, Little takes the opportunity to state the proper functions of a shoe. Primarily, it should protect the foot from cold and wet and from external violence; secondarily, it should provide support for the foot under conditions to which the foot alone is unequal; and lastly, the ideal shoe should accomplish these ends without impeding any of the

normal functions of the foot. Such an ideal may be approached by making the inner margin of the sole straight and the heel low; by making it fit the heel and the neck of the foot closely as far forward as the middle of the metatarsus, and by allowing ample room for the spread of the foot and the free movement of the toes. Such a model shoe is approximated in much of the present day footwear for men, but the shoes for women have few or none of the essential attributes to comfort or good function. The foot is not heir to the many ills it has to suffer, "for the infant's foot is as well formed, its joints as mobile and its muscles as active as that of the bare footed savage," and it should be given every reasonable advantage for the fulfillment of its important task.

COMMON SENSE.

In the issue of the *Public Health Reports* for March 20th, Dr. W. C. Rucker, under the caption of Common Sense in Public Health Administration, provides material that should be carefully read and well digested. It is quite evident that there is a great opportunity for the application of common sense to the methods practised in preventing epidemics. In the past, the shotgun has been frequently the underlying principle, on the basis evidently that if every one is kept away nothing can go wrong at home. Instead of taking measures to dispose of sewage and excrement, flies and mosquitoes, efforts are directed against the hapless traveler who is unfortunate enough to pass that way.

On the other hand, many of the attempts of the medical profession are so impracticable that they stir up the laity, if not to open revolt, at least to passive obstruction. In other words, a lack of common sense on both sides engenders distrust and enmity. The writer once had his personal belongings fumigated on leaving Havana, and with the rest of the passengers spent a day in quarantine in New York harbor, a waste of time and money, for the relation of yellow fever to mosquitoes was not known at that time.

The possession of that useful quality, common sense, is a most valuable asset, particularly when combined with knowledge. But many a man has acquired much learning only to be outdistanced by one who, possibly not knowing as much, has been able to apply his knowledge to greater advantage. Though Doctor Rucker in his article confines his theme of common sense to health matters, really the sphere of that admirable quality should be much enlarged. With distinct advantage it could be more saliently characteristic of many of our

surgeons, internists, and laboratory workers, as well as others who deal directly or indirectly with humanity—and all do. Doubtless much could be accomplished if the attempt was made at an early enough age. If the child was taught to think, he would in time acquire a fair share of common sense, because, in its ultimate analysis, it is nothing more than a proper appreciation of cause and effect. Common sense shows us that to obtain a certain result there must have been a definite cause.

THE LADIES.

We offer no apology for presenting under Lectures and Addresses in this issue of the *JOURNAL*, Dr. George H. Butler's amusing response to the toast of The Ladies, at an Atlantic City banquet during the recent meeting of the American Medical Association. While the communication is not to be classed as a scientific contribution to medicine, the fact that it was read by a physician to an audience of physicians as well as its intrinsic witty and humorous excellence seem to entitle it to a place in our columns, and we feel sure that our readers will be grateful for the unexpected treat. We are glad to publish anything not too unmedical that will cause a smile to light up the tired countenance of the average practitioner.

THE PRESCRIPTION OF THYROID SUBSTANCE.

Dr. Alexander Goodall, of the Royal Infirmary, Edinburgh, contributes to the *British Medical Journal* for June 20th some of his experiences in the exhibition of thyroid substance; for phenomena which he was accustomed to attribute to idiosyncrasy or tolerance on the part of patients, he now finds other explanations. He points out that while there is but one official preparation in the *British Pharmacopæia*, *Thyroideum siccum* (*Glandulæ thyroideæ siccæ*, U. S. P.), there are numerous other preparations on the market, and many are labeled as the equivalent of so much fresh gland. In the absence of explicit instructions it is thus possible for the physician to prescribe a dose which he intends to be fresh thyroid, while the druggist interprets his prescription as meaning *thyroideum siccum*. The reverse may as easily occur.

In the second place, the *British Pharmacopæia* gives no statement of the relationship which *thyroideum siccum* is to bear to the fresh gland. Different trade labels inform us, however, that the proportion of dry to fresh gland is one to five; on the other hand, the proportion is given by Martin as 3.7, and by Guyer as 3.6. The latter figures closely correspond, and are based on careful observation. Doctor Goodall has not been able to find any authority for the one to five factor. It is obvious that the manufacturer who makes three and a half tablets from a given weight of fresh gland is supplying a more potent drug than one who makes five tablets from the same

amount of the fresh substance, and different druggists may thus supply thyroid of varying potency in dispensing the same prescription. It is difficult to resist the conclusion that the one to five standard has been reached by using fresh glands which have been indifferently trimmed and cleaned from fat, for the profits accruing from the sale of one to five products will obviously be greater than those obtained from clean thyroids. Some firms standardize their thyroid products in terms of iodine. This may be a good test, but until it is proved that the therapeutic activity of fresh thyroid corresponds to its iodine content it is unwise to rely upon it.

In conclusion, Doctor Goodall emphasizes the importance of making it clear whether we mean fresh or dry thyroid in our prescriptions, and in the case of dry thyroid it is well to have some knowledge of its relation to the fresh substance.

News Items.

New Buildings for the Knickerbocker Hospital.—The Knickerbocker Hospital, formerly called the J. Hood Wright Hospital, has purchased a site on the block fronting on the west side of Convent Avenue, between 130th and 131st Streets, New York, on which new hospital buildings will be erected.

American Academy of Medicine.—At the closing session of the annual meeting of this organization, held recently in Atlantic City, Dr. Woods Hutchinson, of New York, was elected president. Other officers were elected as follows: First vice-president, Dr. Walt P. Conaway, of Atlantic City; second vice-president, Dr. W. J. Barlow, of Los Angeles; secretary-treasurer, Dr. Charles McIntire, of Easton, Pa.; assistant secretary, Dr. William L. Estes, of South Bethlehem, Pa. Next year's meeting will be held in San Francisco.

The State Institute for Malignant Disease to Aid in Cancer Campaign.—The department of health was recently requested by the American Society for the Control of Cancer to consider the provision of laboratory facilities for the microscopical diagnosis of cancer. The department took the matter under advisement, but subsequently decided to take no action in view of the fact that the State Institute for the Study of Malignant Disease, under the direction of Dr. Harvey R. Gaylord, at Buffalo, N. Y., is already equipped for this work, and is prepared to co-operate with physicians throughout the State.

Changes at the Polyclinic Hospital: a Correction.—In an item relating to changes in management of the Polyclinic Hospital, published in our issue for July 4th, the information concerning the board of management refers to the Polyclinic Hospital, of New York, while that relating to elections in the department of ophthalmology refers to the Polyclinic Hospital, of Philadelphia, the two items having been accidentally combined under one heading. The name of the new superintendent of the New York institution is not Dr. James Hugh Morris, as stated, but Mr. James U. Norris, formerly assistant manager at the Rockefeller Institute.

Low Death Rate in New York Last Week.—During the week ending July 4, 1914, there were reported to the Department of Health of the City of New York 1,160 deaths from all causes, corresponding to an annual death rate of 10.84 in a thousand of population. This is the lowest weekly death rate in the history of the city, and this is the first time that it has gone below 11 per 1,000. The next lowest rate was that of July 20, 1914, when it was 11.42. It is worthy of note that the corresponding week of the year 1901 was 40.82, this tremendous mortality being due to the excessive heat. The mean temperature for the week having been 81.2° F., the maximum temperature 100° and the minimum during night 76.4°; 724 deaths resulted from heat stroke during this week of unprecedented mortality.

The death rate for the first twenty-seven weeks of this year was 14.64 per 1,000 against a rate of 14.94 for the corresponding period in 1913, a decrease of 0.30 of a point.

Physicians' Duties Under the Boylan Law.—In reply to repeated inquiries, the department of health advises that prescriptions for chloral, opium or any of its salts, alkaloids, or derivatives or any compound or preparation of any of them, may be written on ordinary prescription blanks. The prescription, however, must be dated and must bear the name, address, office hours, and telephone number of the prescribing physician, and the name, age, and address of the person for whom the drug is prescribed. Physicians should also keep a record of all instances in which they personally administer any of the above mentioned drugs.

A School of Instruction for Officers of the Medical Reserve Corps.—A school of instruction for officers on the inactive list of the Medical Reserve Corps of the United States Army was held at the camp of the Third Field Artillery, Tobyhanna, Pa., June 27th to July 4th. Major H. L. Gilchrist was chief instructor, and was assisted by Major E. E. Persons and Major John H. Allen. The course included lectures on various military matters, and the officers were permitted to witness long range firing of the artillery and to participate in the regular work of the camp. Among those present were Lieutenants Henry C. Coe, Reynold Webb Wilcox, Harold Hays, H. Sheridan Baketel, H. L. Hunt, John Stark, W. E. Flack, S. M. Strong, Howard Fox, Joseph Macdonald, Jr., J. M. Boyce, R. Slee, and F. N. Wilson.

Dr. Joseph William Gleitsmann.—Dr. Joseph W. Gleitsmann died in New York, July 2d. He was born and educated in Germany and after having served with distinction as surgeon in the German army in the wars of 1866 and 1870, came to this country where he established himself as a specialist in diseases of the lungs and throat, first at Asheville, N. C., and later in New York. His unusual learning and his skill as a specialist soon placed him in the front rank, and both in this country and abroad he was considered one of the leading authorities of his time. He contributed much valuable material to the literature of his department and to its armamentum and was a prominent member of several of the leading medical societies of the country, notably of the American Laryngological association, of which he was formerly president. He was also for many years professor of laryngology and rhinology at the New York Polyclinic Hospital and Medical School, laryngologist and otologist to the German Hospital and to the German Dispensary, and a member of the Council of the International Congress of Laryngology.

Doctor Gleitsmann was a man of high character and of exceptionally genial disposition, commanding the respect of all who knew him and endearing himself to a wide circle of friends.

Long Island Medical College.—The rating of this college was raised from Class B to Class A, after the authorities had adopted a five years' course and various other changes in the curriculum that will mark a new epoch in the history of the institution and place it on a footing with the best schools in the country. Important changes in the personnel of the faculty, amounting almost to a reorganization, have already been made. Dr. William Francis Campbell, formerly professor of anatomy, is made professor of surgery, in place of Dr. Walter C. Wood; Dr. William B. Brinsmade is made professor of clinical surgery; Dr. Joshua M. Van Cott becomes professor of clinical medicine; Dr. Elias H. Bartley, professor of pediatrics; Dr. Matthew Steele, professor of chemistry; Dr. William Lintz, professor of bacteriology; Dr. Frank E. West, professor of materia medica and therapeutics; Dr. John A. McCorkle, professor of the principles and practice of medicine; Dr. John C. Cardwell, professor of physiology, and Dr. Joseph H. Raymond, professor of hygiene and emeritus professor of physiology. Dr. John O. Polak is professor of obstetrics and gynecology.

In conformity with the conditions of the new rating the prerequisites to matriculation provide that students must have passed at least one year of a bachelor's course, in addition to the four years in the high school or its equivalent, evidence of which may be presented in the form of a diploma covering the units of study recognized by the Regents of the State of New York. The college will feel the loss of revenue from tuition fees as a result of the new restrictions in matriculation requirements, and it must face what now appear insurmountable financial difficulties during the next four or five years, unless assistance in the form of endowment funds is forthcoming.

Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

May 25, 1914.

Influence of Feeding on Growth.—Hans Aron fed two groups of rats on the same diet, the one receiving the full amount, the other a marked deficiency of food. The latter group showed only moderate retardation of growth in length but a very marked retardation in the growth of muscle, and no accumulation of fat, but on the contrary a consumption of body fat. There were no physical alterations in the internal organs. If these animals were kept alive on this diet until the others were nearly full grown, and were then given the full diet, they promptly began to attain normal proportions both as regards length and general development. Some were kept starved until the fed animals had given birth to young, and until their young were full grown; even after this long period of full diet, the animals grew, reaching a development nearly equal to the normal. This appears to show that theories to explain the limitation of growth on the ground of time are erroneous. The power of growth seems to be retained in these animals for a long while after expiration of such a period. Further experiments were conducted to test the importance of certain constituents in the dietary and showed that the presence of both protein and fat was essential to full development, for when they were omitted, development was retarded even though the total diet was abundant.

An Advance in Iodide Therapy.—R. Kafemann believes that the new preparation called testiodyl has many advantages over previous organic or inorganic iodide preparations in that it contains iodine in chemical combination with blood albumin in such a form as to pass the stomach without decomposition and hence without gastric irritation. It liberates its iodine slowly so that the body is kept continuously under the effects of the drug, yet symptoms of iodism are not often encountered. A further decided advantage is that the preparation also contains a quarter of one per cent. of iron derived from hemoglobin.

Valamin in Gynecological Practice.—Richard Birnbaum praises this drug as an analgesic and sedative or hypnotic in painful gynecological conditions and for hypersensitive and neurotic conditions associated therewith. He also finds it of value as a sedative before and after operations, and believes that its preliminary use reduces the amount of anesthetic necessary. The drug combines the properties of valerian with those of amylene hydrate, being the isovalerianic ester of the latter.

DERMATOLOGISCHE WOCHENSCHRIFT.

June 6, 1914.

Etiology, Prophylaxis, and Treatment of Leprosy.—J. D. Kayser, after a very full review of benefits from the administration of nastin, says that it is not a specific remedy. He doubts if improvements attributed to it are due to it at all.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

May 28, 1914.

**Abortive Treatment of Syphilis and Neuro-
recidives.**—Werther says that if the treatment is undertaken in the early stages, before secondary manifestations have become well developed, the danger of nervous relapses will be slight, whereas if the treatment be instituted only after the secondary stage is well developed, such occurrences will be frequent and must be guarded against. For the abortive treatment in the early stages, several fairly large doses of salvarsan should be given at intervals of two or three days. When the treatment is begun in the later second stage, administration of salvarsan should be preceded by a course of mercurial treatment in order to avoid the development of the Herxheimer reaction in the central nervous system, which is very likely to follow the administration of large doses of salvarsan. When the disease is being treated in the first stage, it is possible to secure a complete and lasting cure in about fifty per cent. of all cases, if the doses of salvarsan are large enough and repeated at short intervals. Subsequent treatment with mercury is not necessary, but in the later stages it is advisable to continue with mercury for some time after provocative injections of salvarsan fail to bring out a Wassermann reaction.

**Treatment of Pneumonia with the Neufeld-
Handel Pneumococcus Serum.**—A. Reuss has been unable to confirm the favorable reports of this treatment which have been made by other authors. He has treated twenty-eight cases of pneumonia and four of pneumococcus septicemia according to the method advised, giving the serum intravenously and using doses varying from ten to sixty c. c. He found that doses above twenty c. c. usually caused marked weakness and depression, with increase in rate and decrease in strength of the pulse. With doses of twenty c. c. he could observe no subjective improvement, and with none of the doses was there any evidence that the serum exerted any favorable effect on the course of the disease or reduced the frequency of complications.

Humming Treatment of Bronchial Asthma.—Ludwig Hofbauer believes that the basis of most cases of bronchial asthma is an emphysema, and that upon this there has been engrafted a perverted method of respiration. By educational means this perversion can be corrected and Hofbauer's results show that such a treatment is capable of bringing about recovery or marked improvement which is lasting. His method consists in the use of an apparatus for the regulation of the duration of expiration and the mechanical assistance of this act. The abdomen is surrounded by a pneumatic belt which is fed with compressed air during the period of expiration. This is connected through a valve which can be regulated at will so as to vary the relative durations of the periods of inspiration and expiration. A light and a buzzer aid the patient in controlling the duration of his voluntary efforts in each of these acts. The reeducation comprises the gradual lengthening of the period of expiration and a reduction in the duration of inspiration. During

the expiratory phase the patient is required to hum a note which he must maintain at a constant pitch, thus compelling him to practise uniform forcible expiration of definite duration. Respiration must take place solely through the nose. By adjustment of the instrument, a very gradual increase in the duration of the expiratory phase is secured, and the patient soon learns the new method of breathing so that he can ultimately dispense with the aid of the apparatus.

Pharyngoesophageal Diverticula.—W. Albrecht describes fourteen cases of this type and suggests that rapid eating and the swallowing of large pieces of food are frequent mechanical causes of the development of these diverticula through an increased pressure in the upper portion of the esophagus. In confirmation of this belief, it was observed that all but one of the patients here described had very defective back teeth, such as would materially interfere with the efficient mastication of solid food. A large proportion also gave histories of habitual haste in eating. In eight of the cases, Goldmann's operation was performed with most favorable results.

Latent Tuberculosis in Childhood.—H. Kleinschmidt cites the suggestions of others that tuberculous infection usually occurs either in utero, at the time of birth, or shortly thereafter and then remains latent in the body for longer or shorter periods of time. Experiments on animals have shown that microscopical changes may occur in the lymph glands within twenty-four to forty-eight hours after inoculation with tubercle bacilli, and that a marked tuberculin reaction can be obtained in eight to twelve days. It is also known that the cutaneous tuberculin reaction cannot usually be obtained in infants under less than three or four months of age. All of these observations seem to oppose the idea of a latent tuberculosis, but Kleinschmidt has been able to show that such is not the case, for very small amounts of tubercle bacilli injected into animals cause only a marked delay after the appearance of the tuberculin reaction, and observations on infants have given positive reactions as early as the seventeenth day after birth. The failure of the skin test in infants is referable to a peculiarity of the skin of the young which renders it resistant to reaction not only to tuberculin but also to irritants. The author believes that there is considerable evidence that tuberculosis may remain latent for long periods of time in infants and children, even in the absence of any positive tuberculin skin reaction.

ZENTRALBLATT FÜR HERZ-UND GEFÄSSKRANKHEITEN.

June 15, 1914.

Treatment of Urticaria with Adrenaline.—B. Scholz reports a case of extremely severe urticaria which had produced edema of the tongue and had rendered the patient sleepless for seventy-two hours, and which was relieved within a quarter of an hour by a subcutaneous injection of adrenaline. On the next afternoon there was a slight recurrence, which disappeared immediately after a second injection. His theory is that urticaria is due to irritation of the vasodilators, and that the treatment is purely symptomatic, depending on the stimulation of the vasoconstrictors for its effect.

PRESSE MEDICALE

June 6, 1914.

Coma in Cerebral Hemorrhage.—Pierre Marie and M. Léon-Kindberg dissent from the view that complete and persistent coma in cerebral hemorrhage is due to entrance of blood into the brain ventricles. From pathological studies they are convinced that in coma there must be a suspension of the functions of both cerebral hemispheres through compression by the blood, i. e., the uninvolved, non-hemorrhagic hemisphere must be compressed against the unyielding cranium by the increased volume of the hemisphere in which hemorrhage has taken place. In a case with considerable hemorrhage on one side, but no compression of the sound side, not only had coma been lacking, but the mentality had been practically unimpaired. Enlargement of a hemisphere through hemorrhage is due not only to the hemorrhage itself, but also to edema involving nearly or quite the whole of the hemisphere affected. Coma varies with the pressure exerted on the sound hemisphere by the hemorrhagic one. The authors lay stress on the value of decompression of the sound side by the production of a large temporoparietal trephine opening. In all patients exhibiting signs of cerebral hemorrhage who, three hours after the stroke, are in profound coma, operative decompression should be considered. Where there is at first incomplete coma, which gradually changes, in a few hours or days, to a profound coma, immediate decompression on the sound side must be considered. This applies also to certain cases of brain softening, where increasing cerebral edema is gradually leading to complete coma. The authors report two cases of hemorrhage in which the procedure advised was followed by encouraging results. In a woman, the blood pressure dropped from 200 to 140 mm. Hg. and stertor entirely disappeared immediately after a ten by eight cm. opening was made on the uninvolved side. Two hours later the patient partly regained consciousness and asked for water. Next day she could be readily awakened and answered questions. This condition persisted for nine days, when the patient died of bronchopneumonia, remaining rational, however, until one hour before death. The autopsy confirmed the view that there had been a large brain hemorrhage, which was found to have destroyed the internal capsule and part of the caudate nucleus and to have filled the lateral ventricle with blood.

Cause of Congenital Cardiac Affections.—M. Letulle presents pathological evidence that congenital cardiac affections such as commonly result in cyanosis are due, not to malformations in the embryonic period, but to a disseminated acute pancreatitis which has healed and left permanent scars, the latter having played an important part in modifying the subsequent development of the organ. This theory alone accounts for the findings in the cases which the author reports.

June 10, 1914.

Operative Exposure of Disease Foci and Heliotherapy in Surgical Tuberculosis.—E. Grinda recognizes an indirect action of the sun's rays through exposure of the entire skin. Clinically the

local benefit is only superficial, i. e., in the tissues directly exposed to the sun. Surface lesions may heal, leaving deeper ones unaffected and depriving them of proper drainage. Wherever possible, deep foci should be made superficial by removal of overlying or necrotic tissues. Sinuses should be carefully followed out in all their ramifications, and the wounds left open in order that the sun's rays may act on the whole affected area. Rapid cessation of suppuration and healing follow. If one or more points of suppuration persist, the lesions must probably be curetted or resected to obtain a cure. Sunlight overcomes microbic infections, causing wounds to heal rapidly by first intention. Exposure of tuberculous foci for direct sunlight treatment is indicated in tuberculosis of the clavicle, sternum, ribs, axillæ, inguinal regions, cranial bones, carpus, metacarpus, tarsus, metatarsus, and in cases of osteitis in the extremities, especially when the process is near the epiphyses. Where direct exposure to sunlight is not feasible, as in tuberculosis of deep lying organs, and in Pott's disease, coxalgia, and white swelling of the knee, shoulder, and elbow, heliotherapy is nevertheless beneficial when applied over the whole body, greatly improving the general condition. Even where direct exposure is feasible, a week or two of general heliotherapy should precede.

ROUSSKY VRATCH.

March 8, 1914.

Ptosis of the Liver.—V. M. Kernig presents a study of twenty-two cases of ptosis of the liver. This condition is quite common in women and is caused by stretching of the suspensory and coronary ligaments, lax abdominal walls and the wearing of corsets and tight bands around the waist. The degree of ptosis varied in the author's cases from a few finger breadths below the costal arch to the brim of the pelvis. In the milder cases the patients suffered but little inconvenience, while with the severer grades of ptosis they complained of pain in the right abdomen. To the usual methods of diagnosis by palpation and percussion, the author adds the method of slight tapping from below upward until a peculiar sensation of ballottement of the lower border of the liver is elicited.

March 15, 1914.

Treatment of Pleuritic Effusions of Tuberculous Origin.—L. L. Fofanoff recommends the substitution of nitrogen gas for the pleuritic fluid in cases of tuberculous pleurisy. The method is perfectly harmless and generally proves very beneficial.

Klebs-Loeffler Bacilli in the Clinical Diagnosis of Diphtheria.—B. N. Vojnoff points out that neither the presence nor absence of diphtheria bacilli is of absolute diagnostic value. If the bacilli are found in the patient's throat, it is impossible to say in every case whether they are true bacilli or pseudo-bacilli. The well known polymorphism of the true diphtheria bacilli makes their correct classification extremely difficult. The virulence of the organism, while more certain than the morphology, is nevertheless subject to error, since true diphtheria bacilli have been found avirulent, while certain pseudo-

diphtheria bacilli were discovered to possess slight virulence. Even the Neisser stain, which has proved of such great value in the differentiation of diphtheria bacilli, is not absolute since organisms staining with the Neisser method were shown not to belong to the diphtheria group. The author isolated such organisms in a considerable number of cases of middle ear disease. If no diphtheria bacilli are found, particularly in croup, the case may still be one of true diphtheria. Negative results have been obtained in twenty-five to thirty per cent. of clinical diphtheria. In view of these discrepancies, the author attaches greater importance to the clinical diagnosis, the bacteriological diagnosis being merely a supplementary proof.

March 22, 1914.

Two Instructive Cases of Rabies.—V. G. Ushakoff reports two cases of hydrophobia in women, the infection having occurred under peculiar circumstances. In one case, a woman of thirty years acquired hydrophobia after handling a sick stray dog. As there was no history of a bite the disease was at first diagnosed as hysteria. However, unmistakable signs of rabies finally developed and the patient died. An autopsy followed by animal inoculations proved the case to be one of rabies. In the other case, a woman of twenty-eight years, developed hydrophobia after handling a pet dog supposedly suffering from a sore throat. As she treated the dog herself her hand came in contact with the dog's saliva. The patient died with characteristic symptoms of the disease. No autopsy was performed. These cases prove that infection may occur as a result of mere contact of the bare skin with the saliva of a rabid animal, there being, presumably, a slight abrasion on the skin.

Prolonged Presence of Placenta in the Abdominal Cavity.—P. P. Parenoff reports the case of a woman, aged twenty-eight years, in whom an extrauterine fetus was removed at term. A portion of the placenta was left behind and made its appearance at the site of the former incision two and a half years later. On account of severe hemorrhages, the placental tumor was removed and found to consist of normal placental tissue which had remained free from any degenerative changes.

BRITISH MEDICAL JOURNAL.

June 20, 1914.

Explanation of Murmurs in Dilated Hearts.—Samuel West describes murmurs as "audible eddies," and says that, "In the dilated heart the normal relation between the orifices and the cavities is changed so that the blood no longer passes in the usual uniform stream, but is driven here and there through the dilated cavities and so produces the requisite eddies." West does not subscribe to the common view that these murmurs are regurgitant through dilated valve orifices, for there is no evidence that these orifices are dilated sufficiently to render the valves incompetent, and the murmurs do not have the same characteristics as those of regurgitation from valvular defect or disease. The terms hemic and functional do not properly describe these murmurs, for, though anemia may lead to dilatation of the heart, many other conditions are equally capable of producing a similar effect. These

dilatation murmurs may be divided into basic—heard at the base of the heart—and ventricular—heard over one or other ventricle. The basic murmurs are produced by the eddies caused by the passage of the blood through the normal aortic or pulmonary orifices into the dilated arteries beyond, or, more probably, are produced within the dilated ventricles themselves. One of the most characteristic features of these murmurs is that they are very likely to be transitory, particularly those occurring in the aortic area, and may appear in perfectly normal persons under the influence of excitement. Like the basic murmurs, the ventricular dilatation murmurs are almost invariably systolic in time, they are soft and blowing, are limited to the precordium, and are rarely transmitted as are organic valvular murmurs. They have, in fact, none of the characteristics of valvular regurgitant murmurs except that they are systolic in time. The left ventricular dilatation murmur, alone or associated with aortic regurgitation, often gives rise to confusion as to whether or not there is also a mitral insufficiency. But this dilatation murmur is very characteristic, being a general churning which continues even through the greater part of diastole and is not heard outside the precordium. The so called Flint murmur is only a peculiar form of dilatation murmur. When murmurs occur over a dilated right ventricle, they are soft and blowing, are confined to the area of the ventricle, are not transmitted to the right, and are seldom heard over the auricle; they are superficial, and the presence of dilatation of the right side of the heart is easily made out.

Activity and Stability of Tincture of Digitalis.—W. Legge Symes tested fifty-five tinctures by a modified frog method, immediately and at varying intervals after their manufacture, to determine the extent and rapidity of deterioration. He summarizes his results as: "1. Weak tinctures show little or no change in a year or more. Active tinctures deteriorate much more rapidly. 2. Of those initially within twenty-five per cent. of standard, all were more than twenty-five per cent. below standard after a year's storage. 3. Of those initially more than twenty-five per cent. above standard only one half were within twenty-five per cent. of standard after one year's storage, and these had lost twenty to seventy per cent. of their original activity. 4. In a few samples deterioration was recognizable one month after manufacture." With regard to activity, Symes found that not a single sample could fairly be considered inert, that very few of the fresh samples were initially weak, and that among those not below standard there was a variation in initial activity of 200 to 300 per cent. All the tinctures showed a variable period of constant activity, sometimes lasting nearly a year, after which deterioration set in, and amounted to as much as seventy per cent. in a year. The same remarks seem to hold true for concentrated alcoholic extracts, such as the U. S. P. fluidextract. Solutions of crystalline digitoxin are more stable. Commercial nonalcoholic tinctures, and allied preparations, are not trustworthy. Speculating from the recent work by Kraft, Symes thinks it possible that the deterioration may be due to the loss of the water soluble glucosides.

Case of Acute Rheumatic Heart Block.—A Hope Gosse's patient was a lad, aged twelve years, who had previously had attacks of sore throat and two of acute rheumatism, one with pericarditis. At the time of this observation, the boy was suffering from precordial pain and showed rheumatic nodules in various portions of body. For two weeks the *a-c* or *P-R* interval was normal. It then became lengthened, synchronous with a rise in temperature, and remained prolonged for ten days when dropped beats appeared, due to a more complete block. These lasted for two days and disappeared, but the prolonged *a-c* interval continued for a week more, disappearing with the gradual fall in temperature. The instructive features of this case are the facts that a severe rheumatic infection may occur in a child without the classical symptoms of the disease.

LANCET.

June 20, 1914.

Two Cases of Veronal Poisoning.—Margaret H. Fraser reports the finding in both of these cases of evidence of acute affection of the kidneys by the drug. The first patient showed marked albuminuria with casts in the urine and, upon post mortem microscopical examination, the kidneys revealed marked degeneration of the epithelium of the convoluted tubules. Evidence of congestion, of interstitial changes, and of glomerular involvement was wanting. A large amount of veronal was obtained from the urine of this patient during life. The second patient survived his poisoning, but from the second to the eighth day, his urine showed considerable albumin and many epithelial, granular, and leucocytic casts. The fact that this patient recovered from his renal disturbance without a trace of remaining injury to the kidneys shows that the damage produced by veronal, although severe, is probably not permanent. The author suggests that the continued use of even small doses may lead to some damage to the renal epithelium.

Malignant Growth of the Bladder Treated by Diathermia.—C. E. Iredell and Ralph Thompson treated two cases involving the base of the bladder by surgical removal of the elevated portion of the mass, and subsequent application of diathermia through an electrode passed into the bladder through the suprapubic wound. In a third case, the patient refusing operation, the treatment was applied by means of a specially devised catheter electrode. In all three cases, the results were very favorable, the tumors and their symptoms undergoing considerable recession. The great drawback to the use of the catheter electrode is the fact that there is no trustworthy means at present of measuring the heat produced at the site of application of the internal electrode. It was found that substitution of a small external electrode for the usual large plate, and the frequent moving of this when the skin under it became hot to the touch, prevented the burning of the skin.

Advanced Extrauterine Gestation.—R. Seheult reports three cases, all occurring in young women who had previously borne normal children. In two the dead fetus removed at operation was at about the seventh month of development, while in the third, it was full term and was found lying free in the abdominal cavity.

Nonparasitic Cyst of the Liver.—J. Everidge's patient was a girl aged sixteen years, who gave a history of several attacks of jaundice and swelling in the right hypochondrium before the one which led to her being operated upon. At operation almost the whole right lobe of the liver from the gall-bladder to the longitudinal fissure was occupied by a large cyst from which fifty-six ounces of clear green fluid was aspirated. The cyst was anastomosed to the duodenum and the patient made an excellent recovery, being in good health five months after the operation. It is believed that the cyst arose from a diverticulum of a gallduct.

BOSTON MEDICAL AND SURGICAL JOURNAL.

June 25, 1911.

Social Service of the Psychopathic Hospital, Boston.—Mary C. Jarrett, head of this social service, says that an estimate based on a study of 100 cases in the hospital and 100 cases in the outpatient department indicates that cases needing social service from the hospital will fall into groups as follows: About fifty per cent. will require after-care or supervision, thirty-five per cent. advice to the patient's family, twenty-five per cent. a history for diagnosis, fifteen per cent. investigation to show whether the patient may properly be discharged, five per cent. prophylaxis for other members of the family, five per cent. relief, five per cent. reference to a social agency. Some cases will require more than one form of social service. It is not possible for the medical staff to cover this work. The doctor, whose time is already filled with examination and treatment of patients and clinical research work, has not the time to follow patients beyond the doors of the hospital, or to make any systematic effort to obtain the facts of their past lives and present environment beyond what can be learned from relatives and friends who visit the hospital. Complete and thorough histories are needed for scientific research in the correlation of social and mental disorders. Since environment is so evidently a factor in producing mental disease, and mental disease is so evidently a factor in producing social disorder, it would seem of great importance that the relation between mental abnormality and social conduct should be scientifically studied, and determined effort made to secure the case material for such study. It cannot be expected that the medical staff should devote a part of their time to collecting and studying this material. If a hospital acknowledges this object, an adequately organized social service staff is a necessary part of its equipment. Without the social service, study and treatment of patients in the Psychopathic Hospital in at least the majority of cases must remain incomplete, and scientific study must be limited to purely medical subjects. So in order to carry out the aim of the hospital, the social service has been planned as part of the work.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

June 27, 1911.

The Service of Medicine to Civilization, by Victor C. Vaughan. See this JOURNAL for June 27th.

Aerophagy.—C. D. Aaron states: 1. Continued belching of gas for a considerable length of time in-

dicates aerophagy. 2. All eructated gas consists in the main of atmospheric air swallowed in attempting to belch. 3. Aerophagy accompanies many neuroses and is a frequent symptom of functional and organic disease of the gastrointestinal tract. 4. The presence of bile in the stomach with eructations is suggestive of aerophagy.

Medical versus Surgical Treatment of Pyloric Stenosis in Infancy.—L. E. Holt contends that our decision as to operation or medical treatment must depend largely on the severity of the symptoms and the conditions under which the child is seen. To subject every infant with pyloric stenosis to laparotomy for a condition in which, at a low estimate, fifty per cent. recover without it, seems hardly justifiable. A patient in private practice under conditions which make the best medical treatment possible may not, in most cases, need operation; but in hospital practice, in cases seen late, with acute symptoms, immediate resort to surgery offers a better chance of recovery. To persist with medical treatment, when forcible vomiting and marked peristalsis are either continually present or recurring, seems to him to have far greater risks than operation has. Medical treatment consists in careful feeding and stomach washing. Gastric lavage should be practised twice a day, with water at a temperature of not less than 112° F. Breast milk is the best food, but one not rich in fat is essential. A modified milk mixture may be employed. From one to three ounces, at three or four hour intervals, are advisable; water in small quantities being given between feedings. Some infants, however, seem to do better on much smaller quantities, one half ounce every hour, especially if the food is breast milk. In greatly prostrated patients, hypodermoclysis may be used twice a day, as in postoperative treatment. Rectal feeding is of but little assistance, except for a very short time, and drugs and the local application of heat are, in his opinion, of little or no value. The bowels are moved readily by an enema. Aspiration of the stomach to determine the degree and rate of emptying is of much assistance in deciding the frequency with which these children should be fed and the amount of food to be given at one time.

Pyloric Obstruction in Infants.—W. A. Downs reports these cases, seven of which proved fatal. His conclusions are: 1. Hypertrophic pyloric stenosis is congenital to the extent that there is an increase in the thickness of the circular muscle fibres at the pylorus; so that the stomach, in order to empty itself, contracts more forcibly than normal. The result of this, from its effect on the mucous membrane of the part, is a valvular action which gradually produces complete closure of the pylorus. 2. There is sufficient time, between the onset of symptoms and appearance of signs of complete obstruction, for careful observation and the carrying out of any medical measures likely to prove of benefit. 3. Babies coming to operation in good condition suffer little or no shock; their convalescence is regular, and they are soon restored to normal health.

Treatment of Tetanus with Antitoxin.—E. E. Irons reports a series of 225 cases treated with antitoxin and a series of twenty-one cases treated

without, occurring in the years 1907 to 1913, and collected from hospital and private records. The mortality in the first series was 61.77 per cent., and in the second, 85.7 per cent. The prophylactic value of tetanus antitoxin is established and needs no argument for its support. This use of antitoxin, however, in no respect replaces recognized non-specific methods of treatment in tetanus.

MEDICAL RECORD.

June 27, 1914.

Splenectomy for Pernicious Anemia.—W. Coleman and J. A. Hartwell report a case. The patient was a man, aged twenty-seven years. Treatment had failed to benefit him, the outlook appeared otherwise hopeless, and operation was advised; the spleen was removed. The pathologist's report was as follows: "The cytological details of the splenic picture were essentially those of erythrocytogenesis and myelogenesis. Lymphatic elements normal, or slightly hyperplastic; little or no regressive change, and no definite evidence of blood destruction. The red blood cells were intact, and the phagocytosis frequently encountered in the spleen in other conditions was absent." For some time the patient improved subjectively and objectively. Later he lapsed into his former condition, and, in accordance with the suggestion of Bramwell, he was given neosalvarsan, 0.2 gm. intramuscularly; later two doses of the same quantity were administered intravenously. On account of weakness, no more were given. The details of the blood examination apparently make it impossible to draw any conclusions as to the effect of neosalvarsan. As to splenectomy, there was no evidence of more than temporary improvement. At the time of the report, six months after the operation, the patient, while looking and feeling better, was just beginning to sit up.

Primary Lupus of the Larynx.—Emil Mayer reports three cases of lupus of the larynx, and states that the disease is chronic with but slight symptoms; it is most frequently an accidental discovery, and prognosis is relatively good. Primary lupus, though rare, does exist.

Arterial Hypertension.—I. W. Ballard says that blood pressure becomes more and more important as our knowledge of its significance increases. There are patients in whom arterial hypertension is the main etiological factor in their complaints. These are instances of chronic toxemia, defective metabolism, usually dependent upon autointoxication of intestinal origin. A second class of patients in whom it is regularly present are the subjects of arteriosclerosis, with a tension of from 150 to 175 mm., Hg., in whom the degenerative change in the arterial walls is still in its early stages. Inseparably related to these cases of pure arteriosclerosis are those in which the degenerative changes have advanced further, to the development of myocarditis and vascular nephritis. Arteriosclerosis may exist in its early stages and be confined to one set of vessels. When renal changes have begun to produce the so called vascular nephritis, the most constant and characteristic sign is an additional increase in hypertension. The significance of the findings in the third stage, that of myocardial degeneration, may be summed up in the common expression, "the

beginning of the end." In the relationship thus outlined, the author believes that arteriosclerosis, vascular nephritis, and myocarditis constitute a complex entity in which arterial hypertension exercises a most conspicuous part, not only in the role of effect, but also in that of cause. In considering the treatment of arterial hypertension, he states that diet is of first importance. By means of diet, together with proper elimination, we are able practically to control the hypertension of intestinal toxemias and modify that of all forms of toxemia. Ordinarily, a good working rule is to reduce the total quantity of food perhaps by half, for at least the first few days of treatment. This is of much more importance than merely to limit the protein consumption and increase in proportion the carbohydrate and fat. A mixed diet is preferable, provided its quantity is sufficiently limited. In medication we have in some cases a valuable means of controlling certain symptoms. To this end, use is made of spirit of nitre, the nitrites, and nitroglycerin. Sodium iodide, in small doses continued over a long period, is of value in controlling excessive hypertension. The question of exercise is one dependent almost entirely upon the condition of the myocardium. In cases with a moderate hypertension, exercise is very valuable as a means of increasing metabolism and the elimination of waste products. In arterial hypertension, with its associated cardiovascular renal disease, the high potential static modality, with its immense voltage, and the high frequency coils and transformers, with their high amperage, are the two most efficient means with which to obtain therapeutic results.

ARCHIVES OF DIAGNOSIS

April, 1914.

Differentiation of Gastric Neurosis from Organic Abdominal Disease.—H. Z. Giffin enumerates general factors in making a diagnosis of gastric neurosis: 1. Analysis and grouping of the symptoms referable to hypersensitiveness and instability of the nervous system; 2. careful exclusion of diseases which, in a reflex manner, commonly produce an indigestion of the functional type; 3. realization that variability, both in the story told by the patient and the symptoms, from time to time, is most important; 4. application of the Röntgen findings; 5. recognition of certain psychic elements.

Macroscopic Diagnosis between Tuberculosis and Papilloma of the Peritoneum.—Robert T. Morris calls attention to the fact that certain uncommon cases of tuberculosis of the peritoneum present the macroscopic characteristics of malignant papilloma. Mistakes in diagnosis and prognosis are easily made in these cases unless the pathological tissue removed is histologically studied.

SURGERY, GYNECOLOGY AND OBSTETRICS.

April, 1914.

Cholecystectomy.—George W. Crile says that, considering all the later consequences of infection, cholecystectomy shows less morbidity than cholecystostomy. In these cases the clinical results of cholecystectomy are good, while in unsuitable cases, cholecystostomy is followed by recurrent cholecystitis. The writer has seen no adverse effects from cholecystectomy, provided that the division

is made at the beginning of the cystic duct, that no gallbladder tissue is left, and that the division does not at all encroach on the common duct. This technic can be readily carried out. If acute infection is present, then in most cases, cholecystostomy should be first performed, followed if required, by a later cholecystectomy. If the gallbladder and the cystic duct are approximately normal, then the gallbladder should be left, cholecystostomy being the operation of choice. If the gallbladder is thick, or contains much scar tissue, or if it is shrunken, shows chronic infection of the wall, is much impaired, if the cystic duct is partially or completely strictured, or if a stone is impacted in the duct, then cholecystectomy should be performed. All gallbladder operations, and especially common duct operations, may be performed with a minimum of shock and discomfort by thorough nerve blocking with novocaine, by sharp dissection and gentle manipulation. The principal causes of the higher mortality in common duct operations are the damage done to the nerve supply of the liver and the loss of bile salts. The sharp knife dissection and the clean cut, ample incision into the common duct, with the consequent minimum nerve injury and minimum injury to the duct and its neighborhood, and in suitable cases the immediate closure of the common duct by suture, will immensely improve the morbidity and the mortality following common duct operations.

Resection of the Rectum for Cancer.—Charles H. Mayo believes that cancers of the rectum in which not more than eight inches of bowel must be removed, the distal section being not nearer than two and one half inches from the anal sphincter, are usually best removed through the Kraske sacral incision, with resection of the coccyx and part of the lower sacrum. In such operations the following procedure may be instituted: 1. A freely mobilized bowel projecting through the anus may, at times, be sutured outside; 2, a large tube may be sutured within the bowel with the terminus just within the anus; 3, a sacral anus may be made and the anal segment sacrificed; 4, a permanent colostomy may be made and the whole rectum removed at the same time or at a later period. A permanent colostomy, however, is quite abhorrent to all patients, and, if it is possible, they much prefer to have the intestinal delivery near its normal location, even if uncontrolled, and at some additional risk from recurrence of the disease. The efforts to restore function in cancer of the rectum and to obtain good cosmetic results in external cancer have added much to the high percentage of recurrence. Permanent colostomy with total extirpation of the rectum gives a higher percentage of cures than methods which restore function.

Gastrojejunostomy.—H. J. Paterson states that in regard to the value of this operation in cases of pyloric stenosis, of duodenal ulcer, and of gastric ulcer near the pylorus, there is general agreement. Its value in cases of ulcer of the body of the stomach and as a treatment for gastric hemorrhage, is in doubt. Gastrojejunostomy is indicated in cases of ulcer of the stomach even if they are not situated near the pylorus. As to hemorrhage, he believes

that in the majority of cases gastrojejunostomy is an efficient treatment, because as a rule, the hemorrhage comes not from the ulcer, but from erosions of the gastric mucosa secondary either to hypersecretion or hyperacidity. Gastrojejunostomy removes both these conditions and so allows the erosions to heal. Gastrojejunostomy is absolutely contraindicated when no organic lesion is present, except in cases of severe or continued gastric hemorrhage. There are four practical lessons to be learned from the writer's paper: First, that the type of gastrojejunostomy employed is of less importance than the manner in which it is performed. Second, occlusion of the pylorus is an unnecessary complication of gastrojejunostomy and is based upon erroneous pathology. Third, that if gastrojejunostomy is a physiological operation, its use for the treatment of gastric hemorrhage is correct and explicable. Fourth, if gastrojejunostomy is a physiological operation, then it is as efficient a treatment for ulcers of the body of the stomach as for ulcers near the pylorus; in other words, gastrojejunostomy is preferable to excision.

Proceedings of Societies

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held at the New York Academy of Medicine, January 6, 1914.

The President, Dr. SMITH ELY JELLIFFE, in the Chair.

Traumatic Epilepsy Cured by Operation.—Dr. WILLIAM M. LESZYNSKY presented a man, thirty years old, with a negative family history, whose personal history was uneventful up to the age of six years. At that time he fell from a height, receiving a compound, comminuted fracture of the skull over the right temporoparietal region. He was treated surgically, a section of the bone being removed, and when he returned home, a few weeks later, he was apparently free from all symptoms. A few months later he began to attend school, and ultimately became a bookkeeper. At the age of twenty-one, fifteen years after his injury, he began to exhibit epileptic convulsions. The attacks were at first infrequent, and always began with a convulsive movement of the left hand, gradually becoming general. For five years he averaged about one attack a month, but they gradually became more frequent and severe, and when Doctor Leszynsky first saw the patient, nearly four years ago, he had recently had four severe attacks in a single night. Upon examining the cranium, the presence of adhesions over the site of the old wound was suspected, and an early operation was recommended, and this was done by Dr. Henry Roth at the Lebanon Hospital on May 23, 1910. It was then found that the skull, the dura and pia mater and the cortex were matted together in one mass. After some difficulty the cortex was freed and covered with a piece of Cargile membrane and the wound was then closed. The patient's operative recovery was good, and he left the hospital shortly afterward. Three years and eight months had elapsed since the operation, and the man had never

had an epileptic convulsion since that time. His treatment had been purely hygienic, and he had never received any sedative drugs.

Dr. ARTHUR C. BRUSH, of Brooklyn, said the theory promulgated by the late Dr. Ira Van Gieson a few years ago that the epileptic seizures were the result of a wedge shaped piece of tissue producing irritation of the cortex did not hold good in this case, as nothing was done here but to separate the adhesions and insert a piece of Cargile membrane. Here we either had to accept the fact that the epilepsy was cured by the surgical operation or else that it was not due to the injury at all. The fact that the convulsive movements began in the left hand and were followed by unconsciousness pointed to the Rolandic area.

Doctor LESZYNSKY replied that the character of the attacks was always the same, invariably beginning in the left hand, extending up the arm and over the rest of the body, with almost immediate loss of consciousness. The patient never had any *petit mal*. The attacks occurred both during the day and at night, and were purely Jacksonian in the beginning.

Multiple Sclerosis.—Dr. S. P. GOODHART presented a girl, twenty-four years old, with a negative family history, who seven years ago began to complain of peculiar burning sensations in the palms and soles. Finally, this paresthesia extended to the upper and lower extremities, giving her the sensation, as she expressed it, as though they were gloved. This disappeared, and was followed by a flaccid paralysis of the lower extremities, which practically became complete. At the end of three months she began to improve and three months later the paralysis had entirely disappeared. She then remained well until last July (1913), when she began to suffer from weakness in the left upper extremity, extending very gradually to the corresponding lower extremity. The eye grounds at this time suggested some change in the discs. In the course of a short time this paralysis, which followed a very suggestive anatomical distribution, was accompanied by a tremor, and the case now presented a typical picture of multiple sclerosis, which was confirmed by the eye findings. There was an absence of the abdominal reflex; a marked Babinski was present on the left side, less marked on the right. The patient had also acquired a peculiar spasm of the left hand. There was nystagmus on convergence. The Wassermann was invariably negative.

Epilepsies and Psychanalysis: A Query?—Dr. SMITH ELY JELLIFFE, preliminary to the presentation of a patient, said we knew so little about the dynamic factors in the causation of the epileptic discharge, particularly in the so called true or idiopathic type of epilepsy, where we had no antecedent history and objective neurological examination left us at a loss, that he had taken occasion to ask Doctor Hallock to investigate some of these cases, more particularly in relation to their complex reactions and psychic disturbances, in the hope of eliciting some facts that might be pertinent to the particular type of energy discharge. The patients he had in mind were those in which the seizures had come on at about the ages of eleven, twelve, or thirteen years, more or less coincident with the awakening of the puberty influences. Even from

the time of the early Greek writers, coitus had been described as a minor epileptic attack, and the motor manifestations of the epileptic discharge were so striking as to suggest the possibility of such a relationship. Possibly, and the subject is presented tonight in the form of a query, this apparently motiveless discharge of energy might depend upon certain psychogenic factors that were worthy of investigation. They knew that during the night, when the usual avenues of energy dissipation were not open, the epileptic attacks were more frequent than during the day time. It was a familiar fact that in institutions where large number of epileptic individuals were grouped, that interference with the regular routine employment of the patients, such as that caused by a rainy day, a stormy day, Sundays, and holidays, was coincident with an increase in the number of attacks; such attacks occurred more frequently when the patients were not discharging energy in normal ways. It might be possible that the rigid application of the libido theory with the psychanalytic study of the distribution of energy and the introversion of energy, might offer a field in which an explanation for certain forms of epileptic discharge could be formulated.

Dr. FRANK M. HALLOCK said that this case was presented very early in the course of the psychanalysis. The patient was an epileptic boy, seventeen years old, who came to Doctor Jelliffe's clinic at the Post-Graduate Hospital, October 15, 1913. His family history was negative. The epilepsy began at the age of eleven years, the attacks occurring about twice a month without prodromata. They began with twitching of the right hand and occurred only during sleep, lasting from two to twenty minutes. During the attacks, the patient frequently bit his tongue. There were occasional semiconscious states, with staring and dreamy states, lasting a few seconds or minutes. Occasionally, the boy heard voices; sometimes a part of a prayer, etc. He also complained of certain insistent words that troubled him for several days. The boy was unable to work on account of his convulsions; he feared that work might aggravate them, although they never occurred during his waking state. He also had a tendency to vagrancy, and had once stolen his way from Springfield, Ill., to St. Louis on a freight train. He had made attempts to hypnotize himself by staring into a mirror until he lost his equilibrium and staggered across the floor. He said he had also tried "stunts" with his eyes, to make them come together by holding his finger near the nose in order to make each eye independent of the other. He had done this half an hour at a time.

Inquiries into the boy's sexual life elicited the fact that masturbation began through the instruction of other boys at the age of twelve and a half years, but was stopped by his uncle six months later. Two years ago he again began to masturbate and continued the practice for several months. Other sexual experience had been slight, and there had never been any seminal discharge. The boy's environment had been a difficult one. When he was a small child, he liked his father, but now he looked upon him as too much of a religious fanatic. This dated back to about the age of ten. "I began," he

said, "to read Darwin, but my father was steeped in his old orthodox beliefs and we clashed. He has beaten me plenty of times; ever since I can remember." He was also frequently beaten by the Rabbi to whom he was sent for religious instruction. Of his mother, he said, "I like her pretty fair. She is a little better than father. Because he doesn't like me, she does." Of his sister, fifteen years old, he said: "She is my father's pet and I got into many scrapes on her account." The patient had occasional dreams of sexual intercourse with this sister. He had no girl friends.

The patient had many dreams, some of them very intricate. They were full of his struggles with his father. After one of these he awoke, his father shaking him vigorously in order to awaken him, asking what he was yelling about, and evidently fearing an impending fit. As the child advanced in years, he met with decided rebuffs. He sought expression for his love nature, and found his father in the way. As a young child, he knew the world only through father and mother, and it seemed to him to be a pretty tough world. Rather than make any further effort toward understanding his love life, which demanded expression in some form, he retired to the cradle—to the memories of his infancy and childhood. He dreamed of a nest in his mother's arms, where he would be loved as he was when a baby. One day, after having a fit, he was asked how he felt, and he replied: "I feel like a baby three or four years old. When I am well I beat my own way and do as I like, but now I do whatever my mother tells me. She treats me better than she does the other children. Today I asked her why, and she said because of my illness." He had thus succeeded in his unconscious object of drawing his mother's sympathy and attention by means of his fits, thus feeling himself once more in her care as he was when a baby. The analysis of this case would be continued, Doctor Hallock said, because, with the understanding of the nature of this conflict, the patient's attitude of mind toward life had already changed. He expressed himself as feeling different and better. The struggle with his environment was not so keen, and his dreams had already shown some change in the direction of an understanding and control of his conflict.

Dr. C. P. OBERNDORF asked if the more important signs of the classical epileptic attack, such as the abolition of the corneal and light reflexes while the patient remained unconscious, involuntary evacuation of the bowels and bladder, and the Babinski sign immediately following the convulsion, had been recorded in this case?

Doctor HALLOCK said he could not answer Doctor Oberndorf's questions, as he had never seen the boy during an attack.

Doctor OBERNDORF said that without an accurate examination during the attack it was impossible to distinguish between epilepsy and the convulsive manifestations of hysterical states or some of the lapses seen in dementia præcox. In one case of convulsive attacks, apparently of psychogenetic origin, which he had observed, there was voiding of the bladder, and in another case, in a girl of twelve years, the attack culminated in an orgasm. In

both instances the attack seemed to be a substitution for masturbation. In the case just presented there was no evidence to warrant the assumption that the attacks, whether hysterical or other, were dependent on either the conscious or unconscious psychical life of the patient, nor had any analysis of the hallucinations been attempted.

Doctor JELLIFFE said the attacks were accompanied by biting of the tongue and involuntary evacuations of the bowels and bladder, and he had no doubt that they were of the major epileptic type.

Dr. I. ABRAHAMSON said he could see no possible connection between the epilepsy in this case and the psychanalysis. Many of the dreams that had been reported by Doctor Hallock appeared to be due to suggestions received from the examiner.

Doctor HALLOCK said that what was apparent on the surface of a dream was not its real meaning, which was something quite deeper. While his close association with the patient might bring out something, it would have nothing to do with the true meaning of the dream.

Doctor JELLIFFE said that while this work was still in an experimental stage, he thought Doctor Hallock had gone quite far enough to show that in this particular case the theoretical importance of the Oedipus complex was demonstrated, and that possibly the motor discharge was in response to the psychogenetic factor of hate to the father and incestuous fantasies regarding the mother. They should not lose sight of the fact that they were discussing a mere form of energy distribution which was described under the symbol epilepsy.

Neural Atrophy of the Small Muscles of the Hand, without Sensory Disturbances.—Dr. J. RAMSAY HUNT referred briefly to the two types of neural atrophy of the small muscles of the hand, without sensory disturbances described by him in previous communications: 1. A hypothenar type, from compression neuritis of the deep palmar branch of the ulnar nerve (*Journal of Nervous and Mental Diseases*, 1909). 2. A thenar type, from compression neuritis of the thenar branch of the median nerve (*American Journal of Medical Sciences*, February, 1911). One of the chief points of clinical interest of these two types of neural atrophy of the small muscles of the hand without sensory disturbances lay in their resemblance to and possible confusion with the atrophy of the hand muscles of spinal cord origin, viz., the Aran-Duchenne type of progressive muscular atrophy, the early stage of amyotrophic lateral sclerosis beginning in the hand musculature, and the various types of subacute and chronic poliomyelitis of syphilitic origin in which the lesions originated in, or were more or less restricted to the lower segments of the cervical cord. Of special importance was the so called tephromyelitis anterior, described by Marie and Foix, in which the atrophy of the anterior horns, limited to the eighth cervical and adjacent portion of the seventh cervical and first dorsal segments of the cord, was produced by a vascular lesion of syphilitic origin; endarteritis and periarteritis without thrombosis.

1. The hypothenar type of neural atrophy was characterized by a complete paralysis, with consecu-

tive atrophy and reactions of degeneration in all the muscles of the hand supplied by the ulnar nerve—the hypothenar, interossei, adductor pollicis and inner head of the flexor brevis pollicis. There were no objective nor subjective disturbances of sensation in the distribution of the ulnar nerve. The ulnar flexion of the wrist was preserved, as well as the function of the palmaris brevis, the motor branch to this small subcutaneous muscle passing in the superficial palmar, which is sensory; the deep palmar is partly motor in function. The preservation of this small motor branch to the palmaris brevis and of the sensory functions showed that the compression lesion was situated in the deep volar branch, after the division of the nerve at the level of the pisiform bone. Just after this division the deep palmar branch passed between the tendinous origins of the abductor minimi digiti and the flexor brevis minimi digiti, to beneath the hook of the unciform bone. The compression neuritis, therefore, by a process of exclusion, must take place in this section of the deep palmar branch. He had had a patient, a man of thirty years, by occupation an ironer and presser of clothes, who denied lues and gave no history of alcohol or lead intoxication. For the past six months he suffered from weakness of the right hand, with gradually increasing atrophy. In spite of this he had continued his occupation. He had no pain and no paresthesias in the distribution of either the ulnar or median nerves. There was complete paralysis, with considerable wasting of all the hand muscles supplied by the ulnar nerve, with complete reactions of degeneration. The ulnar flexion of the wrist and the function of the palmaris brevis were preserved. Sensation was perfectly normal to touch, pain, and temperature, and the deep sensibility was preserved. The atrophy and paralysis were strictly limited to the ulnar distribution in the hand, and the hand had somewhat the attitude and appearance of the *main en griffe*. No fibrillation was present. There was no tenderness on pressure along the ulnar nerve, but deep pressure at the pisiform bone caused slight tenderness. The pupils were equal and reacted normally. All the tendon reflexes of both upper and lower extremities were normal in intensity, and were equal on the two sides. The skin reflexes were normal. The plantar reflex gave a flexion response on both sides. An x ray examination for cervical ribs was entirely negative. There was no lead line on the gums, and the Wassermann reaction was negative. The urine was normal. Lumbar puncture was not permitted.

2. The thenar type of neural atrophy without disturbance of sensibility was characterized by paralysis and reactions of degeneration, with atrophy of all the small muscles of the thenar eminence supplied by the median nerve. There were no subjective nor objective sensory disturbances in the distribution of this nerve. The compression lesion in this type took place beneath the anterior annular ligament, where the thenar branch, a purely motor nerve emerged, before dividing into the muscular branches to the abductor pollicis, the opponens pollicis, and the outer head of the flexor brevis pollicis. His patient, a man forty-nine years old, de-

nied lues, had used alcohol in moderation, and gave no history of lead intoxication. By occupation he was a general house worker, sweeping, scrubbing and washing floors and polishing brass. This patient, Doctor Hunt said, had been under his direct observation for a year, presenting himself originally for a weakness of the left thumb, with wasting of the muscles in the thenar region. This had appeared a few weeks previously without pains or paresthesias. During the entire period of observation he had had no subjective sensations in the distribution of the median nerve. The paralysis and atrophy were confined to the thenar muscles supplied by the median nerve. The function of the adductor pollicis and the inner portion of the flexor brevis pollicis were preserved. There were complete reactions of degeneration in all the thenar muscles supplied by the median nerve; all the other small muscles of the hand were normal, both in power and electrical reactions. No fibrillations were noted in the atrophic area. There were no objective disturbances of sensation in the right upper extremity, and the median distribution was entirely normal to touch, pain, and temperature. There was no tenderness along the course of the median nerve. The urine was normal. The x ray showed no cervical rib. There was no lead line on the gums.

The pupils were unequal; right larger than the left; both pupils were rigid to light, and the left reacted only to accommodation. The supinator, biceps, and triceps jerks were equal on both sides, and not exaggerated. The jaw jerk was present. The knee jerks were unequal the right being less active than the left. Both Achilles jerks were present and equal. The plantar reflex was normal. For the past seven months the patient had complained of mild, lancinating pains in the legs and chest, with slight vesical trouble; no crises; no diplopia. A mammary zone of hypalgesia and analgesia was demonstrable. The Wassermann reaction was negative. Spinal puncture was not performed. His diagnosis had been incipient tabes and the thenar type of neural atrophy.

The clinical diagnosis of tabes incipiens in this case was based upon the Argyll Robertson pupil, lancinating pains, unequal knee jerks, vesical disturbance, and a mammary zone of hypalgesia, a group of symptoms which makes such a diagnosis practically certain. The existence of parasyphilis in conjunction with atrophy of the thenar eminence suggested, first of all, a myelopathic origin, developing upon the basis of an old syphilis. This interpretation, the speaker said, he would exclude in the case under consideration for the following reasons: The paralysis was of rather rapid onset, and was definitely limited to the muscles supplied by the thenar branch of the median nerve. The reactions of degeneration were complete five weeks after the onset of symptoms, and were as they are at the present time, definitely limited to the median nerve distribution of the hand. After a year's observation, there had been no extension of weakness or atrophy to other muscle groups of the hand. At no time had fibrillations been noted. The process had remained definitely limited to the distribution of the

thenar branch of the median nerve on the left side. He believed that such affections as progressive muscular atrophy, and chronic and subacute poliomyelitis could be excluded by reason of the strict limitation to a neural distribution and the absence of progression and other symptoms indicating spinal cord involvement.

Tephromyelitis anterior, as described by Marie and Foix, could also be excluded with equal certainty by reason of the comparatively acute onset of the symptoms and the strictly neural distribution. In Marie's two cases of tephromyelitis anterior of syphilitic origin, with autopsy, the lesions were bilateral, affecting both hands, although predominating in one, and there was a diffuse atrophy of the small muscles of the hand, not limited to a definite neural distribution as in the two groups of cases described by Doctor Hunt. The similarity might be great, however, as Marie insisted on the nonprogressive tendency and the strict limitation to the small muscles of the hands. That the lesion of tephromyelitis should be so limited was in itself interesting and peculiar, but that this limitation should assume a persistently neural character and distribution, as in the thenar and hypothenar types of neural atrophy of the small muscles of the hand, was from the very nature of the lesion scarcely conceivable. In a recent communication before the Société de Neurologie de Paris, November 13, 1913, Marie and Foix had recorded a case of double thenar atrophy, with autopsy, in which the spinal cord was found normal, and a compression lesion of the median nerve was demonstrated beneath the annular ligament of the wrist, which was confirmatory of the localization and nature of the lesion which, the speaker said, he had assigned to it in his original communications on this subject.

Doctor ABRAHAMSON said that some years ago he showed two cases of bilateral symmetrical atrophy of the flexor brevis pollicis. The patients were presented at one of the meetings of that society. He saw one of those patients recently, and there had been no change in the condition.

Doctor GOODHART said it was rather difficult to conceive how a lesion restricted to the seventh or eighth dorsal segment of the cord could produce such a selective action on certain muscles of the hand. Stewart and others recently reported cases where an atrophy and a paralysis of certain muscles of the hand were traced to the presence of a cervical rib. He had reported similar cases. In one of them, given in detail in the *American Journal of the Medical Sciences*, double false ribs were described in one patient. The initial symptoms were atrophy of the interossei, and the diagnosis of progressive muscular atrophy had been previously made. Removal of both ribs arrested the progress.

Doctor HUNT said that in his second case, the x ray had shown no evidence of the presence of a cervical rib. Of course, there were many lesions along the entire course of the peripheral neurons of the upper extremity which might produce these localized hand atrophies, and all such possible etiological factors should be borne in mind. The statements made by Marie and Foix in regard to the arterial changes observed in their cases, were

based on very thorough pathological studies. These vascular lesions were of specific origin, with a resulting atrophy and loss of substance of the anterior horns, with complete preservation of the white substance of the cord. That the tephromyelitis should be so limited in a syphilitic vascular lesion was indeed strange, and the authors were unable to offer any explanation for this peculiar predilection for the lower cervical regions, and its limitation to one or two segments of the cord. In the interpretation of nonprogressive atrophy of the small muscles of the hand, therefore, without sensory disturbances, two distinct conditions must be borne in mind, the tephromyelitis anterior, and the thenar and hypothenar types of neural atrophy.

Letters to the Editors.

THE BYZANTINES—A PROTEST.

NEW YORK, July 3, 1914.

To the Editors:

Dr. Victor C. Vaughan, in his inaugural address as president of the American Medical Association, published in your esteemed JOURNAL for June 27th, has said and quoted some misrepresentations of the Byzantines concerning which I beg to say a few words. These misrepresentations originated with Montesquieu, Gibbon, and Fallmerayer, but have been exposed by a number of historians, Zinkeisen, Finlay, Ross, Curtius, Hopf, and Mendelssohn-Bartholdi. It is to be regretted that we still meet people who have by tradition, without personal research into the facts, accepted the most absurd ideas about the Byzantines. The history of an empire which endured for a thousand years cannot be given by being crumpled into a few contemptuous sentences, especially when that history presents complications probably greater than those of any other empire. The Byzantine Empire was predestined to carry out one great work in human history, i. e., to preserve civilization during the period of barbarism which we call the Middle Ages. For the performance of that work no abundant originality was needed. The mission of Christian Constantinople was not to create, but to save; and that mission she fulfilled for the benefit of the Europe of the future. It is not just on the part of the modern world, which has profited thereby, to refuse its benefactors the tribute of their gratitude, still less when it caricatures history in order to lessen the apparent burden of its indebtedness. The Byzantines, as the outpost of Christendom, fought the battle of civilization against the world of barbarism, and succumbed only after a heroic resistance of a thousand years. Their history should not be treated with injustice, exaggerated severity, and contempt.

The empire of the East fell four hundred years ago and was thereby silenced. The West survived, and until recently has had history all its own way. It has used the opportunity in the full spirit of rancor. National intercourse, which is characteristic of our time, will gradually efface a tradition begotten in ignorance.

The history of the Byzantines is one of unceasing and unwearied activity. Christian Constantinople, from the hour of her foundation to that in which her sun finally set in blood, was engaged in constant struggles against successive hordes of barbarians and foreign adventurers. The facts that the old monarchy of Constantine and Theodosius resisted the repeated attacks of hordes of Persians, Bulgarians, Slavs, Arabians, Turks, that it withstood the severest catastrophe—namely the destruction of the empire by the knights of the fourth crusade, the loss of the capital at the Golden Horn, before it sank under the Osmonds—these remarkable facts should incite us to familiarize ourselves with the true history of an empire of such wonderful, of such exceptional vitality.

The time when the Turkish cannon made an opening in the gigantic walls of Constantinople corresponds to the period when the Western countries—thanks to the

Byzantines, now strong and happy—developed the new culture and gave asylum to the last representatives of Greek learning. From the history of the Byzantines it can be demonstrated that Constantinople formed a barrier against Mohammedanism and, as even Gibbon admitted, if it had not been for the Byzantines the *Koran* would now be taught in the schools of Oxford and her pulpits might be expounding to a circumcised people the revelations of Mohammed.

A. ROSE, M.D.

[Doctor Rose makes some admirable points and we are glad to publish his letter. The power to realize an unfamiliar and remote period of history is given to few people. Has Doctor Vaughan ever consulted Professor Bury's *History of the Eastern Empire*, 1912?—Eds.]

AN ACUTE QUESTION OF CONTRACT PRACTICE. CAN ANY READER MAKE A SUGGESTION?

—————, MASS., July 3, 1914.

To the Editors:

I have been one of your subscribers for some years past, so take the liberty to ask your advice on the following subject, as I am one of a committee to devise ways and means of doing away with contract medical and surgical practice.

Here in ———, Mass., we have physicians of different schools of medicine; we are all a unit on this matter and things are harmonious and friendly. We all fully realize that the way our patients are joining fraternal orders for the financial and medical benefits (principally medical) makes it a question of only a very short time when there will not be a living for physicians if something is not done to protect ourselves.

Several societies pay a doctor two dollars a year to care for the father, mother, and all the children under eighteen years of age, and in many instances that number includes from four to ten children. Many of these men with families earn good pay and many times business men are looking for the same benefits.

The town has about fifteen physicians to look after a population of 16,000; 2,000 are Turks, 2,000 are Greeks, and there is a very cosmopolitan remainder. About six or seven doctors are doing lodge work, but agree that the practice is not for the best interest of the profession and that the pay is decidedly too small.

The town is not well organized for men in the different trades and could not be considered a union town in any sense. We realize that if all of the doctors withdraw and refuse further lodge work (which as you know is like sin everywhere) the lodges would try to introduce young physicians and give all the lodge work to one or two, allowing them perhaps eight or nine dollars each. If there has been any town or city in the United States that has tried to remedy this, successfully or otherwise, I should be pleased to hear from it, also if you have any plan or idea that would help the ——— Medical Club to come to some settlement. I am sure it would be very heartily appreciated. I will give your views and advice to the club at the next meeting. We have no definite plan just how to remedy it, but when we decide on a plan I will write you that we may start the ball rolling all over the country. Trusting to hear from you soon on this matter, I am,

————— M.D.,

For the Committee.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Modern Medicine: Its Theory and Practice. In Original Contributions by American and Foreign Authors. Edited by Sir WILLIAM OSLER, Bart., M.D., F.R.S., Regius Professor of Medicine in Oxford University, England. Honorary Professor of Medicine in the Johns Hopkins University, Baltimore, etc., and THOMAS McCRAE, M.D., Professor of Medicine in the Jefferson Medical College, Philadelphia, Fellow of the Royal College of Physicians, London, etc. Volume I: Bacterial Diseases, Diseases of Doubtful or Unknown Etiology, Nonbacterial Fungus

Infections, the Mycoses. Second Edition, Thoroughly Revised. Illustrated. Philadelphia and New York: Lea & Febiger, 1913. Pp. xii-1093. (Price, \$5.00.) Volume II: Diseases Caused by Protozoa and Animal Parasites—Diseases Due to Physical, Chemical, and Organic Agents—Diseases of Metabolism and of the Respiratory System. Second Edition, Thoroughly Revised. Illustrated. Philadelphia and New York: Lea & Febiger, 1914. Pp. 1143.

That a second edition of this work should have been required within six years does not astonish us, though both editors and publishers express their gratification that such should have been the case. The work from the start has been a valuable acquisition to the profession and has met with the support it deserved.

The new edition has been reduced from seven to five volumes through a general condensation and an increase in the size of the page. The latter feature indirectly sustains the statement that the volumes have received from the authors a careful and complete revision, since publishers are not inclined as a rule to reset articles *in toto* unless many changes have been introduced. To facilitate the reduction in number of the volumes, some important contributions to the first edition have been omitted. We are certain, however, that Professor Adam's contribution on Inheritance and Disease would have been appreciated by the readers of the second edition as it was by those of the first. To offset these losses several articles, principally in the direction of tropical diseases, have been introduced.

While perusal of the articles *per se* indicates that a serious effort was made to introduce new facts, the various sections show considerable irregularity in this particular. Indeed, the limited space devoted to certain timely questions is sometimes remarkable. In the treatment of typhoid fever, for example, the use of vaccines is dispatched in less than three lines. A work of such magnitude on a single one of the divisions of medicine should, it seems to us, afford more information on those resources which a physician might wish to test. We miss also the use of quinine and urea in lobar pneumonia, a drug found so valuable by many. Another criticism which we might venture is that in some instances pet theories as to treatment are permitted to dwarf all other methods. We should pity, for instance, the practitioner who would, with the aid only of the work reviewed, have to treat many hay fever sufferers, particularly those who belong to the majority—the unfortunates who are not benefited by the use of pol-lantin! Those of us who have treated many such cases know full well that what will help one case will not aid another, and that the practitioner's quiver must be well provided with therapeutic arrows, if serious relief is to be afforded. On the whole, however, the work is a meritorious one and will be found helpful in the practical field.

Biochemic Drug Assay Methods. With Special Reference to the Pharmacodynamic Standardization of Drugs. By PAUL S. PITTENGER, Ph. G., Ph. C., Phar. D., Instructor in Pharmacodynamics, Departments of Pharmacy and Chemistry, Medico-Chirurgical College, Philadelphia; Member of the "Committee on Physiologic Testing" of the American Pharmaceutical Association, etc. Edited by F. E. STEWART, M.D., Ph. G., Professor of Materia Medica and Botany, Departments of Pharmacy and Chemistry, Medico-Chirurgical College of Philadelphia; Charter Member of the American Therapeutic Society, etc. Philadelphia: P. Blakiston's Son & Co., 1914. Pp. xv-158. (Price, \$1.50.)

This little work is devoted to a discussion of the use and technic of pharmacodynamic standardization and is intended for students of pharmacy, pharmaceutical chemistry, and medicine, as well as for those actually engaged in systematic standardization work. The drugs for which biological standardization is necessary, purely chemical assay being impracticable or inefficient in these instances, are digitalis and its allies, aconite, veratrum, gelsemium, epinephrine, ergot, pituitary extracts, and cannabis indica. Such work involves the use of various animals—frogs, dogs, guinea-pigs, roosters, and at times cats—and the various steps necessary in preparing and conducting the experiments are very clearly described by the author, so that the beginner will have no difficulty in grasping the technic. The illustrations are numerous and good. This work is

the first of its kind and will undoubtedly be welcomed, proper standardization of the drugs mentioned having a direct bearing on the quality of the results secured by the clinician in his daily therapeutic efforts.

Plain Rules for the Use of Tuberculin. By R. ALLAN BENNETT, M. B., Lond., Physician in Charge Devon County Council Tuberculosis Dispensary, Torquay. Formerly R. M. O. Manchester Hospital for Consumption and Diseases of the Chest. New York: William Wood & Co., 1914. Pp. 48. (Price, \$1.)

There is no question that the use of tuberculin would be more general if it was not for the supposed difficulties associated with its administration in the mind of the average physician. Bennett has succeeded in condensing the rules for the administration of this remedy, however, to only twenty rather small pages and yet has stated them all so clearly that it should be a very simple matter for any one to follow them. While Bennett has succeeded in his endeavor to give "plain rules for the use of tuberculin," it is to be regretted that he has been so brief, for the rules are too sketchy to provide sufficient information for the physician not already fairly well acquainted with the use of tuberculin to render its employment safe in his hands. And for the man who is well acquainted with the use of this potent agent, the volume can scarcely be of any benefit owing to the meagreness of its material. The booklet should find a field, however, in the initiation of the practitioner into the simpler methods of preparing the dilutions of tuberculin and of calculating the doses of the remedy in the extreme dilutions in which it is employed. Although the book is exceedingly elementary in its scope and presentation, the author is to be commended for the conservatism which he shows with regard to the value of tuberculin as an aid in the treatment of tuberculosis.

Guide to the Microscopic Examination of the Eye. By Professor R. GREFF, Director of the University Ophthalmic Clinique in the Royal Charity Hospital, Berlin, With the Cooperation of Professor Stock, of Freiburg, and Professor WINTERSTEINER, of Vienna. Translated from the Third German Edition by HUGH WALKER, M. A., M. B., C. M., Ophthalmic Surgeon to the Victoria Infirmary, Glasgow. London: The Ophthalmoscope Press; New York: Paul B. Hoeber. Pp. xvi-86. (Price, \$2.00.)

It speaks well for the usefulness of this book that it has reached a third edition in German and a second in English, but it is not an easy one to review. When we say that it deals efficiently with the methods of fixing, hardening, imbedding, staining, injecting, and mounting sections from the various parts of the eye, and for studying their histology, we have said about all we can. Stock gives in an appendix the details of how to examine ocular secretions for bacteria, with notes on the staining of *Spirocheta pallida* and trachoma corpuscles. Inasmuch as the tissues of the eye require special methods of preparation, this book is of great value to every one engaged in ophthalmic practice.

Interclinical Notes.

Alas! that the inscription on the medal given to Surgeon General Gorgas, illustrated in the *Journal A. M. A.* for July 4th, is not strictly true; to the words, *Salus populi suprema lex*, we are constrained to add, *esse debet*.

Dr. P. Chalmers Mitchell, in the *Strand* for July, avers that the study of domesticated animals affords no information regarding them in the wild state, and that to obtain reliable data it is necessary to study tamed animals. The distinguished zoologist tells a most interesting story of a remarkable pet, a tree hyrax from Syria, supposed to be the coney of the Bible.

"Wallingford had half raised from his chair," remarks George Randolph Chester in a recent story. "I would lay on the floor," asseverates a well known newspaper writer. We fear that these are fair specimens of public school English. We have come to accept a *raise* in salary for a *rise*, but *lay* for *lie* is too much. Another solecism creeping into respectable journals is the use of *due* where

owing should be employed. Along with *illy* and *overly* the newspapers and popular magazines are accumulating a wonderful vocabulary; there ought to be room on the staff for an aged and conscientious verbalist and grammarian, whose "woid should be lawr" as a grade 8A child might remark.

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Bergson's work on dreams receives respectful attention in the *Outlook* for July 4th, a summary of the popular philosopher's views being presented; the latter read very much like an edition of Freud's theories Bowdlerized for the young person. We mean, of course, the young person of aged imagination, no such creature existing in Nature. The great value of Bowdler's editing used to lie in its driving young readers in hot haste to read the original.

* * *

A distinguished member of the board of health has brought upon himself a storm of denunciation by advising the ingurgitation of a glass of beer at luncheon by those in search of suitable summer diet. The reply from a representative of the antisaloon league recapitulated, as was to be expected, the venerable dicta regarding the corrosive and poisonous properties of alcohol. These statements are true of pure alcohol, obviously, but they are not true of alcohol diluted with ninety-six per cent. of water as it is in beer. Mercury bichloride is a corrosive and violent poison, but not in doses of grain 1/120, when it acts as a tonic and hematinic. There are many good reasons for the regulation of the liquor traffic, and it is a pity that drivelling nonsense has to be added thereto. What a country of crusaders we are, to be sure! No question of importance seems to get the cool, scientific consideration that alone can lead to sanity and truth; from the tariff to the teapot, the appeal is solely to passion and prejudice, to religious bigotry, to terrorism. What a monument to folly is the Boylan bill, with its attempt to repair knotholes when one whole side of the barn is gone.

Official News.

United States Public Health Service.

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending July 1, 1914:

Austin, H. W., Senior Surgeon. Granted four days' additional leave of absence from July 4, 1914. **Ebert**, H. G., Passed Assistant Surgeon. Granted one month's leave of absence from July 7, 1914. **Gardner**, C. H., Surgeon. Granted one month and ten days' leave of absence from July 20, 1914. **Guiteras**, G. M., Surgeon. Granted two days' leave of absence, June 29, and 30, 1914. **Lanza**, A. J., Passed Assistant Surgeon. Relieved from duty at the Hygienic Laboratory and assigned duty at Denver, Colorado. **McMullen**, John, Surgeon. Relieved from duty at Baltimore, Md., effective June 30, 1914, and continued on duty at Lexington, Ky. **Stiles**, C. W., Professor. Directed to present some lectures on hookworm disease and rural sanitation, in connection with the educational work of the Service, at the George Peabody College for Teachers, Nashville, Tenn., July 16 to 18, 1914. **De Valin**, H., Passed Assistant Surgeon. Granted two days' leave of absence, June 24 and 25, 1914. **Wickes**, H. W., Surgeon. Granted two months' leave of absence from July 1, 1914.

Boards Convened.

Board of commissioned medical officers convened to meet at the bureau, Wednesday, July 15, 1914, at 10 o'clock a. m., for the purpose of examining candidates to determine their fitness for appointment as assistant surgeons in this Service. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Assistant Surgeon General W. C. Rucker, member; Passed Assistant Surgeon H. de Valin, recorder.

Boards of medical officers convened to meet Wednesday, July 15, 1914, at 10 o'clock a. m., for the physical examination and the presentation of questions for the mental examination of candidates for appointment as assistant surgeons in the Public Health Service, as follows: Marine Hospital, Chicago: Detail for the board: Surgeon J. O. Cobb, chairman, Assistant Surgeon Joseph Bolten, record-

er. Marine Hospital, St. Louis: Detail for the board: Surgeon Mark J. White, chairman, Acting Assistant Surgeon H. C. Wakefield, recorder. Marine Hospital, San Francisco: Detail for the board: Surgeon R. M. Woodward, chairman, Assistant Surgeon L. O. Weldon, recorder. Marine Hospital, Boston (Chelsea), Mass.: Detail for the board: Surgeon B. W. Brown, chairman, Passed Assistant Surgeon George L. Collins, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the United States Army for the week ending July 1, 1914:

Bastion, Joseph E., Captain, Medical Corps. Granted extension of five days' leave of absence. **Boehs**, Charles J., First Lieutenant, Medical Reserve Corps. Relieved from duty in Philippine Islands about July 15, 1914, and directed to proceed to the United States, and after the expiration of three months and twenty days' leave to be placed on the inactive list of the Medical Reserve Corps. **Buck**, C. D., Major, Medical Corps. Appointed camp surgeon, camp at Accotink, Va., August 4 to 22, 1914. **Clayton**, J. B., Major, Medical Corps. Detailed to attend camp of instruction at Gearhart, Ore., July 13 to 23, 1914. **Cook**, George W., Captain, Medical Corps. Orders relieving from duty in Philippine Islands amended to take effect October 15, 1914. **Edger**, R. J., Jr., Major, Medical Corps. Ordered to camp at Cosgrove, July 1 to 10, 1914. **Ellis**, Paul H., First Lieutenant, Medical Reserve Corps. Ordered to active duty, and directed to proceed to Fort Omaha, Neb., and report by letter to the commanding officer, Central Department. **Fielden**, J. S. C., Jr., First Lieutenant, Medical Corps. Ordered to Fort Howard during the absence of Major Hutton. **Foley**, Thomas M., First Lieutenant, Medical Reserve Corps. Relieved from duty in Philippine Islands, granted three months and six days' leave of absence, and relieved from active duty in the Medical Reserve Corps upon expiration of leave of absence. **Foster**, Charles L., Captain, Medical Corps. Detailed for duty at the medical supply depot, in the absence of Lieutenant Colonel Raymond. **Harden**, R. DuR., First Lieutenant, Medical Reserve Corps. Ordered to Fort Jay for temporary duty. **Harris**, H. S. T., Lieutenant Colonel, Medical Corps. Ordered to camp at Ludington, Mich., from July 6 to August 7, 1914. **Hillman**, C. C., First Lieutenant, Medical Corps. Ordered to Tobyhanna, Pa., on arrival at Fort Myer of Major Duval. **Holmberg**, Carl E., Captain, Medical Corps. Granted three months' leave of absence effective upon relief from duty at Letterman General Hospital, Presidio of San Francisco. **Hutton**, P. C., Major, Medical Corps. Ordered to Camp Dawson, Caddell, W. Va., August 15 to 24, 1914, as camp surgeon. **Johnson**, Howard H., Captain, Medical Corps. Detailed as medical examiner and witness before Army retiring board, and upon completion of duty to return to station. **Leary**, Thomas J., First Lieutenant, Medical Corps. Detailed as medical examiner and witness before Army retiring board, and upon completion of duty to return to station. **Magee**, J. C., Captain, Medical Corps. Ordered to Camp Lincoln, July 4, 1914, for duty in the Sanitary Detachment and Field Hospital. (Camp July 5th to August 30th.) **Miltenberger**, Val E., First Lieutenant, Medical Reserve Corps. Directed to proceed from Fort Omaha, Neb., to Walsenburg, Col., for temporary duty to relieve Captain Thomas D. Woodson, Medical Corps. **Morris**, Samuel J., Captain, Medical Corps. Directed to return from Washington to Letterman General Hospital, Presidio of San Francisco. **Raymond**, Thomas U., Lieutenant Colonel, Medical Corps. Granted leave of absence for twenty-one days, effective July 6, 1914. **Roberts**, E. E., First Lieutenant, Medical Reserve Corps. Ordered to Fort Moultrie, June 30, 1914, for temporary duty during the absence of Major Henry Page, Medical Corps. **Sheep**, William L., Captain, Medical Corps. Directed to proceed to proper station upon expiration of leave of absence. Granted additional leave of absence until September 5, 1914. **Snyder**, Craig R., Captain, Medical Corps. Detailed for duty as inspector-instructor at camp at Fort Benjamin Harrison, Ind. **Weed**, Mark D., Captain, Medical Corps. Granted ten days' leave of absence upon relief from Fort Ontario.

Births, Marriages, and Deaths.

Born.

Paul.—In Salt Lake City, Utah, on Sunday, June 14th, to Dr. and Mrs. Samuel G. Paul, a son.

Married.

Blake—Groeneveld.—In Butte, Mont., on Saturday, June 20th, Dr. Charles R. Blake and Miss Elizabeth Groeneveld. **Chapman—Paterson**.—In Dover, N. H., on Monday, June 29th, Dr. Everett Leon Chapman and Miss Estelle Paterson. **Graham—Burdick**.—In Everett, Mass., on Wednesday, June 24th, Dr. George S. Graham, of Birmingham, Ala., and Miss Margaret A. Burdick. **McGowan—Sweeney**.—In Watertown, N. Y., on Wednesday, June 24th, Dr. Andrew J. McGowan, of New York, and Miss Katherine Sweeney. **Merscher—Hoffman**.—In Toronto, Canada, on Wednesday, June 24th, Dr. Harry I. Merscher and Miss Elsie C. Hoffman. **Monihan—Toolen**.—In Chester, Pa., on Wednesday, June 24th, Dr. Daniel J. Monihan and Miss Anna Toolen. **Morrison—Truesdale**.—In Minneapolis, Minn., on Tuesday, June 23d, Dr. Angus W. Morrison and Miss Helen Truesdale. **Narr—Lawson**.—In Philadelphia, on Saturday, June 27th, Dr. Frederick C. Narr and Miss Elsie P. Lawson. **Perron—Dubuque**.—In Fall River, Mass., on Tuesday, June 23d, Dr. Albert E. Perron and Miss Helen A. Dubuque. **Reynolds—Wickham**.—In Scranton, Pa., on Wednesday, June 24th, Dr. George B. Reynolds and Miss Mattie E. Wickham. **Rosenkrans—Glass**.—In East Stroudsburg, Pa., on Saturday, June 27th, Dr. Carl B. Rosenkrans and Miss Irene E. Glass. **Ryan—Uminger**.—In Dayton, Ohio, on Tuesday, June 23d, Dr. William A. T. Ryan and Miss Catherine Uminger. **Saul—Bruch**.—In Bangor, Pa., on Saturday, June 27th, Dr. Charles D. Saul, of Philadelphia, and Miss Fae V. Bruch. **Shoemaker—Comyns**.—In Philadelphia, on Wednesday, June 24th, Dr. Harvey Shoemaker and Mrs. Anne Comyns. **Shuffleton—Nelson**.—In Northport, N. Y., on Wednesday, June 24th, Dr. Joseph H. Shuffleton, of Kings Park, and Miss Elsie Nelson. **Smock—Hutton**.—In Atlantic City, N. J., on Wednesday, June 24th, Dr. Irwin B. Smock, of Canton, Ohio, and Miss Elizabeth M. Hutton.

Died.

Booth.—In Lebanon, Ore., on Thursday, June 18th, Dr. William H. Booth, aged fifty-eight years. **Brown**.—In Philadelphia, on Saturday, June 27th, Dr. Michael J. Brown, aged seventy years. **Chittock**.—In Jackson, Mich., on Wednesday, June 24th, Dr. Gordon Chittock, aged eighty-eight years. **Cunningham**.—In Philadelphia, on Sunday, June 21st, Dr. Frank M. Cunningham, of Macon, Ga., aged thirty-seven years. **Delcher**.—In Shadyside, Md., on Monday, June 22d, Dr. Edward W. Delcher, Jr., of Baltimore, Md., aged fifty-one years. **Embley**.—In Plainfield, N. J., on Sunday, June 21st, Dr. Thomas W. Embley, of New York, aged forty years. **Gallagher**.—In Fort Worth, Tex., on Saturday, June 20th, Dr. John W. Gallagher, aged sixty-two years. **Guyott**.—In Utica, N. Y., on Monday, June 22d, Dr. Ezra J. Guyott, aged sixty years. **Haines**.—In South Amboy, N. J., on Wednesday, June 24th, Dr. Edward E. Haines, aged fifty-five years. **Johnson**.—In Worthington, Ohio, on Saturday, June 20th, Dr. Frederick L. Johnson, aged forty-eight years. **Johnston**.—In Baltimore, Md., on Friday, June 26th, Dr. Christopher Johnston, aged fifty-eight years. **Lee**.—In Scarborough, Tenn., on Tuesday, June 23d, Dr. Charles B. Lee, aged sixty-one years. **Morrison**.—In Wilmington, Del., on Friday, June 26th, Dr. Napoleon B. Morrison, aged eighty years. **Moseley**.—In Brooklyn, N. Y., on Friday, June 26th, Dr. William B. Moseley, aged forty-five years. **Schwacke**.—In Charleston, S. C., on Thursday, June 18th, Dr. August H. Schwacke, aged fifty years. **Soule**.—In Wickford, R. I., on Monday, June 22d, Dr. George C. Soule, aged sixty-one years. **Stewart**.—In Minneapolis, Minn., on Thursday, June 24th, Dr. J. Clark Stewart. **Strawbridge**.—In Philadelphia, on Sunday, June 28th, Dr. George Strawbridge, aged sixty-nine years. **Wilkes**.—In Columbia, Tenn., on Saturday, June 20th, Dr. James H. Wilkes, aged eighty-four years. **Woodson**.—In Temple, Tex., on Sunday, June 14th, Dr. William M. Woodson.

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Original Communications.

THE BIOCHEMICAL FUNCTION OF THE ENDOMETRIUM IN THE ETIOLOGY OF METRORRHAGIA AND MENORRHAGIA.

By J. RIDDLE GOFFE, M. D.,
New York,

Professor of Gynecology, New York Polyclinic; Attending Surgeon,
Woman's Hospital; President, Seventh International Congress
for Obstetrics and Gynecology, 1915.

Uterine hemorrhages constitute one of the most common and serious symptoms to be dealt with in the treatment of women. These hemorrhages may be divided into two classes, first, those that are due to palpable or recognizable clinical conditions, such as gross pathological lesions in the pelvis, systemic conditions in the blood, or modified character of the general circulation; and, secondly, uterine hemorrhages occurring at the two extremes of menstrual life, namely, the adolescent period and the preclimacteric period. The menorrhagia and metrorrhagia in this class of bleeding so frequently merge into each other, and are so intimately associated in the same fundamental cause, that any distinction between them becomes impracticable, and in this discussion they will be regarded as one and the same.

This type of bleeding has been a great puzzle to clinician and pathologist, and within the last few years has become the subject of widespread and careful investigation. The thought has been largely centred upon the histological abnormalities of the muscular, the fibrous, the vascular, or the glandular elements of the uterus. Prominent among these are the investigations of Theilhaber, of Germany; Bell, of England; and Palmer Findley, of America. Theilhaber elaborated his idea of muscular deficiency of the uterus, both developmental and acquired, and named by him hypoplasia muscularis uteri, and myofibrosis uteri. Palmer Findley directed his studies to the vascular system of the uterus, ascribing the muscular and fibroid changes to apoplectic injuries of the blood-vessels. It has been discovered, however, that while these pathological conditions are frequently present in these bleeding uteri, their presence is not sufficiently constant to make them a dominant factor in their causation. For instance, Arnold Sturmdorf, of New York, in a careful examination of eighty cases in women dying at or beyond the menopause,

found that only a small percentage, in which the aforesaid pathological conditions were discovered, gave any history of bleeding.

William Blair Bell, of England, has evolved a very elaborate theory based on his investigations of calcium metabolism. While his theory and experiments are extremely interesting, they are as yet, as he himself implies, rather suggestive than conclusive. Physiologists recognize the important part which the calcium salts play in the development and maintenance of many of the functions of the human organism. It would seem, however, that these salts exercise by their presence an activating influence upon physiological chemistry rather than by active participation in the changes themselves. None of us, I dare say, are prepared to believe, as he suggests, that the periodicity of menstruation is dependent upon or originated by the periodical fluctuation of the calcium content of the blood.

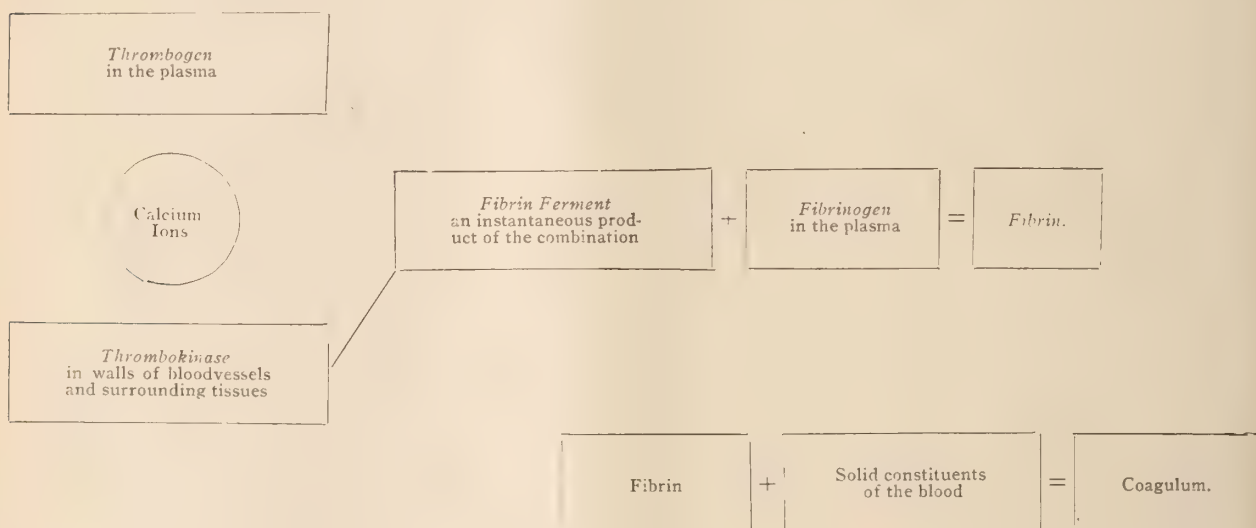
The one significant feature that exhibits uniform regularity in these cases is absence of coagulation of the blood. This lack of coagulability is also characteristic of menstrual blood. The idea therefore suggests itself that the cause of this excessive bleeding may be due to this one feature of incoagulability, for we all know that nature's one great hemostatic under all circumstances and in all places is the clotting of the blood. This is the process that is always invoked artificially to staunch bleeding everywhere. Investigation to discover why nature does not form a clot to control hemorrhage in these bleeding cases leads up to the question, What is the factor in menstrual blood that prevents coagulation? To solve this question it becomes necessary to discover, first, what are the factors that produce coagulation; and, secondly, which of these is omitted or what new factor is introduced into menstrual blood to stay the process of coagulation. To wrench this secret from nature has been a delicate, difficult, and intricate problem. However, through the persistent efforts of such investigators as Morawitz, Jorsen, Mellanby, and others, the secret has been revealed. They have found that fibrin, which composes the meshwork of the blood clot in which are caught the solid constituents of the blood, thus making up the clot itself—they have found, I say, that fibrin is the product of two antecedent elements, fibrinogen (a normal constituent of the blood plasma) and fibrin ferment. Fibrin ferment itself is in turn the result of two antecedents, viz., thrombogen and thrombokinase. Thrombogen exists normally in the plasma, thrombokinase exists fixed in nucleated blood platelets and parenchymatous tissues. There is one factor in this bio-

*Read at the meeting of the International Medical Congress, Gynecological Section, London, 1913.

chemical process which must be mentioned, and that is the presence of calcium ions as a catalytic agent in inducing the combination of thrombogen and thrombokinase.

The process of forming a blood clot would therefore be as follows: A break occurs in the bloodvessel, which permits the escape of the blood. As it passes out through the wall of the bloodvessel the thrombogen in the blood comes in contact with the thrombokinase residing in the vessel wall and tissues immediately surrounding the bloodvessel. They combine instantaneously and produce the fibrin ferment. The latter in turn meets with the fibrinogen, which is in the plasma, forming fibrin, which has the form of a delicate network of fibrils. These gradually enmesh the blood corpuscles and, contracting, form the clot which is nature's hemostat.

This process may perhaps be made a little clearer by representing it diagrammatically as follows:



This process is what occurs under these circumstances in all parts of the body and at all times, with the one exception of menstruation and these intermenstrual bleedings. This exception is the more conspicuous when we recall how efficient Nature is in controlling hemorrhages at the time of parturition. Two questions now present themselves, first, what induces this normal incoagulability of menstrual blood, and, second, what relation does this phenomenon bear etiologically to the abnormally bleeding uterus? It was at first thought that it was due to some change in the constitution of the blood circulating throughout the general system. Bell found that there was a great drop in the amount of calcium salts present in the blood immediately preceding and during the menstrual molimen and assigned to it the causative factor in preventing coagulation. Later investigators, however, viz., Birnbaum and Osten, hold that coagulability is impaired in the systemic blood by a diminution in the production of ferment. Schittenhelm and Lutter confirm these findings and suggest the probable influence of a new factor in the case, viz., some inhibiting body. Cristea and Denk oppose all these con-

clusions and maintain that the general circulating blood shows no perceptible diminution of coagulability during the menstrual period.

At this juncture in the inquiry Dr. Arnold Sturm-dorf, a member of my clinical staff at the Polyclinic Medical School and Hospital, enters upon the scene of discovery. Accepting the conclusions of Cristea and Denk that the systemic blood remains unchanged during the menstrual period and that menstrual blood has lost its coagulability, the conclusion was forced upon him that this change must take place in the endometrium. He therefore conceived the idea of placing a small drainage tube in the interior of the uterus to conduct the menstrual blood out of the vulva into a receptacle, and then incising the uterine bloodvessels in the uterine tissue but outside of the endometrial zone, and lo! like Columbus and his famous demonstration with the egg, he had solved the problem. For with a bivalve speculum exposing well the vagina, what was

his delight to witness the blood from his incisions coagulating in a pool in the posterior fornix of the vagina, while the menstrual blood dripped steadily and remained uncoagulated and incoagulable in its receptacle. This was in 1910.

The field of this experiment was then transferred to cases of bleeding uteri with similar results. It is a very simple procedure, extremely interesting, and very convincing, as shown in a case which fell into my hands just recently of a young woman who when examined under an anesthetic revealed no pathological condition to account for the bleeding. With the cervix well exposed with a bivalve speculum, the fluid blood was seen steadily oozing from the external os. Steadying the cervix with a tenaculum, a slight incision was made into the uterine tissue at the juncture of the anterior wall of the vagina with the cervix. Hemorrhage from this incision continued for a moment or two and then the blood coagulated and bleeding stopped. By means of a sponge, this blood was not allowed to mingle with the blood from the uterus. An incision was then made in the posterior lip of the external os just where the blood was issuing

from the uterus. The hemorrhage was quite profuse, but, owing to its admixture with the blood from the interior of the uterus, no clotting occurred, and a pool of liquid blood collected in the posterior fornix. This demonstrated that not only was there a substance in the blood which, passing through the walls of the endometrium, prevented clotting in it, but also inhibited clotting in the blood which came from the cervix. This mingled blood to the amount of nearly half an ounce was collected in a glass vessel, where it remained in a liquid form for three days. Moreover, samples of this blood when mingled with thrombokinase failed to coagulate, in other words, it was incoagulable.

This simple experiment, which has been many times repeated, settled definitely the question that the seat of change from coagulability to incoagulability resides in the endometrium. What, then, has happened to the constituents of the blood in its passage through the endometrium? Cristea and Denk entered upon the problem on the theory that some constituent had been filtrated from the blood, that the endometrium was a sort of sieve to filter out the coagulating factor—the dialytic process. Contrary to their expectations their experiments resulted in proving conclusively that neither calcium, fibrinogen, nor ferment is noticeably absent. If any of these essential factors to coagulation had been abstracted from the blood, the artificial incorporation of any one or all of them into the menstrual blood would produce coagulation. It is found, however, that such artificial incorporation into the menstrual blood does not induce coagulation. This simple syllogism therefore brings us to the conclusion that the endometrium does not withhold any of the known essentials to coagulation. This conclusion finds additional confirmation in the fact that the fluid secreted by serous membranes possesses all the essentials to clotting, with the exception of thrombokinase, and that the addition of this element promptly induces coagulation.

Sturmdorf and succeeding investigators were thereupon driven to the conclusion that there must be some inhibiting element generated or evolved in the endometrium. Many such inhibiting substances are known. For example, it is a matter of common observation that icteric patients are hemorrhagic. Morawitz and Bierich have demonstrated that the bile circulating in the blood creates a toxin which antagonizes thrombokinase and thus renders the blood incoagulable. It has been discovered that the citrates, oxalates, and fluorides check coagulation by precipitating the calcium of the blood. Hirudin, an extract of the common leech and therefore a physiological substance, has a powerful inhibiting property, one part of this being capable of inhibiting coagulation in seven thousand times its weight of blood.

The possibilities of a physiological process producing an inhibiting substance was demonstrated by the French physiologist, Delezenne, who in 1898 discovered that peptone, after passing through the hepatic circulation, generates an inhibiting substance which renders the blood so incoagulable that in itself it is capable of inhibiting coagulation in other blood with which it is mingled.

It is but fair to state that Cristea and Denk, whom we have already cited as authorities in these investigations, reject the possibility of the presence of such an inhibiting body in menstrual blood. They base their contention upon results of two experiments, in one of which six drops of menstrual blood, and in the other, a filtrate of endometrial tissue failed to inhibit coagulation in one drop of blood taken from the finger tip and placed upon a glass slide. The element of error in this experiment, or rather the conclusion to be drawn from it, is clearly apparent. It is a well known fact, many times demonstrated, that none of the many substances known to possess inhibiting power upon coagulation, and which properly fall within the scope of our study, exhibit that power in the presence of formed fibrin, i. e., they must accomplish their work before the fibrinogen and the fibrin ferment have combined. Now the production of formed fibrin in the blood and the ocular recognition of the formed clot are separated by a widely distinctive period of time. As Sturmdorf says, "The process of fibrin formation is practically instantaneous, while the clotting is a subsequent event resulting from the contraction of the formed fibrin. Our modern means for the registration of coagulation cannot take cognizance of the moment of fibrin formation." By actual experiment the time that must elapse from the drawing of the blood until fibrin becomes apparent is about one minute and a half, or ninety seconds. An interesting experiment is to place upon the aseptic finger a drop of methylene blue, then with a needle to pierce the finger through this methylene blue; upon withdrawing the needle a drop of blood follows which instantly mingles with the methylene blue. Hastily touching this with a glass slide and covering the adherent fluid with a cover glass and placing it under the microscope, shreds of fibrin will be seen forming in a manner resembling crystallization, the shreds of fibrin shooting across the field like crystals. In the course of a minute and a half to two minutes a clot begins to form. But inhibition of coagulation means the prevention of fibrin contraction. It thus becomes evident, again to quote Sturmdorf, that "in Cristea and Denk's experiment the coagulation that took place in the drop of normal blood upon the glass slide does not prove the absence of an inhibitor in the added menstrual blood, because that drop of normal blood already contained formed fibrin." The process of coagulation, therefore, was bound to result, the formed fibrin being already present.

It is obvious that the active fully formed fibrin ferment cannot be present as such in the circulating blood. It has been found, however, that after coagulation is completed an excess of this substance is invariably found in the coagulum and serum, where its continued activity is checked by an inhibiting substance termed antifibrin. The existence of this element has been demonstrated by Mellanby, Morawitz, Jorsen, and others. Conradi, in 1902, published the results of experiments in which coagulation inhibiting substances of unknown nature, which he named antithrombins, were generated in the aseptic autolysis of organs. These substances are distinguished from antifibrin in their stability

under high pressure. These findings have been confirmed by later investigators. Dienst has recovered antithrombin from hyperplastic endometria.

It is reasonable to infer that these same substances are present in the circulating blood. Were it not for the provision of this antiferment, coagulation once induced must necessarily extend to the last drop of circulating blood. On the other hand, were it not that the fibrinogen exercises a much greater avidity for fibrin ferment than for the antiferment, a hemorrhage once started would continue indefinitely.

Histologically the bleeding endometrium represents those very conditions recognized as conducive to the generation of both antifibrin and antithrombin. The blood escapes into the uterine cavity not merely by a rupture of the subendometrial capillaries, as generally supposed, but principally by an autolytic disintegration of the capillary wall.

In these cases the routine curettage not only fails to control hemorrhage, but, by lacerating the subendometrial bloodvessels, augments the bleeding in proportion to the thoroughness with which the curettage is done.

What is the activating motor centre that awakens, regulates, and controls this autolytic disintegration of the subendometrium capillaries? Loeb, Fraenkel, Dr. Anne Louise McElroy, and others have demonstrated that certain phases in the developmental cycle of the corpus luteum regularly initiate concomitant morphological changes in the endometrium. Following up this suggestion we are led to believe that the ovary—the corpus luteum—plays its part in menstruation just at this juncture.

As a coadjutor in this function, it is quite possible that the thyroid gland has a part to play. It is a well known fact that in certain lower forms of animal life there is an anatomical continuity existing between the thyroid gland and the uterus. It is likewise recognized that uterine hemorrhages are accompanied by hyperthyroidism, also that pubescent menstrual bleeders and pregnant women frequently have enlarged thyroids. All these facts taken in connection with the observation that preclimacteric hemorrhage often persists after complete oophorectomy and that cretinism is attended by amenorrhea—all these facts, I say, point significantly to some form of vicarious biochemical relation between this ductless gland and the ovaries in the initiation of endometrial activity. I am conscious of the fact that this suggestion is leading us into what is for the present a rather nebulous clinical vista of the correlated physiology of the ductless glands and their internal secretions. But that is the wonderland from which we are absorbing light to illuminate many formerly obscure processes. It is to this point that scientific investigation has arrived in this interesting field of investigation, and here we must rest for the present. All these facts, however, are full of suggestion and inspiration for further inquiry.

Since I began writing this thesis a very interesting article has appeared from the laboratory and pen of Schickele (*Archiv für Gynäkologie*, xcvi, December, 1912). He adds little or nothing to

what has already been set forth, but confirms them all in a most satisfactory way. He states emphatically that we must part with the word endometritis and likewise chronic metritis in connection with these cases. They are all to be explained, he says, by disturbed function of the uterus through its vasomotor nerves. The same can be said about bleeding myomata and polypi. These are either accidental findings or an expression of a local hyperfunction of the endometrium or of circumscribed portions of the myometrium. Hitschmann and Adler have already shown that many of the changes in the endometrium which formerly passed as hypertrophic or hyperplastic glandular endometritis are merely physiological changes incident to the menstrual cycle.

TREATMENT.

What, then, are the practical lessons to be gleaned from this? First we have learned that the curette, except for diagnostic purposes, has no place here. Ergot has no call for its exhibition in these cases, and, by the same token, the new addition to our pharmacopeia, pituitrin, is disbarred—muscular uterine contractions are of no avail. The physiological indications are to reduce blood pressure and stimulate the central regulating centres, viz., the ovaries and thyroid gland, and through them the endometrium, to fuller performance of their functions.

From the standpoint of treatment the cases must be divided into two classes—the pubescent and the climacteric. In the latter case the one suspicious etiological factor that must ever be kept in mind and definitely determined, for or against, is cancer. When located in the cervix its presence can be determined by excising a sufficient bit of tissue for microscopical examination. And when located at the fundus the curette can be resorted to, although a very unreliable method. In cases in which the pathologist returns a negative report and hemorrhage continues, I am an advocate of dissecting the bladder from the uterus and slitting up the anterior uterine wall sufficiently to permit of careful examination of the interior of the uterus by touch, and even by sight. This may lead to the discovery of a small polyp or it may confirm the suspicion of malignancy, when appropriate treatment can be applied; in the one case removal of the polyp and in the other hysterectomy. If nothing is found, what then? Live steam has been employed to destroy the endometrium. With this I have had no experience, but would prefer to take the risks of a hysterectomy.

In cases of girls or young women, I am satisfied that curettage, ergot, pituitrin, have no efficacy. At present I am interested in supplying whatever deficiency may exist in the internal secretions of the ovaries and the thyroid. I have two such patients now who are taking extract of corpus luteum and thyroid extract. All I can say at present is that these patients are improving.

To meet the immediate symptoms in these cases the indications are for rest in bed with the foot elevated and firm packing of both uterus and vagina to restrict the blood supply to the uterus. As a final

resort hysterectomy is indicated—sometimes is imperative to save life.

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171 WEST SEVENTY-FIRST STREET.

MENSURATION AND PROJECTION OF THE POSTERIOR URETHRA AND VESICAL FLOOR BY MEANS OF POSTERIOR URETHRAL CALIPERS AND RADIOGRAPHY.*

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The purpose of the preliminary study was to locate the prostate and the posterior urethra as one zone, and the floor of the bladder low down as another zone, in radiography of the bladder for calculi. The aim of this final study and report is to verify and, if possible, to improve the findings of the preceding contribution. In the investigations of a year ago, it was noticed that the lead covered lisle thread, flexible instruments, especially the catheter illustrated in the preceding article, were the ideals, in that retraction of the catheter until outflow from the bladder just ceased would locate the sphincter vesicæ by the tip of the instrument. Unfortunately, however, the impregnation of the catheter with lead was not dense enough to show with sufficient distinctness in contrast with the argyrol content of the bladder.

For this reason, resort was had to the metal bougie-à-boule passed into the bladder and a small uterine curette with its beak right angled, passed over the shaft of the bougie to the surface of the prostate located by rectal touch. Withdrawal of the bougie until the casual jump through the sphincter was felt, was regarded as locating the muscle with sufficient accuracy. Variations in the position of the muscle, however, as thus shown, seemed to be misleading and possibly erroneous.

It was, therefore, determined to make a special instrument combining the features of a catheter by means of a hollow shaft, those of a bougie-à-boule

by means of a conical head, and those of a urethral calipers by means of an olive ball one cm. long and placed one cm. back from the conical head, itself one cm. long. The inlet of the catheter shaft is at the midpoint of the space between the two prominences and hence 1.5 cm. back from the extreme tip. Inasmuch as the average posterior urethra in the male is about three cm. long, it was accepted that when the instrument is withdrawn sufficiently to stop outflow by closing of the muscle behind the conical head and over the inlet hole, the olive indicator would be approximately at the midpoint of the prostatic urethra. In this manner it was regarded that the one instrument would show in the same photograph the position of the bladder floor with the conical tip lying upon it, the middle of the prostatic urethra with the olivary body in that, and the sphincter vesicæ between the two.

Uniformity of observation from case to case was striven for by the following details, namely, the position of the patient, the direction of the x ray cone, the plane and angle of the doublehead catheter bougie, and the distention of the bladder. The position of the patient was uniformly on the back with trunk, pelvis, and limbs in a straight line upon a plane table. When possible, the bowels were empty. The direction of the x ray cone was about ten degrees from the horizontal, in the sagittal plane of the body, with the lower rim just over the symphysis pubis and with the opening of the cone crowded into the abdominal wall as much as comfort would allow. This is the usual adjustment of the cone for bladder work and was, therefore, regarded as best for our study.

The plane and angle of the doublehead catheter-bougie was respectively in or parallel with the sagittal plane of the body in correspondence with the center of the x ray cone and forty-five degrees with the top of the table. Thus in the male, the centre of the cone, the penis, the instrument, and the scrotal raphe and in the female the cleft of the vulva, were all in the same plane. Rotation of the instrument to right and left was prevented by its handle, which always indicates the direction and the plane of the doublehead. Figure 1 shows the instrument attached to a 45 x 45 degree triangle, proving that at this angle the beak is nearly horizontal within the bladder, which is a much to be desired relation, and illustrates also the obvious features of the instrument already described, including the hose connection.

Distention of the bladder was limited by discomfort of the patient, on the ground that doubtless the same relative condition in each would best be secured by conforming with this degree of dilatation, which in normal cases varied from 250 to 300 c. c. and in abnormal cases was 100 c. c. or slightly above it. The opaque fluid adopted was collargol, at first 12.5 per cent. When it was found that this strength

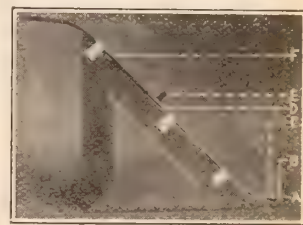


FIG. 1.—Doubleheaded catheter bougie-à-boule or prostatic calipers: A, conical intravesical head; B, catheter inlet and muscle space; C, prostatic olive; D, shaft; E, handle and index of plane and position of head; F, rubber connection tube.

*Read before the American Urological Association at the Annual Meeting in Philadelphia, June 18, 19, 20, 1914, in completion of the Preliminary Study and Report by Victor C. Pedersen and Lewis Gregory Cole, *Transactions of the A. U. A.*, 1913, vii, pp. 212 to 222, both inclusive, and *NEW YORK MEDICAL JOURNAL*, June 21, 1913.

tended to obscure the position of the bougie, dilution to six and finally three per cent. was used. Thus it will be understood that where the instrument shows



FIG. 2.—Illustrating conditions in Case I.

best the weakest concentration was employed. It is felt that the departure from the methods employed in the preliminary study have been advantageous, subjectively to the patient in that the passing of one instrument was vastly less distressing than the bougie-à-boule and curette or the flexible bougie and mandrel, and objectively to ourselves in that the exact extent of the floor, of the neck of the bladder, and prostatic urethra, was instantly measured and projected.



FIG. 3.—Showing conditions described in Case II.

The cases studied are divisible into two groups, namely, normal and pathological, and in each: male and female. Normal cases were those without lesions of the bladder cavity or the prostate, while abnormal ones were those with prostatic change and vesical condition, whether inflammatory or postoperative. Thus under the normal class are included the victims of cured or nearly cured anteroposterior chronic urethritis, syphilis, and the like. Normal male cases are taken first as just specified, including the patients without lesions in any way affecting the bladder. Into this group fall Cases I to VIII, both inclusive.

CASE I. E. B., March 13, 1914, single, white, German, salesman, aged twenty-four years (St. M. H. Case No. 13,050); syphilis second stage; family and past history omitted. Nine or ten months ago the patient acquired syphilis; treatment with neosalvarsan and mercury; no bladder symptoms; negative physical examination.

April 10th, prostatic catheter calipers inserted, bladder dilated with three per cent. collargol solution up to slight discomfort. Catheter calipers then withdrawn until out-

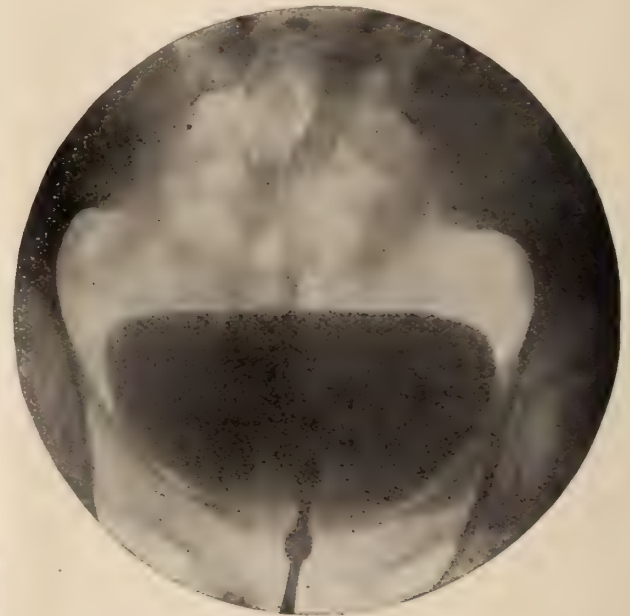


FIG. 4 (Case III).—The instrument is very clearly outlined with the prostatic olive and the anterior pouch just below the line of the pubic bones with the neck, outlet, and retroprostatic pouch following in the order named. The peculiar flattened shape of the bladder makes it impossible to designate the position of the axis, while its extent to the pubic rami on each side is again suggestive of a relation with Poupart's ligament and the hernia field.

flow just ceased, even in drops, and held in the midplane of the body at about 45° to the table. The position of the midpoint of the prostate in the line of the symphysis of the neck of the bladder just above it and of the bladder floor carrying the conical tip of the instrument, are beautifully shown, likewise the transverse axis of the bladder in the plane of the ischial spines. The distention in this patient was only 200 c. c.

CASE II. C. M., July 18, 1913, single, white, Jew, stone-cutter, aged twenty years (St. M. H. Case No. 4,284); pollakiuria; family and past personal history wanting; present personal history, for two years had frequency of urination. Physical examination negative; prostate normal; urine clear; cystoscopy showed bladder normal with protrusion of the lateral lobe of moderate degree; urinalysis negative.

April 22, 1914, patient and instrument adjusted in the usual way. The peculiar pyriform shape of the bladder, with a distinct projection downward under the symphysis beyond the prostatic olive, was noted. Its faintness indicated it to be in the anterior inferior quadrant. The outlet of the bladder was approximately two c. c. above the

symphysis. As in the preceding case, the peculiar form of the bladder made it impossible to say that the main axis was as usual across the ischial spines, and marked the position of the retroprostatic pouch.

CASE III. M. K., February 10, 1914, single, white, Jew, combmaker, aged nineteen years (St. M. H. Case No. 12,365); masturbator; family and past personal history negative; present personal history seemed to depend on his habits. Complained of progressing ardor urinæ without discharge or real pain. Physical examination, prostate normal, urethra sensitive but admitted 26 sound easily. Cystoscopy and catheterization of the ureters normal. The usual preliminary for the x ray examination. Bladder accepted only 200 c. c. perhaps because the patient was of special type. (Fig. 4.)

CASE IV. J. S., March 6, 1914, single, white, salesman, aged twenty-six years (St. M. H. Case No. 12,403); family history negative. Gonorrhea five years ago, cured in a hospital. For the past three weeks had a watery discharge; urination normal. Physical examination, prostate slightly enlarged.

March 7, 1914; instrument inserted; bladder dilated as before and outflow checked in the usual manner. It will be noted that the prostatic olive was again in the line of the symphysis, while the neck and the floor of the bladder were respectively proximal to it. The main shadow of

had pus in his urine; no indication of kidney or renal involvement.

April 1, 1914; usual technical details for the x ray, using the prostatic catheter calipers. In this case the patient

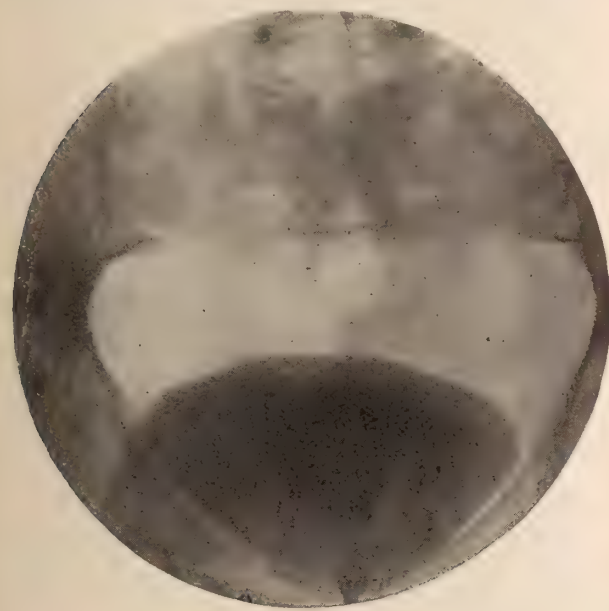


FIG. 5.—Conditions described in Case iv.

the bladder passed, as should be expected, between the two heads of the catheter calipers, while the faint shadow of the pouch of the anterior inferior quadrant passed just below the olive. The lateral projection on the patient's right being of faint shadow, possibly indicated a relation of this portion of the bladder with Poupart's ligament and the hernial canal.

CASE V. L. C., July 29, 1913, single, white, Jew, jeweler, aged nineteen years (St. M. H. Case No. 4,472). Anteroposterior urethritis with cystitis. Present history began with gonorrhea nine months ago, never well since.

May 10, 1914. The usual arrangement of apparatus and patient was adopted and the x ray plates were taken with a weak solution of collargol. The bladder in this patient again lay above the shadow of the symphysis, so that the prostatic olive, the neck, and the vesical cone head were in their order, also well above the bony pelvis, so much so that the tip of the instrument was only 1.5 cm. below the interspinous line, which, however, seemed to indicate the main axis of the bladder and where stones should lie in the retroprostatic pouch.

CASE VI. P. H., May 13, 1913, single, clothing operator, white, Jew, aged twenty-three years (St. M. H. Case No. 1,358); chronic anteroposterior gonorrhea; family and past personal history negative; present history dated back five years to a gonorrhea since which time he had always



FIG. 6 (Case v).—Bladder above the shadow of the symphysis.

accommodated more than 300 c. c. of collargol. The main transverse axis of the bladder seemed to lie between the two ischial spines, but the viscus as a whole was placed high so that its shadow cleared the symphysis, even that of the pouch in front of the prostate in the anterior inferior quadrant. Correspondingly also the prostatic olive, the neck of the bladder, and the vesical head of the instrument were much higher than in the previous cases.



FIG. 7 (Case vi).—Bladder high so that its shadow clears the symphysis.

CASE VII. F. G., February 24, 1914, single, white, printer, aged twenty-one years (St. M. H. Case No. 12,606); family history good; contracted gonorrhea seven weeks ago,



FIG. 8 (Case VII).—Vesical bougie above, and prostatic olive just at line of pubic bones.

profuse discharge; few other symptoms; physical examination normal.

March 20, 1914, prostatic catheter calipers inserted, bladder dilated with six per cent. collargol solution up to moderate pain; catheter then withdrawn until outflow stopped and held as before. The vesical bougie lay well above, and the prostatic olive just at the line of the pubic bones, an arrangement which would point again to the correspondence of the retroprostatic pouch with the interspinous line. This bladder was not only irregular in shape, but had a distinct pouch projecting from its anterior aspect downward over the prostate to beyond its middle point.

CASE VIII. L. A., March 24, 1914, single, Russian baker (St. M. H. Case No. 13,324). One previous attack of urethritis, present illness six months, incubation

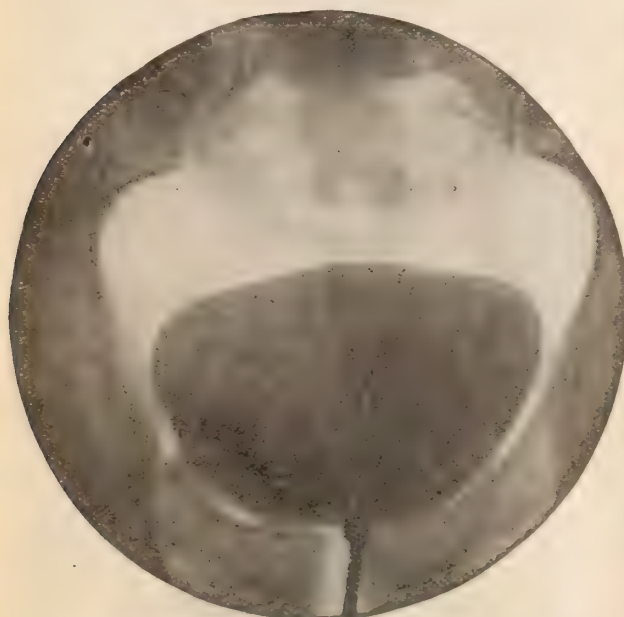


FIG. 9 (Case VIII).—Vesical bougie obscured by shadow of collargol; prostatic bulb at superior angles of pubic bones.

four days; existing condition, white discharge and ardor in the deep urethra; gonococci present; complement test negative, physical examination negative.

April 24, 1914, prostatic catheter calipers inserted, bladder dilated with 12.5 per cent. collargol solution up to slight discomfort. Catheter calipers then withdrawn until outflow just ceased and held in the midplane of the body at about 45° to the table as in all the other cases. It will be noted that the vesical bougie was somewhat obscured by the dark shadow of the collargol and that the prostatic bulb of the instrument was at the superior angles of the two pubic bones. This position would make the depression of the bladder floor behind the prostate about three cm. above the tip of the vesical bougie which would reach the line joining the shadows of the spines of the ischia. This is the normal position for stones. The peculiar ovoid form of the bladder was combined with a projection forward beneath the symphysis so that its shadow crossed the prostatic urethra not far from its middle point.

PATHOLOGICAL MALE CASES.

Under this heading are given examples of conditions affecting the bladder such as stone, diverticu-



FIG. 10.—Ordinary x ray picture of bladder in Case IX.

lum, neoplasm, and the like. Cases IX to XII, both inclusive, make up this series.

CASE IX. M. De L., January 6, 1914, single, Italian, musician, aged sixteen years (St. M. H. Case No. 11,100). Family and former personal history negative. Denied intercourse and any sexual or urinary disease. Since he could remember he had had pain along the urethra, during and after urination, increased on exertion. Bloody urine on three occasions, last about Christmas, 1913. About two years ago, patient said he had passed sand in his urine, for a month following medication. Complained much of pollakiuria; must get up two or three times at night to urinate; stream often stopped suddenly and began again after effort. Urinalysis showed slightly turbid urine, 1,017, negative albumin and sugar, normal urea, innumerable oxalate of lime crystals. Diagnosis oxaluria. All treatment except medication at first refused, finally submitted to meatotomy and cystoscopy, January 27th, when three stones were seen, each about the size of a marble, side by side in a line in the transverse axis of the bladder.

January 7, 1914, an ordinary x ray of the bladder was taken and showed the stones lying in the line side by side between the two ischiatic spines, exactly as seen in the cysto-

scope later. Cystoscopy at which his brother saw the stones alone induced him to submit to operation. The stones were removed, January 30th, by litholopaxy. Fig. 10 shows the results of the bladder washing at this operation. Recovery complete.

May 15th, bladder dilated with three per cent. collargol up to nearly 300 c. c. through the instrument. It was found that the pubic symphysis crossed below the shadow of the bladder throughout and that the prostatic olive marked this gland as hardly under cover of the symphysis. The neck of the bladder and the outlet were therefore placed rather high as was also the transverse line between the two spines (Fig. 11).

CASE X. H. V., December 17, 1913, single, Italian, tailor, aged twenty-eight years (St. M. H. Case No. 10,634). Diverticulum of the bladder, chronic anteroposterior gonorrhea. Family history negative. Had gonorrhea eight years ago; much inadequate treatment; moderate, chiefly morning discharge. Present condition, frequent urination, occasional pain around the perineum and symphysis. Urination otherwise normal. Morning drop of pus. After coitus had the aforesaid pain in his perineum. Physical examination, urine loaded with urates; prostate moderately enlarged, 28 sound easily passed. Gonococcic

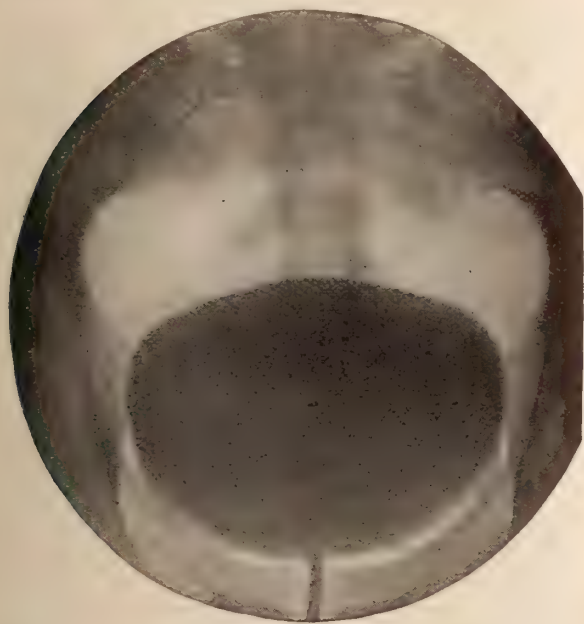


FIG. 11 (Case IX).—Prostatic olive, showing prostate hardly under cover of symphysis.

complement fixation test negative. Intracellular Gram negative, diplococci in the pus. December 23d, cystoscopy showed bladder as a whole and right ureter normal. The left ureter had two openings, one normal in form, size, and position and the other above and lateral to it, folding about it much as the foreskin of the clitoris does in a woman. Urethroscopy showed the urethra as a whole in fair condition with few enlarged mucous glands, having a tendency to evacuate themselves into the field. Ducts of right prostatic sinus discharged freely and ulcer or sinus in the left prostatic sinus was obvious. Suggested diagnosis, chronic prostatitis, catarrhal urethritis. The suspected double ureter was then investigated with the results shown in Figs. 12 to 17.

Figs. 12 to 17, therefore, indicate normal kidneys, ureters, and bladder, except the small diverticulum on the left side. Removal of the diverticulum is desirable at no remote date, as most of them prove fatal in later life through decomposition of urine, lithiasis, infection, and the like.

April 24, 1914, the patient was prepared as usual and the bladder distended well with six per cent. collargol. It was hoped that the diverticulum would show in this case, notwithstanding the previous experiment demonstrated in

Fig. 14. The prostatic catheter calipers showed beautifully with the cone head just above the neck, and the prostatic olive just below the symphysis pubis. The usual

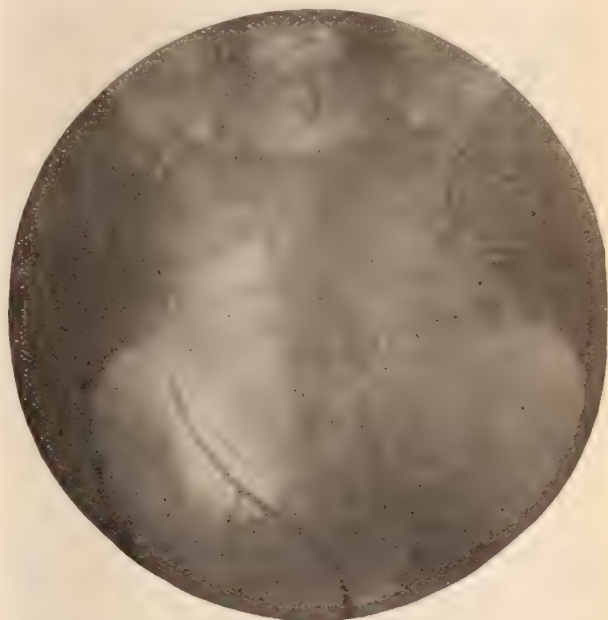


FIG. 12.—Zebra catheter coiled twice in the diverticulum, while the plain catheter is in the normal urethra slightly beyond the upper limit of the diverticulum.

supraprostatic pouch of the anterior inferior quadrant of the bladder was extremely well shown. Although the bladder as a whole was slightly back of the line of the symphysis pubis and its rami, the floor and the prostate did not appear to be elevated, as just seen in Figs. 6 and 7.

CASE XI. E. D., April 18, 1913, married, Irishman, ironworker, aged thirty-nine years (St. M. H. Case No. 780). Family and personal history not given. Past personal history: Five months ago was treated for enlarged prostate by the late Dr. Kingman B. Page and cystoscoped several times. Some frequency, slight pain near the meatus, weight in the rectum, desire to defecate after a meal. Hard



FIG. 13.—Representing the zebra catheter passing through the normal urethra to the kidney, and the plain catheter coiled upon itself until its tip just protruded from the mouth of the diverticulum.

feces. Flatulence. No discharge now. Sexual desire absent. Rectal examination, left prostatic lobe large and hard. With 500 c. c. of boric acid water in it, bladder per-

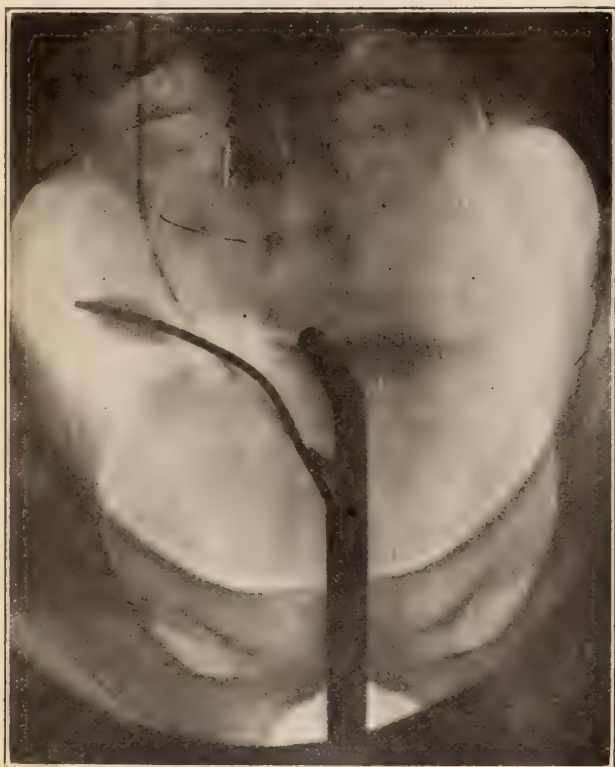


FIG. 14.—Representing the zebra catheter passing to the kidney and the plain catheter in the diverticulum as far as it would go without coiling. The shadow around the end of this catheter is 12.5 per cent. collargol injection, until it began to flow out of the mouth of the diverticulum.

cussed four fingerbreadths above the symphysis; disappeared from treatment until April, 1914; on the 4th cystoscopy showed bladder mucosa normal, prostatic lobes



FIG. 15.—Pyelograph of the left kidney being the same side as that on which the diverticulum is situated. The zebra catheter is plainly seen, even to the upper limit of the pelvis.

very much enlarged, bulging into the bladder, especially the left. Much infolding of the mucous membrane at the site of the lobe. No obvious signs of cystitis.

April 7, 1914, usual preparations; instrument inserted and about 200 c. c. of six per cent. collargol run in. Although he had previously tolerated 500 c. c. of boric acid a year ago, his bladder appeared irritable, if not contracted. The position of the middle of the prostatic urethra, neck of the bladder, and mouth of the bladder are clearly indicated by the double head catheter. Why the bladder should have assumed the form of a woman's hat, it was hard to say, unless the picture was taken at a moment when a wave of muscular spasm was passing over the bladder. The suggested diagnosis in this case was sarcoma of the left lobe of the prostate. It will be noted that the greatest deformity was over the left half of the viscus. Nevertheless the main axis of the organ seemed normally placed across the ischial spine.

CASE XII. T. M., December 9, 1913, single Italian, tailor, aged twenty-eight years, chronic anteroposterior gonorrhea (St. M. H. Case No. 10.447). Personal history: First infection eight years ago, second infection seven years ago; had suffered from morn-



FIG. 16.—Stilet catheter in the right urethra, showing the normal direction and the course.

ing drop ever since. Testicular pain during sexual excitement. Physical examination, negative except first urine cloudy, second clear. Five glass test showed posterior disease. Cystoscopy negative. Catheterization of the ureters, kidney sufficiency test, radiography of the urinary tract, all negative. They were suggested by his insistence on definite testicular pain on the right side. Urinalysis of mixed and separate specimens negative. No definite bladder symptoms of any kind.

January 7, 1914, bladder filled at the usual preliminaries and the instrument introduced. In this instance the retro-pubic pouch of the bladder in front of the prostate in the anterior inferior quadrant was large and the main bladder shadow high in the pelvis, so that the olive was one cm. above the symphysis, followed by the shadow of the neck and head. It seems that the main axis of this bladder would have to be above the usual line between the spine, and that therefore a stone within it would have to lie really high.

NORMAL AND PATHOLOGICAL WOMEN.

Women were also taken for the sake of comparison. Under this heading are cases XIV, xv

and xvi. It was determined to compare the male and female bladders, and for this reason a young girl was taken as the normal standard and three pathological cases were also secured. The results are noted in each case.

CASE XIII. E. S., December 9, 1913, single, German-American, millworker, aged sixteen years (St. M. H. Case No. 10,429). Acne vulgaris facialis. Family history negative. Personal history negative except for the usual illnesses and mishaps of childhood. Had had acne and imperfect health for some months. No sexual, bladder, or urinary symptoms.

April 22, 1914. The standard process for the study of this matter was adopted. At least 300 c. c. of collargol were used and a pyriform bladder revealed, tapering into a projection below the line of the symphysis and crossing as to its shadow the midpoint of the urethra, shown by the olive head, while the neck of the instrument marked the neck of the bladder just at the symphysis, and the cone head lay in its outlet some distance within the viscus.

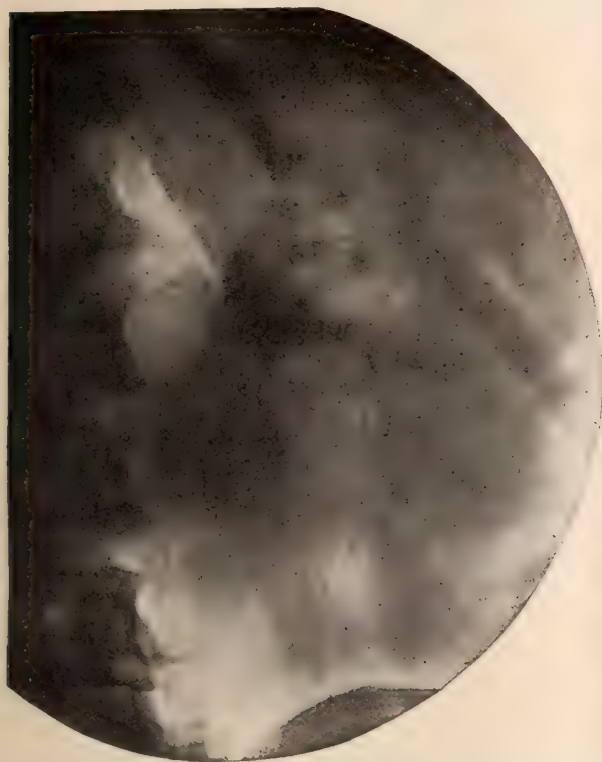


FIG. 17.—Pyelograph of the right kidney. The catheter does not show well passed up to it, and there is perhaps a slight turn in the urethra just as it emerges from the pelvis.

CASE XIV. M. B., March 23, 1914, United States, white, housewife, married, aged twenty-one years (St. M. H. Case No. 13,278). Was operated on for disease of the right uterine appendage at one of our large hospitals about one year ago. Had never been well since. Menstrual history normal. No childbirths and no miscarriages. Her present complaint was burning of the urine with discharge. Physical examination of the sexual organs negative, except for the results of the operation, and doubtless extension of the infection into the left side. Frequent uranalyses, two cystoscopies, and two urethroscopies failed to determine the cause of the burning. It was found that she was taking a bichloride douche after intercourse and at other times. Normal salt solution was substituted with little or no effect on the burning.

April 17, 1914, she was prepared for examination exactly as were the men. At least 300 c. c. of six per cent. collargol were injected. The very large size of the bladder was at once conspicuous, likewise the fact that the double head prostatic catheter located in the same relative position as in the male, the middle of the urethra, the neck, and the outlet of the bladder. As in the male, this

bladder had a pouch, probably in the anterior inferior quadrant, projecting below the line of the symphysis, while the bladder as a whole lay above it with its transverse axis stretched from ischium to ischium at the spines.

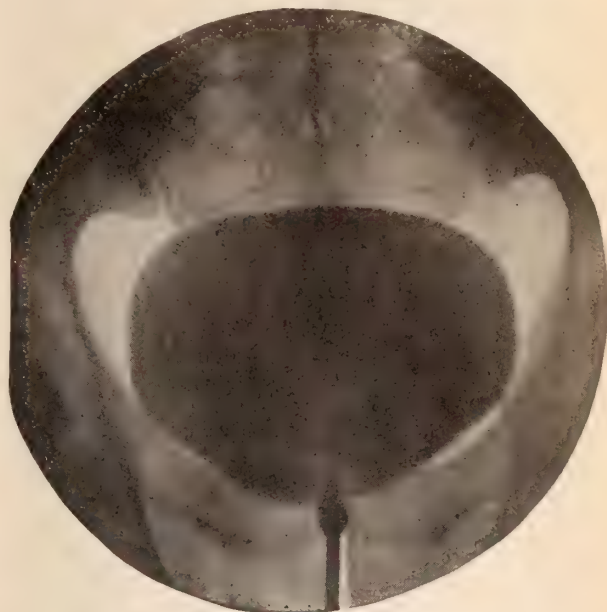


FIG. 18 (Case x).—Left ureter with two openings.

CASE XV. R. P., March 4, 1914, married, Italian, housewife, aged twenty-five years (St. M. H. Case No. 12,839). Family history negative. Seven years ago had pollakiuria and tenesmus, persisting ever since, with blood a year ago and mucus in her urine. Uranalysis showed oxalate of lime crystals, treated with diet, vesical irrigations, and urinary antiseptics. Remained improved for seven or eight months. Five months ago she thought she passed a stone the size of a lentil, since which she had been suffering again from pollakiuria, every three or four days from twelve to twenty-four hours. Neuralgic pain in her left gluteal region.

March 11, 1914, cystoscopy showed a normal right ureter, left ureter slightly swollen and enlarged, probably inflamed. Urethral catheterization and x ray investigation recommended. March 27th, a spot was noticed in the trigonum which bled when touched with the catheter. Sulphonethalein discharged on each side in three minutes and in

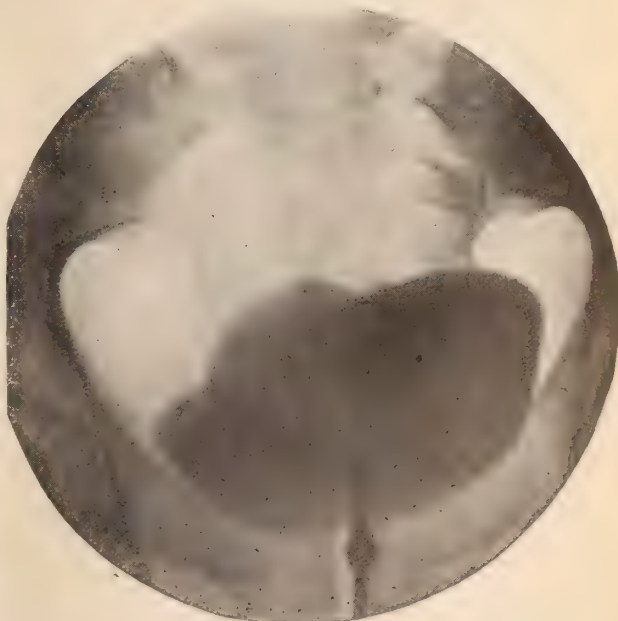


FIG. 19 (Case xi).—Probable sarcoma of left lobe of prostate.

about the same amount from both kidneys. Left ureter pervious to 6 Fr.; catheters for 20 c. c. arrested with slight bleeding; right ureter arrested by spasm at 5 cm. X ray failed to reveal stone in either kidney, ureter, or bladder.



FIG. 20 (Case xii).—Large retropubic pouch of bladder in front of prostate.

April 18, 1914, collargol study of the bladder taken with the catheter sound. The bladder was irregular in form, flattened from above downward, lying chiefly in front of the interspinous line, while its lower border almost cleared the pubic bones and rami. The doublehead catheter sound showed that the middle of the urethra was just above the symphysis, duly followed by the neck and outlet of the bladder, whose shadow crossed the olive head without, however, the peculiar pouching seen in so many of the preceding cases.

CASE XVI. M. P., March 4, 1914, married, several children, housewife, Italian, aged thirty-five years (St.

M. H. Case No. 12,840). Family history, negative. Personal history, had four abortions. Present history: About fourteen years ago had bloody urine, pollakiuria, and tenesmus; eleven years ago epicystotomy for multiple stone at one of our large hospitals; ten months later, cystoscopist in the same hospital diagnosed a papilloma in the neck of the bladder; treated and cured in one year; unable to state details of treatment, but the symptoms continued, bleeding, pollakiuria, and tenesmus. A second epicystotomy was undertaken without result, so that a year ago a third was done and a large stone removed, of egg size. Present condition was that she urinated ten or twelve times a day and five times at night, but had no other symptoms. Physical examination, no mass, pain, or tenderness in the kidney. Uterus retroflexed and right appendage tender. Cystoscopy very difficult on account of contracted irritable bladder, uninfluenced by local anesthetics. One under spinal and general anesthesia refused; for this reason no urethral catheterization could be done. The bladder was that of chronic cystitis and scar tissue deformity. X ray for stone in kidney and ureter of each side negative. Patient benefited most by instillations of ten per cent. iodoform in glycerin.

April 18, 1914, usual preparation for examination of the bladder with the double headed catheter and collargol. Results showed a much distorted bladder shadow with the

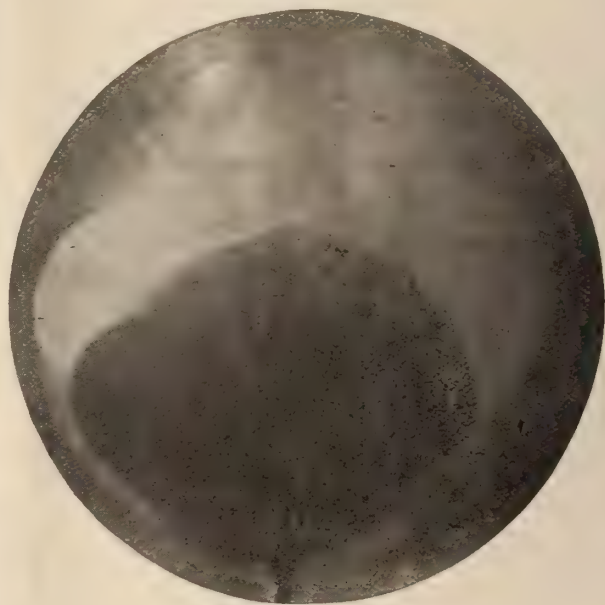


FIG. 22 (Case xiv).—Large female bladder.

outlet just above the pubic symphysis, the neck slightly invaded by a collargol shadow, chiefly on the patient's left, and the middle of the urethra just below the symphysis. The capacity of the bladder was about eighty cm. and although the author was most cautious not to permit expulsion of the head of the instrument, this might have occurred, although there was no leakage around the instrument into the vulva and vagina, which would tend to show that the instrument did not slip. The shadow of the bladder as a whole was farther up in the pelvis, away from the bony frame than in that of any other patient of this series.

A few of the plates were unsatisfactory and had to be discarded as valueless for this study. Two, however, in Cases xvii and xviii are retained, for the reason that they show unusual lateral development of the bladder, so much so that a relation with the general position of the inguinal canal is suggested. This is particularly true of Case xvii. Case xviii has in addition a very pronounced projection in the anterior inferior quadrant. It would be an interesting study to take a number of bladders for the determination of the proportion which may

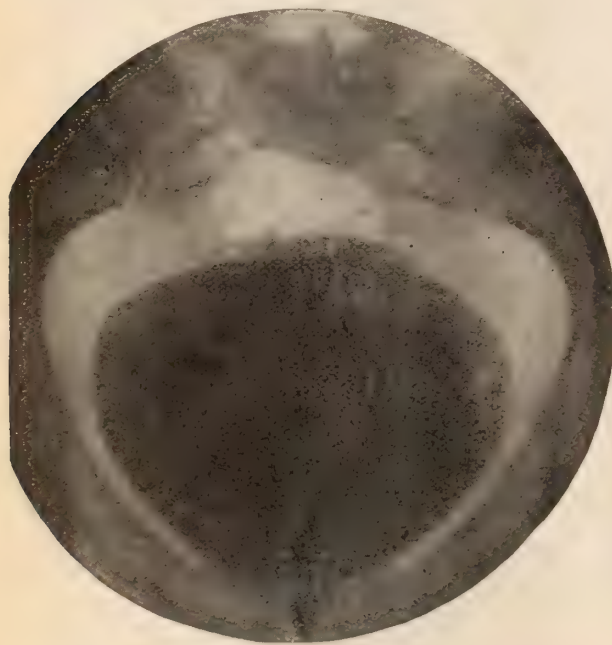


FIG. 21 (Case xiii).—A pyriform bladder.

be shown to extend toward the general field of hernia work.

CASE XVII. J. B., July 22, 1913, waiter, aged twenty-nine years (St. M. H. Case No. 4,366). Syphilis secondary stage. Family and personal history lacking. Present history, infected with syphilis two years ago; regular treatment chiefly at dispensaries. No bladder symptoms.

April 24, 1914, instrument and bladder managed as usual; the same findings were present, namely that the prostatic olive was just within the line of the symphysis, while the neck and the floor of the bladder were indicated in the usual way. This patient tolerated nearly 300 c. c. of collargol and showed a bladder without the projection of the anterior inferior quadrant, but with wide lateral projections which must have been on the bladder floor because they were so dark. If the shadows were lighter, one would conclude that they were in the anterior part of the bladder just beneath Poupart's ligaments. The line of the retroprostatic pouch was again suggested by the interspinous line.

CASE XVIII. B. T., October 21, 1913, single, German, chauffeur, aged twenty-nine years (St. M. H. Case No. 9,277). Chronic anteroposterior gonorrhea. Family and past personal history not taken. Was under care at one of the large hospitals for gonorrhea and stricture. Urethroscopy

heads and neck at once reveal the position of the bladder floor, the neck and the prostatic urethra surrounded by the prostate gland. The method of filling the bladder and of withdrawing the catheter



FIG. 23 (Case xv).—Female bladder, flattened from above downward; middle of urethra just above symphysis.

showed a papilloma in the deep urethra. Bladder normal.

January 28, 1914, prepared for a radiograph of the bladder, 12.5 per cent. collargol being used. The shadow was irregularly ovoid, with a distinct projection forward under the symphysis, probably in the anterior inferior quadrant, although the shadow as a whole was above the line of the symphysis. The two heads of the instrument were seen fairly high up in the bladder, again suggesting a prostate with enlargement. The age of the patient precluded hypertrophy of the prostate. Inasmuch as the instrument was a catheter, there was no possibility of error as to what the relation of the two heads was to the floor and neck of the bladder and the middle point of the prostatic urethra.

CONCLUSIONS.

From such a brief study, the results must respect the instrument used, the anatomy of the bladder outlet, the general form of the bladder, and a comparison with the deductions offered by the preliminary report of a year ago.

As to the double head catheter calipers used this year, one may say that it is obviously superior to the lead covered flexible instruments and to the bougie-à-boule and curette previously adopted. Its two



FIG. 24 (Case xvi).—Female bladder, shadow much distorted.

until dripping just stops, sets forth these anatomical facts with great and unmistakable definiteness.

As to the position of the bladder outlet, it will be noticed that there are the high and the low group. The low group has the bladder outlet just above the symphysis, the neck crossed by the symphysis, and the prostate gland extending perhaps three cm. distally. This would make it lie practically behind the shadow of the symphysis. Cases I, II, III, IV, VII, X, XI, among the males, and XIII, XIV among the females may be so described. The high group show even the middle point of the prostatic urethra above the symphysis. Cases V, VI, VIII, IX, and XII



FIG. 25 (Case xvii).—Unusual lateral development of bladder.

among the men may be of this type and Case xvi among the women. Case xvi might also be regarded as a failure, were it not for the reasons given under the description of the case for knowing that no slipping of the instrument occurred.

The form of the bladder is shown to vary, even under approximately the same conditions of distention. The main axis seems to lie in the interspinous line in most examples, as in Cases I to VI and VIII to X all inclusive among the men and XIII among the women. The bladder possesses a pouching into the anterior inferior quadrant which is either absent or insignificant or marked. It is absent in Cases I, III, IV, V, VI, VIII, and IX and marked in Cases II, VII, and X. The fact that it is absent in the female cases might be regarded as suggesting that it is due to the fixation of the posterior inferior quadrant by the prostate, so that the weight of the fluid falls above the gland where there is relatively



FIG. 26 (Case XVIII).—Unusual lateral development of bladder and marked projection in anterior inferior quadrant.

less support. The bladder may show lateral projections of wide extent, even without extreme distention reaching the general region of Poupart's ligament, and the hernia canal is shown in Cases III, IV, VI, and XV among the satisfactory plates and XVII and XVIII among the discarded plates. Irregularity of the bladder form due to disease is shown in Case XI, which is a suspected neoplasm, and XV, which is an ulcerous condition, and XVI, which is postoperative deformity.

It is hoped that in comparison with the preliminary report, this study is much more final. In the work of a year ago, owing to slipping of the bougie-à-boule in the hand of the operator or owing to its expulsion by the sphincter into the urethra, the bladder neck is regularly shown too low down. For the same reason and from the difficulty of passing the curette to the face of the gland, the position of the prostate is also too low, that is somewhat under the pubic arch, instead of behind the symphysis, where

the finger finds it and the x rays with the catheter calipers demonstrate it to be.

The transverse diameter of the true pelvis passes approximately through the spines of the ischia at their bases; this for the purposes of radiography of the pelvis is sufficiently accurate. This imaginary line is slightly posterior to the position of the ureters, which is also an advantage inasmuch as many lesions of the bladder begin on the floor near the ureters, while the line in deformation of the bladder floor by tumors and enlargements of the prostate occurs above the ureters first and foremost. There is normally a slight pouching of the bladder beyond this line, so that one would therefore expect the shadow of the stones in the bladder to be in this line, if the bladder is reasonably normal; above it, if there is much pouching; and below, if the bladder floor has been altered by operation.

The axis of the bladder is the same in both years' study and the pouching into the anterior inferior quadrant is the same in each series, in those of 1913 and of 1914 being absent, moderate, or marked. In the series of last year, no relation of the bladder with the hernia field was indicated.

Finally, it is believed the question has been answered which inspired these two contributions: Where lies the prostate in a radiograph of a male bladder and the urethra in one of the female bladder, so as to distinguish in the former a stone as lying rather in the bladder than in the prostate itself in cases of suppurative chronic prostatitis where the question of stone comes up?

45 WEST NINTH STREET.

ON THE PREVENTION OF CANCER.*

BY ALFRED C. WOOD, M. D.,
Philadelphia.

The ideal in medicine for which we are constantly striving is the prevention of disease. Most diseases are attended by some mortality and by more or less suffering. The absence of income during illness and the attending expenses result in an incalculable economic loss. To do away with this needless suffering and loss of life as well as the enormous cost of unnecessary illness, is the object of preventive medicine. Few diseases, if any, exceed cancer in the degree of suffering which it causes or in the average period of disability, while there is none in which the mortality is so shockingly high; and if not treated, the disease is well nigh invariably fatal.

Careful and comprehensive studies of mortality statistics point conclusively to a steady increase in the death rate of cancer. This increase appears to be practically uniform in all parts of the civilized world where vital records are kept with any effort at accuracy. With these facts before us, the medical profession would fail in its obligation to the public if it did not earnestly take up the study of the reasons for this constantly increasing occurrence of cancer, and the means by which it may be controlled. The large sums of money, now reaching a total of many millions of dollars, that have been

*Annual Oration, Philadelphia Academy of Surgery, 1914.

donated by philanthropic and public spirited citizens for the study of this problem, indicate the interest which is being taken in the matter outside of the medical profession. The casual reader of current medical literature might conclude that the serious study of the cancer problem was a matter of comparatively recent times. He might also imagine that the idea of curing a cancer was quite modern. That neither of these impressions is correct is readily established by looking a little more deeply into the subject.

As to the antiquity of cancer there can be no doubt. Walshe quotes Doctor Tanchou as stating that the first case on record occurred in the person of Mossa, wife of Cambyses, who was the son of Cyrus the Great, the founder of the Persian Empire. Cambyses succeeded to the throne upon the death of his father, B. C. 529. It is further related that Herodotus and others recorded the fact that Mossa was cured of her disease by Demeidus, a physician of Croton, without operation. All of the ancient medical writers refer to the subject. Hippocrates wrote: "It is better not to apply any treatment in cases of occult cancer; for, if treated, the patients die quickly; but if not treated they hold out for a long time." (Occult is supposed to mean internal or deep seated.) The subject received the attention of both Celsus and Galen. From that early period until the present it has never been neglected. Mr. James Syme said, in his *Principles of Surgery*, published seventy-two years ago: "The treatment of carcinoma in its different stages has engaged more attention than perhaps that of any other surgical disease."

As to the curability of cancer, the opinions of the profession today are much the same as have been expressed in medical literature from its beginning. In common with all other matters, there is ample opportunity for different conclusions. The particular conception held by any one depends largely upon the viewpoint from which the subject is examined. For instance, there are those who see no reason to advise operation, as they believe that nearly all cancer subjects eventually succumb to their disease. Others are enthusiastic because the removal of cancer by operation, as a general average, adds a year or so to the life of the patient. Still another group are very hopeful, as they believe they see a gradual, even if small improvement in the results after operation.

As a basis for comparison with the present operative results, it may be mentioned that in 1770, Mr. Hill, of Chester, reported the outcome of eighty-eight cases of cancer treated by extirpation, more than two years previously. Forty patients were alive and sound; in nine cases the disease broke out afresh; one patient was threatened with relapse; two were not cured.

In analyzing cancer statistics, it must ever be borne in mind that of all maladies none is more irregular in its course. In rare instances the time from the appearance of the first symptom to the fatal termination may not exceed a few months; while in others the disease may extend over many years. I have personally observed one patient who succumbed to axillary and intrathoracic metastases twenty-five

years after a lump in the breast had been discovered. When the woman came under observation the breast had entirely disappeared, although no operation had ever been performed. This was, of course, an extreme example of the type known as the atrophic scirrhus, which is familiar to every surgeon. These two represent the extremes, between which every imaginable variety exists.

We may hope that the problem of the cure of cancer will be solved in the near future, but doubtless preceding generations of surgeons entertained similar hopes. Judging by the experience of the past, success is not likely to follow the present methods, and I know of no recent suggestion that promises any better results.

The efforts of the profession and of the public to control the cancer plague have never been so well organized nor so active as during the past few years. An enormous amount of literature on this phase of the subject has accumulated. Practically all writers agree that the most effective means of reducing the present very high cancer mortality are: First, early diagnosis; and, second, immediate and radical removal of the growth. Neither of these recommendations is new. Education of the public in regard to the signs of cancer is proposed by some as a means of aiding in the earlier diagnosis.

First, as to early diagnosis: No one will deny the importance of the early recognition of the disease, but we must bear in mind that it seems to have been appreciated as fully, and taught as emphatically in the past as it is today. Fifty years ago Mr. Jonathan Hutchinson said: "Early diagnosis is the key to successful treatment. This diagnosis is often difficult, sometimes exceedingly so. Let me urge upon you the importance of letting your patient have the advantage of any doubt which you may feel." Many other quotations of similar import might be added, but this one will serve the object of showing that the importance of early diagnosis was quite as fully understood by the earlier surgeons as it is at the present time.

The second recommendation, of early and thorough removal as soon as the diagnosis is made, has been, I think, advised and practised by the best surgeons for a long time. As an illustration, the author just quoted, describing the case of a man who presented himself with a little foliated wart on the lower lip, said: "Of course, I did not give him any respite, but cut it out for him most freely." It may be added that at the end of three years the patient had no return of the disease.

That the necessity of early operation was well understood in the past, is perhaps even more forcibly shown by the following: "If you have a reasonable suspicion as to the sore being of a cancerous nature, and its position admits of local extirpation, at once either cut it out or destroy it in the freest possible manner by escharotics (zinc chloride). You do little or no damage by destroying or excising a syphilitic sore in mistake for a cancerous one, while you do your patient the greatest possible unkindness if you leave a cancer without interference for a few weeks while you are making up your mind as to its nature. Mistakes must now and then occur; but let us err in the safest direction when we do so."

(Hutchinson.) I have seen no statement more emphatic in the present day literature.

It has now been twenty-five years since Halsted advocated the modern extensive operation for breast cancer, a principle that was adopted almost at once by the majority of surgeons for this form of the disease, and was speedily applied to the operative removal of cancer in other regions; and yet the mortality of this disease has increased more than fifty per cent. in this period. From the foregoing it seems clear that the doctrine of early diagnosis, followed by prompt and radical operation, has been given a thorough trial, and has not given satisfactory results. Until some new test is discovered that will permit of the recognition of cancer at a much earlier date than is possible at the present time, it would appear that no further improvement can be looked for in the matter of diagnosis. Even radical surgeons admit that operative procedures have become about as extensive and thorough as it is possible to make them. There is at present no evidence that the mortality from cancer will be materially reduced by either radium or mesothorium.

The proposition that the public should be taught to recognize the earliest signs of cancer, it seems to me is not founded on sound premises. If the medical profession, especially the general practitioners, have largely failed in this important matter, upon what basis of reasoning may we expect a layman to be more successful? That it is very desirable that the public should be informed as fully as possible in all matters relating to the preservation of health, I readily admit. The important fact that all should understand, in my judgment, is that upon the appearance of any unnatural condition the advice of a competent physician should be obtained. To assume that the general public can be taught to distinguish between benign and malignant growths, or appreciate the subtle changes that are supposed to mark the metamorphosis from a simple to a malignant process, is expecting quite too much.

That better results have not been obtained by the methods that have prevailed hitherto, is due, in my opinion, to the "early diagnosis" fallacy. I think we have all failed to realize as fully as we should that the term "early," used in this connection, is purely relative and bears a very uncertain relation to the duration of the disease. In one sense a case is in the early stage, irrespective of its duration, if the malignant cells have not spread beyond the immediate vicinity of the original focus, but we have at present no means of determining whether or not this event has occurred. We know that involvement of the adjacent lymph nodes does not occur with any regularity as to time or extent, and that deposits in remote parts do not follow any known law.

It seems safe to say that in the beginning the malignant process is microscopic in its dimensions and that a considerable period elapses before the lesion could be recognized either by sight or touch, even if superficial. Not only so, but if removed in this early stage, and subjected to careful microscopic examination by several expert pathologists, it is probable that the opinions as to the character of the specimen would vary in many instances. To give but a single instance, MacCarty, speaking of one form

(breast cancer), says: "Where to draw the line between the hyperplastic changes of chronic cystic mastitis and the pictures which are definitely carcinoma is beyond my present power."

By the time the patient's attention has been attracted to the neoplasm, and a physician consulted, the process has doubtless existed at least for several months. At this point, too often, additional months are allowed to pass while the condition is being "observed" and the results of various therapeutic experiments are being noted. When the diagnosis is finally established by the presence of pain, adhesion to surrounding structures, lymph node enlargement, steady growth, etc., the term "early" can be applied only by courtesy. In some cases at this stage, the patient may be permanently relieved by removal of the growth, but the great majority will sooner or later have a recurrence.

Having dwelt at some length upon the present status of the unsuccessful struggle against the increasing mortality from cancer, I wish to refer to the possibility of preventing the disease. For the sake of brevity, the temptation to discuss even the more plausible theories relating to the cause of cancer must be resisted. Therefore, without argument, I will refer to an observation, by no means new, but apparently largely ignored, namely, that what we know as the cancer process is a manifestation occurring in tissue already abnormal. This abnormal state may be a chronic inflammation, a chronic irritation, a neoplasm, or other process not yet understood. The term "irritation" has been employed to include all these conditions. There are doubtless internal as well as external forms of irritation. That these lesions have been recognized as a cause of cancer for a long time will be apparent from a few quotations. In 1731, Lorenz Heister wrote: "When a scirrhus (the term scirrhus was formerly employed to indicate any hard induration or swelling) is not resorbed, or is not removed by time, it either spontaneously or from maltreatment becomes malignant, i. e., painful and inflamed, and then we begin to call it cancer or carcinoma." (Billroth.) It is apparent, therefore, that the opinion prevailed at this time that tumors, not malignant originally, in some instances later took on this character. In 1823, Breschet and Ferrus maintained that cancer invariably succeeds irritation or inflammation, and is incapable of being developed except in situations where either of those states had pre-existed. (Walshe.) Both Virchow and O. Weber dwelt particularly upon the role of external irritation as a cause of tumors. Virchow also taught that a local disease must have a local cause.

This idea was very graphically expressed by Hutchinson, under the title, *The Successful Cultivation of Cancer*, in the following words: "It is not very easy to produce a cancer artificially; nevertheless, if you will try often enough you will succeed sometimes. Encourage your patients to go about with a phimosis unrelieved, or to smoke clay pipes with the varnished ends broken off, or to retain sharp edged stumps of teeth in their jaws, and you may fairly expect every now and then to witness the *de novo* production of cancer. The same end may be attained with yet more certainty, should you have it in your power to select cases for the experiment

in which there already exists some local evidence of chronic irritation. For instance, you may tell a patient who has a little wart, or an irritable crack in his lip, that he may go on smoking, and amuse himself by picking off the crust whenever he has a little spare time, and come to you again in six months. This is a very certain method. In another instance you may assure a man with a little hard pimple near the angle of the eye, that it is of no consequence, not worth an operation, and advise him to apply cold cream. In a year or two's time he will probably be able to show you a very interesting example of rodent ulcer." This was written forty-eight years ago. If Sir Jonathan were living today he would be able to add a still more successful way of cultivating cancer, namely, the frequent or continued exposure of a person to the x ray.

These observations concerned the surface of the body chiefly, and indicated that a large number of lesions of the skin and mucous membranes, originally apparently quite innocent, are prone to result in malignant degeneration. To refer to a common example, we are all familiar with the cases in which a minute crust forms on the margin of the lower lip and is alternately either picked off or exfoliated and then regenerated, for months or years in some cases, before any thickening of the skin is apparent; and yet it eventually develops into a very malignant form of cancer. The same process happens in different forms of keratoses. Warts, cutaneous horns, sebaceous cysts, papillomas, and ulcers, simple or specific, not infrequently show a tendency to malignant change. Various occupations in which the skin is subjected to long continued mechanical or chemical irritation result in cancer. Carcinoma of the scrotum in chimney sweeps was a not uncommon example many years ago. Those who work in tar, in paraffin, in carbon factories, in asphalt works, etc., are said to show a predisposition to skin cancers. This list is not complete, but will give an idea of the variety of conditions that account for the external cancers.

The relation between irritation and deep seated cancer has received less discussion than it deserves. Tillmanns said twenty years ago that cancer of the stomach was very likely to develop from a cicatrized gastric ulcer, but convincing evidence was not furnished until within recent years. At the Mayo clinic a careful study of a remarkably large series of cases of cancer of the stomach subjected to operation, shows that about seventy per cent. have developed on the site of a previous ulcer. Mr. Moynihan, whose experience has also been very large, states that sixty per cent. of the cancers of the stomach develop upon ulcers. Mayo-Robson's observations show fifty-nine per cent.

In the Mayo clinic, in 1,500 cases of obliterated appendixes, twenty-two cancers were found, and from the same service cancer of the colon was found to have been grafted on diverticula in seven of twenty-seven cases. Adami and McCrea state that carcinoma of the gallbladder is found most frequently either in the fundus or at the neck; at the fundus, due to the gravitational presence of gallstones; or at the neck, in association with the arrest of the same in their passage to the duct.

Referring next to breast cancer, I quote from the excellent paper read by Doctor Speese before the Philadelphia Academy of Surgery, in 1910: "The relationship between inflammatory affections of the breast and the development of cancer at a later period has been recognized for many years . . . sufficient histologic evidence is present to prove that most benign tumors of the breast may become malignant." Gosset and Masson state that cystic disease of the breast unquestionably predisposes to cancer. Bertels makes the same observation. MacCarty, in a more guarded opinion, says that the relation between chronic mastitis and carcinoma remains to be proved, but it may be stated with scientific accuracy that carcinoma is seen in association with these conditions.

Carcinoma of the uterus occurs most frequently in the cervix, and in women who have borne children. There is a strong probability of a relation between the birth traumas and the scar tissue following, and the subsequent carcinoma. (Adami and McCrea.) Referring to cysts of the ovaries, MacCarty and Sistrunk report the results of a careful study of 1,000 specimens. As a result of this experience, they state that "all carcinomatous and papillomatous cysts have apparently originated from cyst adenoma." Adami and McCrea state that cystic carcinoma of the ovaries arises in simple cystadenomas, or even more frequently in the papillomatous cystadenomas. The same authors say of carcinoma in the kidneys that it is evolved from previous adenomas and otherwise.

Mr. Bashford, director of the Imperial Cancer Research Fund, which has been conducting one of the most comprehensive studies of cancer so far undertaken, says: "All we know for certain is that some form of irritation is traceable in practically every form." This opinion is based on the result of his own work and that of his collaborators on the lower animals, which has now extended over several years, supplemented by their observations of cancer as found in man in various parts of the world. Dr. William J. Mayo, whose opportunity for clinical observation has not been exceeded by that of any surgeon of the present day, states "that chronic irritation is a cause of cancer cannot be denied." Without multiplying these references further, it would seem to be established that a considerable proportion of internal, as well as of external cancers, are secondary to previous lesions. This aspect of the subject may have been unduly emphasized, but I desired to show how widely this view was held by the most competent observers, and how little practical use has been made of this knowledge.

If it be admitted that in a large number of cases some form of disease or of irritation has preceded the malignant process, is it not entirely logical to assume that these causes are important factors in the development of all cases of malignant disease? It is not intended here to convey the idea that this so called irritation is the sole cause of the disease, but that it is one of the factors, and probably an important one. The actual development of cancer may be the result of a number of causes. If, as has been indicated, chronic irritation plays a prominent part in the formation of cancer, and precedes the malignant change by a considerable period, and if we

have no means of knowing when this change takes place, then I hold that the recognition of the various processes which may result in cancer and their removal before the epithelial cells have begun to wander from their normal site, are essential if we hope to reduce largely the present mortality. I believe a proper recognition of this principle is of the first importance in the solution of this problem. "There are," says Mr. Hutchinson, "few surgical doctrines of more importance in the present day than that which teaches us that there is a *precancerous stage of cancer*—a stage of local chronic inflammation which precedes the true cancerous action, and that in very many cases cancer is for a time a local disease only. You will bear me witness that I have insisted on this doctrine as earnestly as I could, and on all suitable occasions. The facts which support it press themselves on one's notice almost daily." This idea of a precancerous condition, so frequently referred to recently, appears to have been fully appreciated at least twoscore and ten years ago.

The purpose of this paper is to emphasize the following:

1. Cancer appears to have been recognized and to have received its full share of attention ever since medical observations have been recorded.

2. Notwithstanding this accumulated experience, efforts at "early diagnosis" and the most thorough operations possible, the mortality rate from cancer is steadily increasing.

3. The recent additions to cancer therapy, the x ray, radium, and mesothorium, so far have been found to possess but a very limited degree of usefulness.

4. In the present state of our knowledge, any marked reduction in the death rate from cancer, can be brought about only by recognizing the potential cancers, the "precancerous stages of cancer," and curing these conditions *before the malignant process has become established*.

5. If the preceding is accepted, it follows that, in the future, the attention of the profession must be concentrated on the lesions that lead to cancer and their prevention or proper treatment, if present, rather than on the "early diagnosis" of the disease.

6. The most certain way to control cancer is to prevent its occurrence.

2035 WALNUT STREET.

Collargol in Pyelography.—C. W. Vest reports in the *Bulletin of Johns Hopkins Hospital* for March, 1914, that at operation in cases in which collargol had previously been injected into the renal pelvis for diagnostic purposes, in five instances the preparation was found in the kidney and perirenal tissues and in one instance in the peritoneal cavity. The tissues were colored dark brown or bluish black and were edematous. In one case a retroperitoneal abscess developed, necessitating a second operation. Severe pain lasting for two or three, or even ten days, a definite rise in temperature, the presence of blood cells and casts in the urine, and a sometimes very protracted albuminuria, were also at times noted. Collargol should be used for the purpose mentioned only when absolutely necessary.

AN INSTRUMENT FOR DIRECT APPLICATION OF RADIUM TO NEOPLASMS OF THE BLADDER.

By WINFIELD AYRES, M. D.,

New York.

Application of radium to neoplasms of the bladder have been made either through suprapubic openings or by touch, with the radium container on the end of an instrument shaped like a sound. The first is not advisable in a case such as the writer has under treatment at present—a patient with three per cent. of sugar in his urine—and both methods are subject to the criticism that one cannot be sure that the radium is in direct contact with the tumor.

According to the reports of cures or improvements through the use of radium, it has invariably been placed either within the substance of, or directly in contact with the tumor. Even those enthusiastic in its use do not expect any benefit unless such applications are made. The writer does not wish to express any opinion on the value of the remedy, but believes it should be tried in inoperable cases.

The instrument devised may be used through the Ayres operating cystoscope, or preferably through the Buerger operating cystoscope. The radium container is held against the tumor under direct ob-

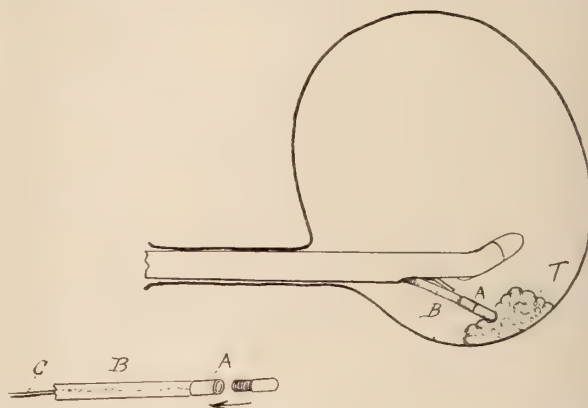


FIG.—The radium carrier consists of a gold capsule (A) for screening the secondary rays. To this is welded a long silver wire (C). The wire is threaded through a No. 11 F woven catheter (B) and a rubber cap is placed over the proximal end to keep the fluid from flowing from the bladder. The container is manipulated through the cystoscope exactly like a ureteral catheter and the gold container is held in contact with the tumor.

servation. This seems better than to deposit a carrier in the bladder and trust to luck that it will remain in proper position for twenty-four to forty-eight hours.

It is considered that three hundred mgm. hours are necessary to produce any beneficial effect, and the procedure in the case under treatment is to make application for one hour three times a week. One hour's use of radium in the bladder is more irritating than one hour's cystoscopy without radium. To render the patient as comfortable as possible, two ounces of one per cent. solution of alypin are injected into the bladder one half hour before the cystoscope is introduced, and during treatment the bladder is kept comfortably full of a one to four hundred solution of the same drug.

616 MADISON AVENUE.

VALVULAR DISEASE IN INFANCY AND CHILDHOOD.*

BY ROBERT ABRAHAMS, M. D.,

New York,

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Consulting Physician, Manhattan State Hospital.

I offer in this paper a review of the salient points of valvular disease in infancy and childhood. As far as this presentation is concerned, childhood is considered that period of life which extends from the second to the thirteenth years. The child is regarded as an abridged edition of the adult; in our study of the subject, however, vast and important differences will be noted between parent and child. To make these differences emphatic, resort will be had to contrasts and comparisons.

ETIOLOGY.

The two great etiological factors in valvular trouble in adult life are rheumatism and syphilis; rheumatism for mitral and syphilis for aortic disease. In childhood, the overwhelming and preponderating factor in the causation of valvular disease is rheumatism; exanthemata and other infections are but a lame second, while syphilis is out of the question. Valvular defects in infancy are mostly, if not wholly congenital; their origin is not always possible to ascertain, although if the father or mother is rheumatic, the etiology of the infant's heart disease may readily be inferred.

The adult materially differs from the child in the mode of onset of rheumatic valvular disease. The adult, as a rule, begins his rheumatic experience with swollen and painful joints; the child, barring a few exceptions, begins its rheumatic career with endocarditis. This peculiarity of rheumatism in childhood constitutes one of the greatest dangers of valvular disease in the young. The swollen joint is a danger signal, a compelling force which sends the sufferer to bed, while the insidious and insinuating endocarditis may come and go and come again, unnoticed, untreated, or perhaps maltreated.

Tonsillar infection, so frequent in children and so rare in adults, constitutes a serious element in the production of valvular deformity in childhood. The tonsillar inflammation may be passing mild, yet its causative agent may choose the heart for a target and riddle it as with buckshot, causing irreparable damage to the valves. The strong susceptibility to inflammatory processes of the serous cavities which exists in children, makes pericarditis a frequent effect of rheumatism and, later on, a formidable cause and complication of valvular disease. Few will dispute the assertion that pericarditis, serous or dry, is more frequently seen in the young than in the old, and that pericardial adhesions are more often met with in children than in adults. Universal serosity resulting from cardiac insufficiency is by far more common in childhood than in middle age. Its early appearance is portentous. Notwithstanding a child's freedom from vascular disease, renal disease complicating valvular lesions is more common in children than among the grown up. Again, valvular trouble in childhood gives rise to dispro-

portionate hypertrophy and dilatation, the like of which is rarely seen, under similar conditions, in the adult. The child's heart quickly responds to increased labor, very soon it hypertrophies, but the hypertrophy equally soon wears out and dilatation with all its baneful consequences sets in.

Valvular defects in childhood produce anemia more profound, more lasting, and less yielding to treatment than anemia found in like lesions of advancing years. In a great many instances the deformed valves are less of a menace to the child's life than is the anemia. Embolism as a result of valvular disease, is more frequently met with in children than in adults. Epilepsy and hemiplegia are the unfortunate sequelæ. Lastly, chorea is very rarely an expression of rheumatism and valvular affection in adults; in childhood, however, chorea and valvular disease are active partners.

DIAGNOSIS.

Following the same parallel lines in diagnosis as in etiology, we find that things in the child are not what they seem in the adult. In the adult an apical displacement in the mamillary line is pathological; in the child, it is physiological. An accentuation of the second pulmonic sound in the adult, barring some pulmonary conditions, is pathognomonic of mitral disease; in the child it is a perfectly normal phenomenon. Rapid heart action in an adult, all things being equal, points to mitral trouble; while an accelerated heart in a child is consistent with its normal life and normal activities. The jerking and collapsing pulse of aortic regurgitation in the adult is one of the most helpful signs in that disease. In a child, the Corrigan pulse is very rarely as pronounced. A bulging precordium in a child signifies valvular disease of long standing, the same condition in an adult means aneurysm or pericardial effusion, most likely the latter. So much for signs.

Equally interesting is the difference in the symptoms between father and son, or mother and daughter. Reference has already been made to the greater degree of anemia in childhood and the larger amount of hypertrophy and dilatation. Were the child as introspective as the parent, it would complain of dyspnea infinitely more than the latter, as the young myocardium yields to exertion more readily than the old heart muscle. Cyanosis, cough, and dropsical effusions more often accompany valvular lesions in childhood than in those of many summers. It may be consoling to observe, that arrhythmias and heart block up to the age of ten years are seen with the greatest rarity, while they are fairly common in adults.

The following signs indicate mitral insufficiency:

1. A diminution of both pulses when the arms are raised above the head. This pulse phenomenon is present in ninety per cent. of mitral cases, both stenosis and regurgitation.
2. Systolic murmur over the apex. When the murmur is loud it may be heard over the precordium and back of the chest, along the spine, and the curiosity seekers may even hear it at the coccyx.
3. Systolic thrill. In a child this sign is always well defined, when it is present.
4. Marked hypertrophy of the heart, disclosed

*Read, by invitation, before the Williamsburgh Medical Society, March, 1914.

either by the method of percussion or the writer's method of auscultation.¹

Signs in mitral stenosis.—1. Pulse phenomenon by putting the arm in the upright position. 2. Pre-systolic murmur. The peculiarity of this murmur is its grating harshness and its limited transmission.

Signs of aortic insufficiency.—The pathognomonic sign of this disease is the diastolic murmur, which is best and always heard at the fourth left interspace close to the sternum. The auxiliary aids in the diagnosis are, the Corrigan pulse, the diastolic thrill, and the exalted action of the superficial arteries.

Signs in aortic stenosis.—1. Systolic thrill over the aortic area. 2. Systolic murmur over the same area. The murmur is transmitted toward the right clavicle and right carotid. In the absence of these features the murmur is functional or anemic.

3. A slow and uniform pulse, unaffected by the position of the arms.

I shall refrain from inflicting my views of valvular disease of the right heart. I collected a mass of data on that subject, but it is reserved for another paper.

Frequency.—The most frequent valvular disease in childhood is mitral insufficiency; next is mitral stenosis; next is aortic insufficiency; the least common is aortic stenosis. I believe that it is the privilege of very few observers to see many children with pure aortic disease, while among adults it is fairly common. This difference is undoubtedly due to the prevalence of syphilis among the elders.

PROGNOSIS.

The prognosis of valvular disease in infants and childhood, generally speaking, is not good. As all cardiac lesions in infancy are congenital, the outlook of most of them is bad; but even childhood cannot boast of a very good prognosis. The marked anemia; the rapid yielding of hypertrophy to dilatation; the repeated attacks of endocarditis; the pericardial adhesions; the renal and embolic complications; all these are elements of great danger in the prognosis. Lastly, puberty works havoc among children with affections of the heart. Of course there are noted exceptions to this gloomy prophecy, but as a statement embodying a general principle, I believe it will withstand the fire of adverse comment. Of the two common lesions affecting childhood, mitral stenosis is far and away the most destructive. It is the same in adult life. Uncomplicated mitral stenosis in a person above fifty years, is a thing of rarity.² The reason is obvious.

TREATMENT.

Here are fifteen articles of treatment.

1. In acute or subacute endocarditis, push the salicylates to their utmost physiological limit.

2. In acute or subacute endocarditis, keep the child in bed for three or four months. The prolonged stay in bed gives the heart a chance to recuperate, and the valves an opportunity, for aught I know, to recover.

¹Abrahams: *The Delineation of the Heart by a New Method, Archives of Diagnosis*, April, 1912.

²I have recently seen, through the courtesy of Dr. Armin Rappaport, a man aged fifty-eight years, with pure uncomplicated mitral stenosis—a veritable curiosity.

3. When the lesion becomes chronic, prevent the recurrence of arthritis or tonsillitis, by proper dress, hygiene, outdoor life, and suitable antiseptic gargles.

4. Nutritious food—more vegetable and less animal and all well seasoned with common sense.

5. Good habits: early to bed and late to rise.

6. Warm baths—the more the better.

7. Avoidance of tea and coffee. Children should not be permitted to take these beverages on general principles.

8. When compensation is good, avoid all cardiac drugs.

9. When compensation is failing, put the patient to bed and give digitalis in mitral insufficiency and caffeine sodium benzoate or the tincture of strophanthus in stenosis. The tincture of digitalis is standardized and, therefore, reliable. The infusion is good when it is properly prepared of English leaves, but the tincture is preferable. If digitalis is indicated, it means that only large doses will benefit the patient. Give from ten to twenty minims to a child eight or ten years old. As symptoms improve, the dose can be reduced, but it must be continued. A larger dose than this should be given in the terminal stages.

10. Digitalis should be given in mitral stenosis under two conditions; in marked dilatation or auricular fibrillation.

11. In case digitalis is not well borne as evidenced by heart block, or thready and irregular pulse, or retching and vomiting, or fainting spells, then resort should be had to the tincture of strophanthus in half the dose of the tincture of digitalis.

12. Every patient who must take digitalis must take calomel, at least one grain twice a week.

13. Chronic valvular disease demands continuous administration of iron. Generally speaking iron is more important than digitalis.

14. Keep the bowels open.

15. Most important in all forms of treatment are: Correct diagnosis, a cool head, and a confidence born of a modest assurance that the right thing done at the right time will insure success.

257 WEST EIGHTY-EIGHTH STREET.

ACUTE, DOUBLE OPTIC NERVE ATROPHY.*

A Report of Three Cases.

By HOWARD F. HANSELL, M. D.,
Philadelphia.

CASE I. A woman, aged sixty-five years, was admitted to the Philadelphia General Hospital, December 13th, in a state of intoxication. While recovering from the spree, she contracted erysipelas, and after convalescence she was retained in the erysipelas ward as a helper. On February 15th, she arose early, had her breakfast, and was performing her usual duties in the ward, when she complained of a mist and then a cloud before both eyes. In fifteen minutes she was totally blind. Ocular examination, two days later, revealed nothing of the cause or character of the blindness. No history other than the foregoing was obtained. I was misled by the absolutely normal appearance of the eyes and believed she was malingering and so reported as the result of my examination.

*Read before the Section in Ophthalmology, College of Physicians, Philadelphia, April 27, 1914.

The pupils were equal, four mm. in diameter, and reacted sluggishly to light. Two days later, at the next examination, the condition of the eyes was unchanged, but the blindness persisted, and her bodily movements indicated that her statement was true. In one week the optic discs had become pale and the retinal arteries diminished in size. There was no edema around the nerve or in the retina, hemorrhages or other patches. The pupils were unchanged in size, but had lost all reaction. Convergence also was absent, either because that function was paralyzed or because she could not fix any object, even a light, although instructed as to its position.

At this time it was learned that the day before she became blind she had stolen some wood alcohol, and after sweetening and diluting it, had taken two drinks. She admitted that the quantity was about two tablespoonfuls, but her estimate may not be accurate. Repeated examinations showed rapid progressive optic nerve atrophy of the non-inflammatory type.

In this case the quantity of methyl alcohol imbibed was not large, confirming the statement of Wilbrand and Sanger that small doses in some individuals will produce blindness. There was no return, even for a short time, of vision, thus differing from the usual history of acute alcoholic amaurosis. The patient is apparently in good health and did not suffer from exhaustion, vertigo, vomiting, or other of the symptoms that sometimes are associated with the onset of the blindness.

Many poisons affect the nerves according to their chemical composition, by disturbing the chemical relations of the central and peripheral optic nervous system, by changes in the blood, by depriving the ocular structures of their nourishment through indigestion, and through chemical or physical change by their contact. It must not be forgotten that in all the individuality or inherent susceptibility to the action of these special kinds of poisons is a predominant factor to be reckoned with, both as to the presence and the intensity of the blindness. For example, Moulton (*Ophthalmic Record*, p. 335, 1899) speaks of five men who had imbibed wood alcohol; two died within twenty-four hours, one became blind in twenty-four hours, and the two others remained healthy. Gifford (*Ibidem*, p. 441, 1899) records the history of two men who drank equal amounts; one became suddenly and permanently blind, while the sight of the other was unaffected.

CASE II. A woman, aged thirty-four years, who for ten years led a shockingly dissipated life, was admitted into the Philadelphia General Hospital with pneumonia. The second day she became suddenly blind in both eyes and had no light perception for sixty hours. Central vision returned and she has been able to count fingers at fifteen feet. The pupils were equal and reacted. The fields for form were contracted so that they extended but a few degrees beyond the fixation point. She had fully recovered from pneumonia and complained now of partial blindness, sleeplessness, and pain in the back of head and neck. The optic discs, at first normal, had become rapidly white, with marked diminution in the size of the retinal arteries. In the past few months, up to the time she became ill, she had consumed alcohol in large quantities in the form of gin, whiskey, and absinthe. X ray examination was negative and the accessory sinuses were found to be healthy.

CASE III. Man, aged about sixty-five years, was admitted to the Philadelphia General Hospital February 14th, on account of blindness. His left eye had been destroyed by an injury many years ago. While an accurate and detailed history of this patient could not be obtained on account of his frequent relapses into unconsciousness and apathetic mental condition, it was learned that, one evening while

eating supper, he became suddenly blind in the right eye. His appearance and physique gave every indication that he had been a hard drinker, although this suspicion could not be confirmed. The right optic nerve was totally atrophied, the retinal vessels were markedly diminished in size, the pupils dilated and unresponsive. The left eyeball was atrophied, but not inflamed or sensitive and could not be regarded as a possible cause of the loss of vision in the right eye. The symptoms continued without material change until death, about three weeks after his admission. The history was indefinite, the diagnosis undetermined, and the treatment symptomatic. The post mortem findings adequately explained the cerebral symptoms and the blindness. The dura was slightly adherent over the calvarium and the pia and arachnoid membranes were thickened, especially near the sulci. Under the surface of the right frontal lobe was a black nodule measuring three by two mm. Many of the cerebral bloodvessels and the left fifth nerve were infiltrated by a black mass. The central ganglia and the internal capsule were normal. The left eye was shrunken and contained a greenish, black mass. Five cm. posterior to the bulb the left optic nerve was the seat of a lobulated, nodular mass fifteen by fifteen by ten mm. Some of the nodules were black, some gray, and some yellowish gray. The perineurium at the chiasm and on the surface of the right optic nerve was underlaid by diffuse and circumscribed black masses. The diagnosis was disseminated melanotic sarcoma. The sudden invasion by the superabundant cerebral fluid of the chiasm was probably the cause of the sudden blindness. The pressure was continued and augmented by the formation of the cancerous masses.

Wilbrand and Sanger remark that in the case of tumors of the anterior cerebral fossa, papillitis is frequently wanting, especially in those at the anterior base in the neighborhood of the chiasm, because the site of the tumor dams up the egress of the cerebrospinal fluid. A case almost analogous to the foregoing, although whether choked disc was present or not in the left eye of our patient we do not know, is recorded by Schulz-Zehden (*Klinisches Monatsblatt fur Augenheilkunde*, XLIII, 1905). The patient had symptoms of cerebral tumor, simple optic nerve atrophy in the right, and choked disc in the left. Post mortem examination showed that the right nerve was pressed upon immediately at the chiasm and was surrounded by a tumor mass as far forward as the foramen opticum. The increase of intracranial pressure explained the choked disc of the left side, because on that side the fluid had free access to the intermembranous spaces. There could be no choked disc on the right side, because the tumor prevented the entrance of the fluid. In any case the effect on vision may also be explained by pressure upon the central artery by which the nerve and retina are suddenly deprived of blood, and also by a sudden swelling of the tumor encircling the nerve.

In these three cases, opportunity for ophthalmoscopic examination came within a day or two of the attack. In none was there the slightest evidence of neuritis or edema of the retina adjacent to the nerve, nor of any change in the foveal region. General symptoms indicative of intracranial affection were absent. No functional disease could account for the blindness. In each the attack was sudden, blindness having become complete within fifteen minutes, and in one only did vision return. The optic nerve atrophy in all was rapidly progressive and in two, was complete in three weeks.

A fourth case may be briefly mentioned. The details are so meagre that a complete report cannot

be given. A boy had a severe attack of whooping cough, ending about the commencement of February. His father, a physician, stated that the paroxysms were unusually violent. On February 15th he fell, striking his head against a hydrant spigot, but did not immediately show any signs of head injury other than a bruise. The next morning he had fever and vomiting. Vision commenced to decline until March 13th, the date of my only examination, for the privilege of which I am indebted to Doctor Sweet: R=10/200, L=20/200. The optic discs were decidedly pale, and the vessels, particularly the arterioles, were reduced in size. The fields were concentrically contracted. Since the commencement of the loss of vision the boy's mentality has changed, and from a bright, active and strong lad, a leader among his friends, he has become quiet, morose, and irritable.

The interest and importance of these cases lies in the diagnosis and etiology. In the first two, the etiology was well established by the history, in the one the acute poisoning by methyl alcohol through the intestinal tract, and in the other by years of dissipation culminating in a violent debauch followed by pneumonia. The influence of the lung affection in contributing to the blindness, except possibly by its weakening of the system, may be ignored. The reported cases of sudden blindness during or immediately following pneumonia have been almost without exception metastatic, the bacterium, usually the pneumococcus or the diplococcus, having been derived from a purulent inflammation of the orbit, shoulder joint, or other portion of the body. In the foregoing case no source of infection was discovered.

In the third case, the diagnosis during life was doubtful. A drinking man, blind in one eye, gave an unreliable history of sudden blindness in the other eye. During the few weeks of his life in the hospital, he was partly unconscious, replying only at intervals to questions, semistuporous, gradually passing into coma and dying. The post mortem findings were entirely explanatory. In the last case the diagnosis lies between hemorrhages from paroxysms of coughing and fracture of the base involving the chiasm. Hemorrhages may possibly be excluded because, while the optic nerve atrophy had been rapid, the blindness had come gradually, and yet fracture from apparently an insignificant blow without immediate symptoms of cerebral involvement cannot be accepted without further observation.

The pathology concerns the peculiar selected action of poisons upon the optic nerve fibres. The blood supply is diminished by thickening of the vascular walls, by rapid increase of connective tissue, or degeneration of the neuroglia into fibrous bands, and compression and degeneration of the nerve fibres. The process is so rapid that in the course of a few days after the onset of the blindness, the temporal halves of the discs are whitened, and in a few weeks the atrophy has extended to all the optic nerve fibres. The function of the nerve is irretrievably lost, for no medication thus far has been able to restore it.

1528 WALNUT STREET.

UNUSUAL COMPLICATIONS IN RENAL TUBERCULOSIS.*

By HAROLD NEUHOFF, M. D.,
New York.

When large groups of cases of a disease are frequently reported, the description of a single example is rarely indicated. The following instance, however, of tuberculosis of the kidney offers so many features of interest that its presentation is deemed desirable.

CASE. John M., laborer, aged forty-three years. In childhood he had been operated upon for an affection of the left hip, complicated by the spontaneous rupture of an abscess. A permanent ankylosis of the joint resulted, and a cane had always been used for support in walking. The patient had no other diseases; gonorrhea denied. Married seven years; no children. The patient came under observation in June, 1909, giving a typical history, of five months' duration, of increasing frequency of urination, dysuria, cloudy urine for two months, loss of weight and strength, night sweats, and fever.

The individual was poorly nourished and of a rather septic appearance. Thoracic examination was negative. The long depressed scar over the upper end of the left femur, together with the ankylosis of the hip and the marked shortening of the limb indicated an old tuberculous focus. The right kidney was not palpable and there was no tenderness along the course of the right ureter. A mass about twice the size of a normal kidney was palpable in the left renal region; it was somewhat irregular, of cystic consistence, and slightly painful upon pressure. There was moderate tenderness along the course of the left ureter, and a thickened strand was felt in the corresponding position. The urine was cloudy, contained numerous pus cells, some red blood cells, and many tubercle bacilli.

Owing to an obstruction in the posterior urethra, it was impossible to introduce a cystoscope into the bladder. Examination by sounds revealed a marked stricture of the deep urethra (12 F.). The nature of this nongonorrheal stenosis was never definitively determined; in view of the other foci of tuberculosis I believe it also may have been of tuberculous origin. Owing to the rapidly progressive character of the infection, it was deemed inadvisable to postpone operation until the urethra was dilated sufficiently for cystoscopic examination. The plan for the operation was first to expose and examine the presumably normal right kidney, and, if it appeared approximately normal, to expose and examine the left.

The right kidney was exposed June 21, 1909, freed, and delivered into the wound through an incision parallel with the costal margin. It appeared quite normal and the wound was therefore packed and the left kidney exposed in the same manner. Its fatty capsule was moderately adherent. The kidney was freed bluntly, and the considerably enlarged organ was delivered from the wound. Several large diseased areas were visible. The ureter was isolated from the pedicle and the renal vessels were separately ligated. The kidney was removed; the ureter, found extensively diseased, was stripped free, ligated, and removed four inches from the kidney, and the stump touched with pure phenol. The wound was sutured in layers around gauze drains passed to the pedicle. The right lumbar incision was then closed.

Examination of the kidney disclosed numerous large and small caseous abscesses, especially at the poles and under the capsule, miliary tubercles in the renal pelvis, extensive submucous tuberculosis, and a few tuberculous ulcers in the excised piece of ureter. The condition of the patient began to im-

*Presented to the Hunterian Society, February, 1914.

prove soon after the operation, about the same time that the temperature returned to normal. Blood and pus rapidly disappeared from the urine. Urine was voided at four to six hour intervals. The wounds were healing in a normal manner.

An escape of urine from the left lumbar wound began three weeks after the operation (July 15th). It rapidly increased in quantity and about half the total amount of urine was soon discharged through the wound. The urine from the bladder and from the wound now contained considerable pus and blood; tubercle bacilli were not found at repeated examinations. The urinary discharge began to diminish after two weeks and ceased in another fortnight. By that time the right lumbar incision was firmly healed and the left one was slowly healing.

About three months after the operation the vesical symptoms returned. Urine was voided every hour or two, always with considerable straining and pain. The specimens contained some blood and pus cells, but no tubercle bacilli. The general condition of the patient began to deteriorate slowly. Injections of tuberculin according to the Saranac formula were started. At the same time dilatation of the urethral stricture and bladder irrigations of boric acid were begun. The general and the local condition remained unchanged for three months, and then a slow improvement of both set in. The stricture of the urethra gradually yielded to dilatation by sounds.

A swelling over the right wrist appeared about six months after operation (December 14th). It was evidently related to the pressure of the cane upon which the patient bore heavily when walking. Redness, edema, and tenderness, chiefly over the dorsoradial aspect of the wrist, gradually developed. There was no fever. An x ray examination showed extensive osteomyelitis of the carpus; the joint was immobilized. Two months later a superficial abscess appeared over the dorsum of the wrist; typically tuberculous pus was aspirated. In another month a second abscess of the same character was aspirated. The symptoms and physical signs very gradually receded under constant immobilization. The tuberculin therapy was interrupted only during the acuter stages of this infection.

About the time the foregoing condition had in large part cleared up, the patient stumbled and struck his right tibia. A large, diffuse, slightly tender swelling appeared over the tibia; there was little redness and edema. The limb was immobilized. Six weeks later an x ray examination showed osteomyelitis (suggestive of tuberculosis) of the tibia. The affection cleared up in three months, only a slight thickening of the bone remaining.

One and a half year after the operation the patient discontinued all treatment. At that time his general condition was fair, the lesions in the carpus and tibia were practically healed, urine was passed at four to six hour intervals without any pain. The urine was usually clear, but occasionally contained some pus and red cells. The urethra was well dilated, but the patient refused cystoscopy. About one year later he returned in rather poor physical condition, complaining of the symptoms of a severe

cystitis. He was referred to Doctor A. Hyman, in the genitourinary department of the Mount Sinai Hospital dispensary. Bladder irrigations of dilute carbolic acid were employed, and the vesical symptoms cleared up in several weeks. A cystoscopic examination was then made and I am indebted to Doctor Hyman for the following report: "Low grade of cystitis. Several ulcerations about the mouth of the left ureter. Ureter catheter inserted on the right side; the urine was clear, free from blood, pus, and tubercle bacilli." Unfortunately the posterior urethra was not examined.

The patient disappeared from observation soon after the vesical symptoms improved. He returned (February, 1914), evidently in good physical condition. Vesical symptoms have remained in the background. The foci in the carpus and the tibia are healed. There has been a very slow but steady gain in weight and strength.

1275 MADISON AVENUE.

ALKALOIDS.

BY ALFRED C. REED, M. D.,

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Probably no other group of drugs is of such importance to the physician as the alkaloids. If he is to combine them in prescriptions, he must of necessity know something of their chemistry and physical properties; and if he has clearly in mind the principles involved in treating their poisonous symptoms, he will be prepared for many an emergency.

Alkaloids, meaning literally basic or alkalilike substances, compose a group of physiologically active constituents of plants, which for the most part are strong poisons. These active principles of vegetable origin do not form a sharply defined group, either in their chemical and physical properties or in their physiological action, but for practical purposes alkaloids may be defined as unsaturated ammonia compounds which combine acids to form salts, but without replacing any of the acid hydrogen. They are nitrogenous compounds, and those which contain oxygen are odorless, crystallizable, usually colorless solids. The oxygen-free alkaloids, coniine, piperidine, sparteine, and nicotine, are colorless volatile fluids having each a characteristic odor.

All alkaloids are soluble in alcohol, chloroform, and benzene, and all but narceine and morphine are soluble in ether. With the exception of nicotine all are dissolved with difficulty in water. Their solutions are characterized by an alkaline reaction and bitter taste. If hydrochloric acid combines with sodium hydrate, a stable salt, sodium chloride, is formed, by a replacement of the hydrogen of the acid. But if hydrochloric acid combines with an alkaloid, for instance, quinine, the salt is formed by direct addition, and not by the alkaloid or some part of it replacing the hydrogen of the acid. In this regard alkaloids act similarly to their prototype, ammonia. This is due to the fact that alkaloids are basic or alkaline in nature, and being unsaturated, have a strong affinity for acids. The salts of alkaloids in general are characterized by being soluble in

water and alcohol, and insoluble in ether and chloroform. This solubility in water makes the salts more desirable in pharmaceutical practice than the pure alkaloids. They are likewise subject to quicker absorption in the gastrointestinal tract.

From watery solutions alkaloidal salts are precipitated by a large number of substances, and it is of importance, therefore, not to prescribe alkaloids in solution with any of these substances. The more important precipitants are tannic acid and all tannin bodies, alkalies, iodides, bromides, and the heavy metals, such as mercury, lead, and iron. Fortunately such incompatibles can easily be avoided. Shotgun prescriptions and polypharmacy are not only unscientific, but indicate a lack of mastery of the elementary actions of the major drugs, as well as of the correct principles of their exhibition. Polypharmacy often cloaks inexact diagnosis, and indefinite diagnosis often springs from shortsighted haste and lack of thoroughness in examination.

A few alkaloids have been formed synthetically in the laboratory, but the chemical formula of most of them is quite complex. Many have not been isolated and doubtless many others have not yet been discovered. Usually vegetable alkaloids are found most abundantly in the seeds and roots of plants, although they may occur in all parts, as quinine in cinchona bark, morphine in the sap of the poppy, and atropine in belladonna leaves. Often one plant contains many alkaloids, as cinchona with more than twenty, and these may have diverse actions, as the alkaloids of opium, ranging from morphine, through narceine, narcotine, and others, to thebaine, which resembles strychnine in its action.

There is a wholesome tendency in approved therapeutic practice to discard drugs whose exhibition cannot be justified by a definite physiological indication. This inclination parallels the equally good habit of monopharmaceutical prescribing, especially in the use of potent drugs. If an occasion requires the employment of two or more powerful drugs, their separate administration makes the control of each easier and more accurate than that of their admixture. Just so is there a constant effort to reduce all remedial measures, especially drugs, to their simplest terms, in the interest of accurate doses, undivided action, and more powerful effect. Thus Leonard Rogers has rendered distinguished service by replacing ipecac with emetine in the treatment of amebic dysentery. Emetine indeed is among the most recent additions to the effective armamentarium of alkaloids.

TOXICOLOGY.

Alkaloids as a group are potent poisons, and the physician must be in constant readiness to institute prompt and effective relief measures, whether the poison be taken by accident or design. Three general rules can be formulated which will bear the brunt of such an emergency.

1. Prevent further absorption of any of the alkaloid still remaining in the stomach. Give tannic acid or solutions containing it, such as preparations of oak galls, hematoxylin, witch hazel, gambir, or quassia; or use alkaline solutions, such as sodium bicarbonate or lime water. An iron preparation may be most available.

2. Remove all unabsorbed poison. Empty the stomach with a stomach tube, and wash out thoroughly with a solution of a teaspoonful of sodium bicarbonate to the pint of lukewarm water. If no stomach tube is at hand, induce emesis, preferably by the hypodermic injection of apomorphine (0.0006), repeated in ten minutes if necessary. Apomorphine acts by exciting the vomiting centre directly and not locally in the stomach, hence it will act until the medullary centres are far depressed and deep coma has supervened.

3. Treat symptomatically according to the particular alkaloid used. Give the physiological antagonist for the poison, as chloral and bromides for strychnine, atropine and strychnine for morphine. Watch three things, the heart, respiration, and body temperature. (a) A weak heart may be due to direct depression as from aconite, in which case atropine or caffeine is indicated, or it may be due to exhaustion from overstimulation, as from digitalis. Here direct stimulation will increase the mischief, and instead the heart's work must be lightened by vasodilatation with nitroglycerin or nitrites. (b) Failing respiration should be treated with respiratory stimulants such as caffeine or atropine, unless the failure is due to overstimulation, in which case immediate recourse must be had to artificial respiration. The best method of artificial respiration, especially in emergencies is Schäfer's "prone pressure" method. The patient is turned on his face on a table or other hard flat surface, with the head turned to one side and the tongue drawn forward. Kneeling at one side and facing the patient's head, the operator places his hands symmetrically over the lower ribs, the tenth to twelfth, and rhythmically, fifteen times a minute, bears his weight on his hands, compressing the lower ribs strongly. This method allows drainage of fluid from the lungs, aerates the lungs even better than normal respiration, and avoids the danger of fracturing ribs or rupturing the liver, accidents which occasionally find place in other methods. (c) The body temperature must be maintained if necessary, by wrapping in warm blankets, bathing the feet in mustard water, and applying hot water bags outside the blankets, remembering always the danger of serious burns from the careless use of hot water bags. It is well, too, to place an ice bag or cloths wrung out of cold water on the patient's head if hot applications are used to the body and extremities.

PURPURA HÆMORRHAGICA.

Morbus maculosus, Werlflaß.

BY GILBERT PARKER, M. D.,

Burin North, Newfoundland.

CASE. I. M., aged forty-five years, had blood blisters on upper surface of the tongue, since the morning of December 10th.

Family history negative as regards history of bleeders, or any disease related to the one described hereafter. Was never sick before. Married, but no children. *Present illness:* Patient came into my office on the morning of December 10th, and showed me her tongue. On the upper surface of its anterior half were four hemorrhagic areas, circular in outline, and about one fourth inch in diameter. The appearance was not that of a tongue that had been bitten and the patient was never a victim of convulsions.

She was spitting blood constantly, and some of the blood exuded from between the teeth and the gums of both lower and upper jaws. The gums themselves were neither swollen, spongy, nor tender and the breath was odorless. The bleeding was positively the only thing complained of, other than a slight headache. There was no sign of bleeding anywhere else, no pains nor tenderness and no macroscopic evidence of blood in feces or urine. The night before, she went to bed feeling as well as ever. In the morning, after a good night's rest, she discovered the condition of the tongue. Upon questioning her closely, she admitted having felt just a slight indisposition for the past two weeks, but nothing to cause any uneasiness. Some of the neighbors had remarked that she was not looking as well as usual. At all events, she was well enough to go out and do a big washing three times a week.

I told her to go home and rest, and gave her a mouth wash of nitrate of silver. I told her also to eat a couple of oranges daily, eat a goodly portion of meat rather underdone and as much as she liked of raw cranberries. She had, nevertheless, been accustomed to a good nourishing diet, fresh vegetables, and sufficient meat for health. She had no occasion to, neither did she use any canned foods.

December 11th. I saw the patient in her own home. She was spitting a good deal of blood. The spots on the tongue were unchanged. Just within the corner of the mouth on the left side was a hemorrhage beneath the mucous membrane, as large as a twenty cent piece, and from its surface blood oozed slowly. The cheek outside, over this area, was slightly swollen, and there was a dull bruised look about the skin. She was very much frightened and felt weak. Purpuric spots began to appear in the skin, and by Saturday morning the condition was as follows: Petechial hemorrhages were numerous on forehead, cheeks, hands, arms, and chest. The left arm, mostly on the extensor surface, from wrist to shoulder, was a mass of very large purple areas. The legs were the same, both back and front, but worse on the back, due to lying down, I suppose. She complained of shooting pains in the long bones of arms and legs.

The urine this morning was very bloody and a bowel movement characteristically tarry. Her appearance was that of marked anemia. The pulse varied, but was never above 104. There was no rise in temperature at any time. Her appetite was very poor and stomach sick, and the nourishment was principally broths and milk. No eggs were then obtainable and milk was a luxury. She drank a large amount of lime juice.

As medicine, she received calcium lactate at first in doses of fifteen grains every three hours and empirically thyroid extract in small doses. She ate as much gelatin as we could get her to take and received besides Fowler's solution three times daily in increasing doses. Her breath remained odorless; the gums moderately firm, and by Monday the tongue and cheeks had returned to their natural state, and no blood came from the mouth at all.

December 16th. I was called at 10:30 a. m. The woman had been bleeding from the left nostril for an hour. She was blanched, and the pulse scarcely perceptible. Blood was flowing in a thin stream, and on a Tallquist blotter showed hemoglobin thirty-five per cent. The bleeding was stopped by plugging with gauze plugs saturated with epinephrine solution. I gave her a hypodermic injection of fifteen minims of a one to 1,000 solution. At 4 p. m. I took out the plug and a large adherent clot, and introduced another piece of gauze. I also gave another hypodermic of the epinephrine and one quarter grain of morphine. At the morning visit I gave a quart of normal saline solution, which was absorbed rapidly. I also left instructions to place four ounces of the same in the fountain syringe every two hours, the rectal tube being left in constantly, until 6 p. m. She had a good night afterward.

December 17th.—Patient felt very weak. There were no new hemorrhages, and the old ones were fading. The urine was only faintly pink and the bowels were constipated.

December 18th. Felt much better. Bowels operated after using an aperient. Stool very black. The temperature today rose for the first time, to my knowledge, and reached 101° F. Pulse was 104. From this time she gradually improved. The temperature varied between 100° and 102° F. for a week and then became normal suddenly. The pulse never rose above 104.

December 20th. Hemoglobin, forty-five per cent.; red blood cells, 2,000,000. *December 24th.* Hemoglobin, forty-five per cent.; red blood cells, 2,100,000. Treatment during this time: Tincture of nux vomica for appetite; liquor arsenicalis and tincture ferri perchloridi for anemia. Rest, fresh air, and good nourishing food. At present there were no eggs and no milk, but plenty of fresh meat.

December 26th. I saw the patient in the evening at 6 o'clock. She had been suffering severe pain across bowels since morning. She was not constipated. Urine was macroscopically blood free and I did not make a microscopical examination. There was a normal quantity. Temperature 103, pulse 112, respiration 40. There were three blood spots on the tongue and one on the soft palate. The gums appeared to be bleeding. When the teeth were rubbed clean one could see the pale blood leaking from between gums and teeth. I gave her a hypodermic injection of epinephrine and one quarter grain of morphine.

December 27th. Seen again at 11 a. m. Temperature 101° F., pulse 128, respiration 52. She was in great pain over the whole abdomen and generally tender over the same. Gums not bleeding. I gave a hypodermic injection of one quarter grain of morphine. I was not called again, and before I started to see her in the evening, I got word that she was dead.

Noteworthy points in the foregoing case are, first, the absence of fever until the disease had reached its height; second, the sudden onset, without premonitory symptoms; and, third, the remission and sudden exacerbation that followed the same.

As to the causation, there seems to be no way in which to account for the production of the disease. One would expect that a toxemia sufficient to cause such rapid blood destruction, and possibly also bloodvessel changes, would cause an elevation of temperature, unless the toxic product or products, if such they be, are specific for the blood and bloodvessels. The rise took place after extensive hemorrhage had occurred, and could be explained by this as a cause.

Pathologically, purpura, according to Adami, usually shows fatty degeneration of the endothelium of the cutaneous and small bloodvessels everywhere. That this is the sole cause of the hemorrhages is possible, but there are doubtless factors present which produce blood changes also.

Kromayer Light in Diseases of the Skin.—A. Schuyler Clark in *Journal of Cutaneous Diseases* for June, 1914, speaking from an experience of thirty cases, and of two and three hundred exposures, considers the Kromayer light a useful addition to dermatological practice. So far as he is able to judge, it is a safe agent; he has not been able to learn, that it has produced protracted dermatitis, teleangiectasis, or scarring of any importance. It is easy to apply, and always in order. He considers it the most efficient means he knows of treating nævus vasculosus; it compares favorably with the Finsen light in the treatment of lupus vulgaris, it is an effective and sure means of healing lupus erythematosus with a minimum amount of scarring; it is of great help in chronic eczema, particularly of the parasitic type, and in psoriasis it safely, efficiently, and quickly removes disfiguring patches, while reports indicate that it is useful in acne, furunculosis, folliculitis, and scrofuloderma. He also thinks it may be of use in treating alopecia areata, tuberculosis verrucosa cutis, and pigmented nevus.

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXLVII.—How do you treat tetanus? (Closed.)

CXLVIII.—How do you treat sunstroke and heat exhaustion? (Answers due not later than July 15th.)

CXLIX.—How do you treat the opium habit, viewed as a neurosis? (Answers due not later than August 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to complete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$22 for the best essay submitted in answer to Question CXLVI was awarded to Dr. William C. Calhoun, of New York, whose article appeared on page 25.

PRIZE QUESTION NO. CXLVI.

THE TREATMENT OF SCARLET FEVER.

(Continued from page 90.)

Dr. Louis Weiss, of Newark, advises:

Isolate the patient. Let only the nurse and physician come in contact with the sick one. Use separate dishes, towels, and all other necessities. Place the patient in the largest and lightest room available. Keep up constant ventilation. Avoid draughts, and save the patient respiratory complications, by placing the bed out of the path of possible air currents.

Treat the patient according to indications. The mild cases end in recovery with little or no treatment. The severe cases demand our earnest attention. Keep the patient in the recumbent position; it not only saves a great many heart beats, which in itself is sufficiently beneficial to the patient, but has a salutary effect upon the whole system. Rest should be enforced for several days after the temperature is normal. Later the patient should be made to lie down for an hour or two every afternoon.

In the acute stage in these severe cases, in fact at the very start, food should be withheld. The organs should be given a chance to eliminate the toxins present in the body. Food at this time, under poor digestive and imperfect assimilative influences, is a hindrance to rapid recovery. It should be withheld until needed; that may be two, three, or more days.

Water, however, should be allowed copiously. It will quench the thirst and otherwise satisfy the patient in lieu of food. It also dilutes the toxins. Later, with the receding of the temperature and other symptoms, soups of barley, rice, oatmeal, crackers, breadcrumbs, etc., may be allowed. Gradually milk diluted with water in equal parts, one soft boiled egg per diem, and cooked fruits and vegetables may be allowed. Lastly meats may be given.

From the very beginning the throat should be the object of treatment. It is most likely the nidus of the contagion. The applications vary according to the patient. The object is to add to the resisting power of the tissues of the throat. We must consider the age of the patient and the amount of co-operation to be expected from him. In older patients we may use to advantage the gargle or the spray. In the younger ones and the refractory cases we may be obliged to make direct applications to the throat, or cause vomiting by administering ipecac until emesis occurs, usually after the first or second dose. In still others we must rely upon the secretions being washed down into the throat by the water or broth taken, and eliminated per rectum.

The solutions to be used in the throat should be mild and alkaline or neutral in reaction, which is in conformity with the natural secretions of the mucous membranes of the throat. I prefer normal salt solution, or boric acid, one dram to the pint of sterile water, to be gargled, sprayed, or applied with absorbent cotton on an applicator, to remove the secretions, if loose and composed mostly of mucus. The adherent patches should not be disturbed, lest a severe reaction set in.

Sometimes an injection of diphtheria antitoxin subcutaneously will act favorably in a severe angina, accompanied by lymphadenitis and cellulitis of the neck. In other cases it may be advisable to follow the suggestion of Professor A. Jacobi and administer whiskey, a teaspoonful every fifteen or twenty minutes, or until a pint or more is taken in the twenty-four hours, especially in the septic cases.

It is a very rare occurrence not to find the nares involved in the local process of infection. It is good practice to use the common glass nasal douche or a spray or absorbent cotton on an applicator dipped in one of the foregoing solutions mentioned, in the nose. Applications to the nose and throat should be made as frequently as necessary; every two, three, or four hours.

In some of the cases massage is of great benefit. Professor John B. Murphy, of Chicago, recently reported that in Europe they use oil of eucalyptus in olive oil to massage a patient suffering from scarlet fever, with much benefit. That is undoubtedly true, but I get very favorable results from olive oil alone. It is my firm belief, as I have heard Jacobi frequently remark in the clinic, that it is the massaging that benefits and not the substance used, which, however, serves as an excellent lubricant. I order, when necessary, massaging, morning and night. Under this treatment, the patient rests better, and gets a few hours of sleep which he might not have enjoyed otherwise. Occasionally, in some cases, I do the massaging myself. This procedure should take at least fifteen minutes, and should cover the whole body, with special attention to the trunk, because the tissues are looser there and become hyperemic more quickly than on the extremities. This manipulation no doubt causes an outpouring of fluids in the tissues involved, and a consequent leucocytosis, phagocytosis, and antibody formation which adds materially to the body's defenses, judged from the beneficial results following massage.

The ice bag should not be neglected in cases with delirium and high temperature.

Beside water as a diuretic, which should be given warm, when the urine is suppressed or concentrated and highly colored, blankets wrung out of hot water should be wrapped about the patient and dry blankets on the outside. The perspiration induced will give much relief to the patient.

Internal medication should be used to the extent of meeting indications. From the outset a cathartic is usually indicated. Aromatic syrup of rhubarb—teaspoonful doses, three times daily to very young children in the mild cases—may be sufficient. In other cases, the aromatic fluid extract of cascara sagrada from twenty minims to one dram, three times daily, may be given. Still others are benefited by calomel, grain one fourth, every two hours, followed by salines after four doses have been taken. Or salines may be given without calomel, flavored with a syrup and dissolved in warm water, one teaspoonful three times daily until effect is produced, and repeated when necessary.

If a history of constipation is elicited at the first visit and it is a very young patient, a rectal injection of plain hot water, or soapsuds, or warm olive oil or glycerin suppositories, may be used to bring immediate relief.

The diaphoretic that I sometimes like to use is pilocarpine hydrochloride from one twelfth to one half grain in a syrupy solution, according to needs of the case. As a diuretic in young children, spirit of nitrous ether, ten minims to the dose, may be given in a palatable mixture every three or four hours. In very painful angina we are sometimes obliged to have recourse to a hypodermic injection of morphine, grain one twentieth to one fourth.

Sight must not be lost of the possibility of diphtheria complicating scarlet fever. When that occurs, antidiphtheritic treatment, such as antitoxin, should be administered. In extreme cases, where antitoxin has failed, one must be prepared to perform intubation and even tracheotomy, rare though these conditions fortunately are. In other rare complicating diseases, such as measles, the additional precaution of a slightly darkened room is indicated.

Dr. Samuel Stalberg, of Philadelphia, notes:

The patient is put to bed in the largest, best lighted room on the top floor of the house, from which all unnecessary furniture, carpets, etc., have been removed. The room should be well ventilated, preferably by means of open windows, care being taken to avoid draughts. The temperature of the room should be 65° F. From the onset to the completion of desquamation; or, rather, until convalescence, the diet should consist of plain milk, warm or cold, as is most agreeable to the patient, and peptonized only when the stomach is irritable; the amount to be fixed according to age and digestibility. To a few of the milk feedings daily are added kumyss and the farinaceous gruels, such as arrowroot, farina, etc. Ice cream, if it does not cause vomiting, may be given as a treat occasionally. Plenty of cool, boiled water, not too near the feedings, should be given, alternated with lemonade, orangeade, flaxseed tea, barley water, and lemonade, to a pitcher of which is added a teaspoonful of cream of tartar. Constipation is controlled by a soapsuds enema or solution of citrate of magnesia. Even where there is no fever, or

very little fever, a tepid sponge bath is given daily. If the temperature remains above 101° F., three or four daily spongings with water at 80° F. or water at 90° F., to which is added one fourth its volume of alcohol. When the temperature is above 104° F., the cold pack (90° F. gradually reduced to 70° F.) for a half hour is given. An ice bag is applied to the head, and sweet spirits of nitre combined with potassium citrate and simple syrup is administered in suitable doses every three hours. No medicinal antipyretics are administered. Where the fauces and tonsils are decidedly inflamed or swollen, gentle syringing of the nose and spraying of the throat with warm saline solution, boric acid solution, or twenty-five per cent. strength liquor antisepticus alkalinus, is employed. Older children gargle with the same solution instead of being sprayed. No potassium chlorate internally or hydrogen peroxide locally is used. As soon as desquamation starts, the skin is anointed with cacao butter or wool fat daily. Where there is itching, a couple of grains of menthol and five grains of boric acid are added to each ounce of the unguent. Very high temperatures, especially when accompanied by restlessness or delirium, require the cold bath at 80° or 70° F., and cold water may be poured upon the head.

The heart needs watching. When the pulse is rapid and small, an ice bag to the heart, and strychnine in 1/200 grain doses, is administered. Digitalis and strophanthus, in one minim doses every four hours may also be used. In asthenic and adynamic cases, with a cool skin and extremities and rapid and small pulse, hot water bathing (110° F.) with vigorous friction is required. In conditions threatening collapse, the above mentioned measures together with the injection of musk and camphor, are employed. Adenitis is treated by the application of ice cold compresses, the ice bag and twenty-five per cent. unguentum ichthyolis. If suppuration ensues, incision is to be performed. The ears should be examined daily for evidence of otitis media. The external ear is syringed with hot water and as soon as bulging of the drum membrane is noticed, puncture should be made and thereafter the pus frequently syringed away. If necessary, an ear surgeon can be consulted.

The urine should be examined daily, and upon the first appearance of albuminuria, a strict milk diet, large quantities of water to drink, opening of the bowels by Epsom salt or citrate of magnesia, and the use of hot packs or baths (110° F.) are at once employed. When these measures are not effective, pilocarpine hypodermically in 1/24 grain doses should be used cautiously.

When uremic convulsions occur, chloral per os or rectum, chloroform, and morphine hypodermically may be necessary.

Joint inflammation is treated by cold applications, lead water, and laudanum; and, though the condition is not rheumatism, salicylates are tried. Purpura as a complication is probably due to the disturbed blood condition and is treated by iron as mentioned below, and by acid fruit juices.

In cases complicated by true Klebs-Loeffler membrane, prompt use of diphtheria antitoxin is, of course, demanded.

In convalescence the dietary is gradually enlarged by the addition of junket, rice pudding, crackers, farina, milk toast, beef jelly, crackers, baked and stewed fruit. Tonics, especially Basham's mixture, should be used in convalescence.

The specific germ of scarlet fever has not yet been discovered, and there is no specific treatment of scarlet fever. In severe cases, antistreptococcic serum may be used, not with a view of combating the scarlet fever poison, however, but those of the complicating streptococci. Some observers have employed the serum taken from scarlet fever patients during the fourth week of the disease for therapeutic injection, from which they hold to be wonderful results. This, too, may be tried.

Prophylaxis is the same as in all the other contagious diseases. The virus of scarlatina is very tenacious, and exists in the patient's discharges and desquamated epithelium. If possible the patient should be sent to a contagious diseases hospital. If treated at home, isolation should be complete, for at least seven weeks. No one is permitted in the sick room except the physician and nurse. The former wears a gown completely covering his garments and shoes, and washes hands and face in soap and water and in bichloride solution before departing. The nurse and patient take complete baths in the same solutions before emerging from their quarantine. All the patient's discharges are received in a receptacle containing chloride of lime or twenty per cent. carbolic solution, and allowed to stand an hour before disposed of. The contents of the room are subjected to fumigation by sulphur or formaldehyde; or they are sent to a central municipal disinfecting plant, or are burned. Children exposed to infection are watched and not permitted in school for two weeks.

Dr. C. Howard Witmer, of Lancaster, Pa., writes:

All cases of scarlet fever, however mild, should be isolated and protected in bed against temperature changes. The temperature of the room should be uniform, and good ventilation assured.

The diet should be liquid as long as the fever persists, and for a week after it subsides, and milk furnishes us the best food. Broths may also be given, if they are not too highly seasoned, for we want a bland food with as little irritation to the kidneys as possible. After the temperature has been normal for a week, soft diet such as ice cream, junket, and rice are permissible, and as convalescence approaches, more elaborate diet including white meats is permissible. Water should be given freely in all stages of the disease, as it is a valuable diuretic and aids in the elimination of the toxins. The bowels should be kept open freely by use of the saline cathartics, as Epsom salts.

The fever of the patient is best combated by the application of an ice bag to the head, and if there is high fever, say above 103° F., a tepid sponge every three hours is indicated, at the same time potassium citrate or spirit of nitrous ether in proper dose should be given; they help combat the temperature and at the same time act as diuretics. The itching of the skin, which is often a troublesome condition, may be controlled by tepid sponging or the use of cold cream, or a mild carbolic ointment as inunc-

tions. Most patients with scarlet fever will get well with judicious nursing, and it is to prevent complications that most of our treatment is indicated.

The treatment of the throat I consider most important, and the manner of the treatment depends on the severity of the case. In the simple form of scarlet fever, where the throat is simply red and shows no exudate, a warm normal saline gargle every three or four hours is sufficient. In the anginose and malignant forms, where the throat is smeary or where it shows an exudate, all cases should be given at least 5,000 units of diphtheria antitoxin, for in many cases these exudates are of a diphtheroid type, and experience has taught us that there is a close relationship between scarlet fever and diphtheria.

If the patient is in charge of a competent nurse, the throat should be irrigated with warm normal saline solution three times a day, and if there is much discharge from the nose, it also should be irrigated at the same time. The patient gargles his throat every two or three hours with hot normal saline. If the throat is very smeary, it is often necessary to use a cotton swab of potassium chlorate saturated solution every three hours, and if there are distinct ulcerations, as in pneumococcic and streptococcic infections, these ulcers, in addition to the other treatment, should be touched with pure tincture of iodine once or twice daily.

The treatment of the throat tends to save the ear, but when we must depend on an untrained person, the use of irrigations is contraindicated, for many cases of ear trouble are directly due to improper irrigation of the throat. In such cases we must depend upon the use of gargles of potassium chlorate and normal saline solution. An ice collar is a useful adjunct in the treatment of the sore throat.

If, in spite of our care of the throat, the middle ear should become involved, the drum membrane should be incised as soon as it bulges, and the ear kept free from discharge by the use of sterile cotton. Here the use of irrigations is to be condemned, for the tendency to mastoid and cerebral disease is greatly increased by their use.

Enlarged cervical glands in the early stages are relieved by the ice collar, but often they persist and become quite large, and the only treatment then is to aid in producing suppuration by heat in form of poultices, and as soon as they are entirely broken down, free incision and drainage.

The nervous system often needs treatment, particularly in the anginose and malignant cases, and no drug acts so well as chloral in proper dose, and it has been my experience that scarlet fever patients suffering from delirium seem to stand chloral better than any other hypnotic.

The circulation must be watched and stimulated when necessary by strychnine, digitalis, or aromatic spirit of ammonia. Brandy and whiskey have long been looked upon as very efficient in toxic cases of any sort, but I believe as good results are obtained by the use of ammonia.

The urine should be examined twice weekly for the first few weeks and then weekly for six or seven weeks, and upon finding the slightest trace of albumin, all food is to be reduced to liquid and kept there until urine clears up. Should a nephritis de-

velop, the use of hot packs twice daily, digitalis poultices over kidney regions, and the internal administration of mild diuretics, as Basham's mixture or potassium citrate, and strict liquid diet are indicated. All cases of scarlet fever should be kept in bed for at least one week after the temperature reaches normal, and those having complications must be kept there a longer period of time. By keeping the patient warm at all times, many complications can be avoided.

Of late years the use of antistreptococcic serum has been advocated, especially in anginose and malignant cases. I have used it in a series of cases at the Philadelphia Hospital for Contagious Diseases, but I must confess that the results were not as pleasing as I was led to expect by the advocates.

An anemia always follows scarlet fever and this is best treated by wholesome food, fresh air, sunshine, and the use of some tonic, as the hypophosphites, Basham's mixture, or iron, quinine, and strychnine.

The patient must be kept isolated until free from desquamation and complications. Often it is difficult to know when to discharge a patient as cured, for the nasal discharge as well as a purulent otitis often become chronic. These ears may be treated by daily instillation of twenty-five per cent. argyrol and brewers' yeast every other day. I have seen this treatment act charmingly in some cases. The nose should also be swabbed with twenty-five per cent. argyrol.

In spite of our treatment, these noses and ears often continue to discharge, but they should be kept in isolation for at least ten weeks. At the Philadelphia Hospital for Contagious Diseases, they are kept for three months. Often the most profusely discharging ears and noses produce no return cases, while a case of scarlet simplex without complications may do so.¹

¹Prize essays, which, we regret to state, are crowded out by the limitations of space, were received from Dr. John Randolph Graham, of New York; Dr. Forbes R. McCreery, of New York; Dr. Henry Reiter, of New York; Dr. George Schuyler Bangert, of East Orange, N. J.; Dr. William Rankin, of Keokuk, Ia.; Dr. Joseph Nack, of New York; Dr. Michael Shander, of Trenton, N. J.; Dr. M. W. Platt, of Stuyvesant Falls, N. Y.; Dr. R. S. Fitzgerald, of Richmond, Va.; Dr. Joseph S. Amster, of New York, and Dr. Frederick D. Smith, of Nashville, Tenn. Our friends are advised to leave a liberal margin on the left side of their copy, not to use abbreviations, and, if the essay is typewritten, under no circumstances to have the lines "close spaced."

Therapeutic Notes.

Treatment of Chronic Lichen simplex.—Montot and Jaubert de Beaujeu, in *Lyon médical* for December 28, 1913, refer under the appellations chronic lichen simplex (Vidal) or chronic circumscribed neurodermatitis (Brocq) to an obstinate, pruriginous affection characterized by the formation of platelike lesions, with a thickened and infiltrated central zone, the surface of which is marked off into squares or rectangular areas by fissures. Around the centre is a zone covered with flat, imperfectly defined papules, and outside of these, smaller pink colored papules. Treatment either by the x rays alone or by linear scarifications, was found ineffectual by the authors, but where these two measures were combined, it was noted that a

cure could readily be obtained. The authors report three cases with the disease on the back of the neck, in all, in which relief from this obstinate disorder was afforded by the combined treatment. The scarification was done according to the method frequently employed in lupus, the cuts being made entirely through the infiltrated strata, and one mm. apart. After careful arrest of the oozing of blood, the x rays were at once applied, the dose at the first sitting being five H. units. The second application was made three or four weeks later, with a three to five H. dose. This time a thin aluminum shield (0.2 to 0.3 mm.) was used. No subsequent local treatment was carried out, except the use of a weak analgesic solution or ointment. In all the authors' cases a complete cure was effected in a period of three weeks to three months.

Treatment of Lung Tuberculosis.—F. J. Wethered, in the *Lancet* for October 11, 1913, after setting forth the value of physical rest in cases of pulmonary tuberculosis with fever, refers to the fact that patients with a severe cough often exhibit a relatively high temperature, prolonged coughing entailing considerable exertion, with the result that autoinoculation occurs. By giving a sedative cough mixture in these cases the temperature may be lowered. For the relief of coughing paroxysms the author has found the following efficacious:

R. Liquoris morphinae acetatis, . . . ℥viii (0.5 gram);
Spiritus chloroformi, . . . ℥iii (0.2 gram);
Limonis succi, . . . ℥xv (1 gram);
Mucilaginis acaciae, q. s. ad. . . ℥i (4 grams).

M. et ft. linctus.

Sig.: One dram to be taken when the cough is severe.

Treatment of Chorea.—Lesage, in *Journal de médecine de Paris* for October 18, 1913, is stated to have emphasized the importance of correcting hepatic and gastric disturbances in chorea. Wherever the bowel movements exhibit a tendency to irregularity, the skin is sallow, and gastric distention exists, the following treatment should be instituted: 1. For a period of three days, a small glassful of olive oil is to be ingested on an empty stomach in the morning. 2. For the next three days, 1/24 grain (0.0025 gram) of calomel is to be taken daily. 3. One glassful of lukewarm Vichy water before the noonday meal. 4. A slice of bread covered with sulphur and honey. 5. Sodium salicylate in the dose of three to five grains (0.2 to 0.3, gram). During this period of fifteen days a reduction in the diet should also be made.

Collin asserts that he has had definitely favorable results in some forms of chorea by the administration of ascending doses of strychnine, as originally advised by Trousseau and Hammond. The solution used is as follows:

R. Strychninae sulphatis, . . . gr. iss (0.1 gram);
Aqua destillatae, . . . ℥i (30 grams).
Fiat solutio.

To a child ten to fifteen years old, five drops of the solution are given three times daily in the beginning. The dose is then increased by one drop each day until the first suggestion of muscular rigidity is detected. This treatment is suited only for the cases with subnormal muscular tone and diminished power in the limb or limbs affected.

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NEW YORK, SATURDAY, JULY 18, 1914.

WIDESPREAD TUBERCULOSIS AND ITS
MASTERY.

The reported declaration of Sir William Osler, that adequate diagnostic means would show that ninety per cent. of mankind are more or less tuberculous, though seemingly sensational, is based on solid ground. The fact that calcareous or sclerotic masses are often found post mortem in persons who had been free from tuberculosis at the time of their death, has long been known. Schlenker, for example, found that sixty-five per cent. of 100 autopsies, irrespective of the cause of death, showed evidences of tuberculosis. Biggs found them in sixty per cent. and in another series, 31.5 per cent. of 4,000 autopsies, and Naegeli in ninety-seven per cent. of 500 autopsies. Rogée and Bondet, in their anatomical studies of the subject at the Salpêtrière and Bicêtre hospitals in Paris, among aged subjects, found that the proportion of instances in which there was clear evidence of spontaneous arrest of the disease was as high as four fifths. Aupinel, in the course of sixty autopsies in aged individuals who had died of various diseases, found evidences of cured tuberculosis in *every instance* and concluded, with Cruveilhier, Cornil and Ranvier, Bollinger, and others, that few persons escape infection, but that, thanks to calcareous and fibrous encapsulation, the lesions are spontaneously healed in

most instances. It is doubtless on data such as these that Sir William Osler based his startling statement.

Present day knowledge concerning the admirable resources of the body to offset the effects of pathogenic germs, not only lends weight to these observations, but emphasizes the facts, long ago urged, that the initial onset of pulmonary tuberculosis is not detectable with the means at our disposal, and that "the early signs usually described are in reality those of a fully developed disease, when local lesions are sufficiently marked to compromise the issue." Were the public and the medical profession thoroughly to apprehend this fact, the inroads of tuberculosis in a multitude of individuals could be checked, and correspondingly numerous fields for the pullulation of the tubercle bacillus—human lungs—promptly freed of the bacillus laden foci which convert them, through the sputum, into agents of dissemination. The public perpetuates the great white plague by treating its "coughs and colds" with patent nostrums; many physicians do likewise by withholding, in the absence of typical signs of the disease, apical signs, and tubercle bacilli in the sputum, the agents of salvation, and treating as "bronchitis" what in reality are cases of tuberculosis.

A great step in the battle against the disease will have been made when the profession and the public realize that a slight but persistent cough, unless indubitably traced to some other cause, is in all probability due to a tuberculous focus, never so small—the spark which may initiate the conflagration—the "small area" found post mortem in ninety per cent. of us. That a large proportion of these infections should never develop indicates, not only the efficiency of our defensive functions, but also the readiness with which intelligently employed remedies may prevent the lethal trend. Sajous spoke from personal experience when he stated that iodine, the iodides, thyroid gland, and creosote carbonate as bactericidal agents, followed by the hypophosphites to entomb the detritus *in loco*, are invaluable agents in connection herewith, through their great power to enhance the autoprotective functions of the organism as a whole.

ENGLAND'S INSURANCE ACT AND THE
MEDICAL PROFESSION.

The Lloyd George health insurance scheme of Great Britain, with its attendant socialization of medical practice, is proving a financial burden to the taxpayers, demoralizing to the high ideals and best traditions of the profession, and unsatisfactory to the beneficiaries themselves, who complain with

good reason of the perfunctory and inefficient service of the panel doctors. In its present form, which has all the evils inherent in cheap lodge or contract practice, it is believed that the act will be found unpractical and unworkable. In England, 12,976 medical men, comprising the best elements in the profession, have declined to serve, against 11,820 on the panels, the respective numbers in Scotland being 2,151 and 1,756. The total for England, Scotland, and Wales is 15,663 nonpanel doctors to 14,472 on the panels, showing a considerable majority of sturdy spirits who refuse to sacrifice their individuality for a mess of pottage or to serve as pawns in the political game of Lloyd George and his radical associates.

In the medical schools, good observers among the teachers declare that, as one effect of the insurance act, students are beginning to show a willingness to accept pass marks instead of displaying their former zeal and devotion to high standards of scholarship, and among the panel doctors there is frequently exhibited a conscienceless haste, indifference, and slovenliness in diagnosis which in some cases has become a public scandal. The lesson in this for the United States and other countries which may be tempted to introduce similar ill considered measures, is that any step which tends to break down the independence, dignity, and economic position of physicians is fatal to the spirit of scientific research and inimical to the public welfare. Some method of helping the poor must be planned which will not actually pauperize the medical profession.

STATISTICS RELATING TO CANCER.

For some years it has been confidently stated, by many authorities and from various sources, that cancer was greatly on the increase in the United States. The most alarming presentation of the matter from this pessimistic standpoint came from Mr. F. L. Hoffman in a paper read before the Clinical Congress of Surgeons of North America, at Chicago in October last. Mr. Hoffman declared that the cancer death rate of sixty-three per 100,000 of population in 1900 and of 74.3 in 1911 for the United States and for the large cities of 37.2 for the five years ending with 1876, and of 80.5 for the five years ending with 1911, does not represent the real actual increase, but is sufficient to prove that there has been and is an undoubted increase. One would imagine that Mr. Hoffman was fairly certain of the accuracy of his figures when he gave these statistics, but Dr. E. F. Bashford, writing in the *Lancet* for February 7th last, appears to regard them with a good deal of distrust; he attempts to

show that vital statistics in this country are by no means to be relied upon. He seems to have an intimate knowledge of the manner in which vital statistics are gathered and tabulated here, and dissects and criticizes very severely Mr. Hoffman's conclusions that cancer has increased so rapidly. Indeed he says the assertion is quite unjustified that the cancer death rates in the registration area of the United States are based upon data as trustworthy as those of any European country, and avers finally, that the statements of an alarming increase of cancer in America have only the value of vague rumors; they are based on fluctuating figures and not on statistics. He hopes that they will at least serve to awaken the American people to the necessity of enforcing the registration laws. Mr. Hoffman, on the other hand, in an address delivered during the recent meeting of the American Medical Association, did not hesitate to say that even if the Bashford criticism was correct, it should not have been published; he held that, as cancer was undeniably on the increase, nothing should be done to create in the mind of the public any doubt that this was true. It is unlikely that Mr. Hoffman can carry the medical profession with him in such bad casuistry; soon or late it is always found that under all circumstances, the plain, unadorned truth would have harmed the public least.

The consensus of medical authorities in this country is that cancer has increased to a considerable extent, although this has been recently denied by Surgeon General Rucker, who holds that the seeming increase is due simply to the greater amount of attention now focused on cancer. It must be confessed, moreover, that our vital statistics are not wholly trustworthy; on more than one occasion within recent years a plea has been urged for the revision of the vital statistics on a uniform basis. A beginning in this direction must be made by perfecting the system of registering births and deaths. To place the vital statistics of the United States on an accurate footing will be the work of years, but the time and money expended on this object will, in the long run, be well worth while.

OPTIMISM IN NEUROLOGY.

The value of optimism can be discussed from many standpoints—the philosophical value, the individualistic value, the practical and scientific value. We need not discuss here the value of optimism in medicine. Who but a pessimist will deny the good cause for optimism when he contemplates the abundant work being done, the work in bacteriology, immunology, vaccine therapy, pluriglandular dis-

turbances, complement fixation reaction, Abderhalden reaction, and a host of others? The steady advances in our knowledge of syphilis alone are more than sufficient to be a constant source of inspiration. This applies especially to that difficult but fascinating department of medicine, neurology.

The nervous system, with its complicated and poorly understood anatomy and physiology, seemed at one time too hopeless and barren a field for research and investigation. But as time goes on we find that the problem is being attacked and solved. Diagnosis, also, was difficult, but is now becoming easier and more scientific; prognosis and therapy are therefore more accurate. Syphilis of the nervous system was not, until recently, well understood; but a series of investigations and discoveries brought forth the Wassermann test in the blood serum, the Wassermann test in the cerebrospinal fluid, the chemistry and the cytology of the cerebrospinal fluid. Now come the Abderhalden reaction with the blood serum and the Lange test with the cerebrospinal fluid. Salvarsan and neosalvarsan have come to us. Again the Swift-Ellis method of intraspinal therapy with the employment of salvarsanized or neosalvarsanized serum opens up a promising field. The use of Flexner's antimeningitic serum was a great acquisition. The finding of the cause of acute anterior poliomyelitis and the proof that the so called metasyphilitic or parasyphilitic diseases like tabes dorsalis and paresis, were true syphilis, had already given us courage to attack the problems further. The progress in our knowledge of the genesis and evolution of the various psychoneuroses, has been going on in rapid strides. Neurological surgery, too, has not been standing still. Beside those here mentioned, we could enumerate other noteworthy achievements; if we were to include under neurology the whole group of mental disorders usually classed under psychiatry, we should see even more clearly our wealth of new knowledge. The new facts of neurology must surely lead the way to still more light. There are yet many problems left unsolved; there are still many regions unexplored. Since in recent years extraordinary advances have been made in the study of the nervous system, what great discoveries may we not expect in the years, not very distant let us hope, yet to come?

WHAT IS SAFE DRINKING WATER?

In the *Public Health Reports* for June 26, 1914, Dr. Allan J. McLaughlin discusses the qualities of drinking water in a paper which was submitted for the information of the International Joint Commission, which met in New York, May 26th last:

In order to say that a drinking water is hygienically safe, remarks Doctor McLaughlin, one must

be assured that it contains no pathogenic bacteria. The efficiency of water purification plants varies from day to day and from hour to hour, and an opinion upon the absolute safety of a given water supply cannot be rendered unless many bacteriological analyses, made at short intervals during each twenty-four hours, show an absence of *Bacillus coli*. While an absolute dictum is thus most difficult to secure, it is not difficult to determine, by daily bacteriological analyses, that a water does or does not give a reasonable index of safety. Instead of attempting to find the germs of typhoid fever, Asiatic cholera, and dysentery in water, we accept the presence of *Bacillus coli* as an index of pollution with sewage, for the reason that the chances of finding the bacillus are very much better than the chances of finding the other specific germs in the small quantity of water examined.

When we consider the grossly polluted water supplies used by many of our large cities until recent years, we must admit that even if the present effluents from filter plants do not show constant absence of *Bacillus coli*, they must be classed as reasonably safe, or relatively safe water.

THE NURSE; A NEW MAGAZINE.

To bring out a new periodical publication in a field already occupied, apparently with ability, and yet to manifest conspicuous originality, breaking away from tradition and blazing the way along new paths, is a considerable achievement. This has been done by the proprietors of *The Nurse*, which makes its first appearance with the July issue. From cover to cover through eighty-two pages the editor has presented novel, interesting, and important contributions, while numerous illustrations, many of them of entirely original design and value, help to make up a handsome as well as useful magazine. It is not too much to say that nurses of all grades and qualifications will find their namesake indispensable, while many a physician will note here and there a valuable hint, either for his personal use or to hand on to one of his assistants. *The Nurse* is published at Jamestown, N. Y., at two dollars a year.

MUMPS A SERIOUS DISEASE.

The importance of a report on mumps to the local government board in England by Dr. H. Gordon, is emphasized editorially by the *British Medical Journal* in its issue for June 27th. This disease is often a cause for merriment on the part of all save the sufferer, and it is not generally known, says the official British organ, that over 100 deaths occur annually in Great Britain from mumps and its complications, the latter comprising orchitis, epididymitis, oophoritis, mastitis, acute pancreatitis, grave nervous disorders, and disturbances of the eighth pair of cranial nerves. Now that Doctor Gordon's report is published, it seems that the disease is due to an ultramicroscopic virus, transmissible to monkeys and sometimes fatal to them. In four fatal cases the symptoms were those of meningeal irritation or meningitis; in one instance

where lumbar puncture was performed under general anesthesia, the cerebrospinal fluid was found to be under increased pressure and to show a marked lymphocytosis. The fluid was turbid, but yielded no growth on culture. Post mortem examination showed that the meninges and the substance of the brain and cord were congested, though no pus was seen and no growths of microbes could be obtained on culture. In each case the pia and arachnoid were infiltrated with leucocytes, the vessels of the brain and cord were distended, and small hemorrhages into the grey matter had occurred; the lymph spaces around the vessels and the grey matter showed no infiltration with leucocytes. In both cortex and cord some of the nerve cells showed degeneration, being in various stages of chromatolysis, vacuolation, or disintegration. No neuronophagy (by leucocytes) was discovered. The parotid glands were unaltered in three cases; in the fourth acute interstitial parotiditis was observed.

News Items.

The Alvarenga Prize.—The committee has awarded the Alvarenga Prize of \$180 this year to Dr. Herman B. Sheffield, of New York, for his essay entitled *Idiocy and the Allied Mental Deficiencies in Infancy and Early Childhood*, entered under the motto *Compos mentis*.

National Mouth Hygiene Association.—Dr. Harvey W. Wiley, of Washington, D. C., was elected president of this organization, at its annual meeting held in Rochester, N. Y., July 10th and 11th. Other officers elected were: Dr. W. A. Evans, of Chicago, first vice-president; Dr. Oscar Dowling, of New Orleans, second vice-president; Dr. William R. Malone, of New York, third vice-president; Dr. Rupert Blue, surgeon general of the United States Public Health Service, fourth vice-president. Next year's meeting will be held in San Francisco.

The Twilight Sleep in New York.—Physicians who are unfamiliar with the morphine-scopolamine anesthesia as used in childbirth, concerning which we have had much to say lately, will be welcomed at the Jewish Maternity Hospital on Henry Street, where the method is carried out regularly under the supervision of Dr. Abraham J. Rongy. It is particularly interesting to learn that this well known method is being carried on unostentatiously under the very noses of people who are clamoring for its immediate importation from Germany.

The American Medicine Gold Medal for 1914.—The trustees of the American Medicine Gold Medal Award respectfully announce that the medal for 1914 has been conferred upon Dr. George W. Crile, of Cleveland, Ohio, as the American physician who in their judgment has performed the most conspicuous and noteworthy service in the domain of medicine and surgery during the past year.

WILLIAM J. ROBINSON,

CLAUDE L. WHEELER,

H. EDWIN LEWIS,

Trustees.

Medical Society of the Missouri Valley.—The twenty-seventh annual meeting of this society will be held in Colfax, Iowa, Thursday and Friday, September 17th and 18th. Clinics will be held in Des Moines on Saturday, September 19th. The arrangements for the meeting are in the hands of a committee of which Dr. Granville N. Ryan, of Des Moines, is chairman, and the Polk County Medical Society will be host. The scientific programme will comprise twenty-five papers and two orations by men prominent in the profession. The officers are: President, Dr. Flavel B. Tiffany, of Kansas City, Mo.; first vice-president, Dr. Granville N. Ryan, of Des Moines; second vice-president, Dr. Austin McMichael, of Rock Port, Mo.; treasurer, Dr. O. C. Gebhart, of St. Joseph, Mo.; secretary, Dr. Charles Wood Fassett, of St. Joseph, Mo.

Brooklyn Pathological Society.—At the annual meeting of this society, held on the evening of May 14th, the following officers were elected: President, Dr. William Lintz; vice-president, Dr. Francis A. Hulst; secretary, Dr. Robert F. Barber; treasurer, Dr. Edward J. Morris.

Medical Society of New Jersey.—At the 148th annual meeting of this society, held in Spring Lake last week, under the presidency of Dr. Enoch Hollingshead, of Pemberton, the following officers were elected: President, Dr. Frank D. Gray, of Jersey City; first vice-president, Dr. William J. Chandler, of South Orange; second vice-president, Dr. Philip Marvel, of Atlantic City; third vice-president, Dr. William G. Shaufler, of Lakewood; recording secretary, Dr. Thomas N. Gray, of East Orange; corresponding secretary, Dr. Harry A. Stout, of Winona, and treasurer, Dr. Archibald Mercer, of Newark. The convention will be held in Spring Lake in 1915.

The Sale of Habit Forming Drugs in New Jersey.—The Department of Health of the City of New York recently received a communication from the health officer of Savannah, Ga., enclosing a letter from a New York physician to a patient in Savannah, informing the latter that inasmuch as it was impossible to have filled in New York prescriptions calling for habit forming drugs since the Boylan Law had gone into effect, he had arranged to have them made up in Red Bank, N. J. He suggested also that all future orders should be sent direct to Red Bank, where the prescriptions would be properly filled under his personal supervision. The writer of the letter is a graduate of the New York University and licensed to practise medicine in New York State, but is not a member of the Medical Society of the County of New York.

Bubonic Plague in New Orleans.—Dr. Oscar Dowling, collaborating epidemiologist, United States Public Health Service, reported on June 27th the occurrence of a case of plague in New Orleans. The patient died June 28th, and the diagnosis is reported to have been confirmed by necropsy and bacteriological examination. Doctor Dowling reported a second case on June 28th. The city and State authorities, together with officers of the United States Public Health Service, are cooperating to take such measures as are indicated to ascertain what foci of infection, if any, exist in the city and to eradicate such as may be found, both for the protection of the people of New Orleans and for the protection of other communities. Proper measures will be taken to prevent the carrying of infection, if such exists, from the city to other places within the United States and to foreign countries.

Personal.—Brigadier General W. C. Gorgas, surgeon general of the United States Army, has received the degree of doctor of laws from Yale and Princeton universities.

Dr. C. Irving Fisher has resigned as superintendent of the Presbyterian Hospital, New York, after nearly a quarter of a century's service as the head of that institution. It is said that Doctor Fisher, who is sixty-seven years of age, is retiring from active professional life.

Dr. Myles Standish, of Boston, has resigned as professor of ophthalmology at Harvard University. With the exception of seven years at Dartmouth College, Doctor Standish has been connected with Harvard University since 1886. He has been made emeritus professor of ophthalmology.

Dr. Paul Franklin Clark, formerly assistant in pathology and bacteriology at the Rockefeller Institute for Medical Research, has been appointed assistant professor of bacteriology in the University of Wisconsin.

Dr. Homer F. Swift, formerly resident physician at the Hospital of the Rockefeller Institute, and associate in medicine, has been appointed associate professor of medicine at the College of Physicians and Surgeons, Columbia University, and associate attending physician at the Presbyterian Hospital.

Dr. Oscar Teague, of the Cornell University Research Laboratory, has been appointed director of the new bacteriological laboratory at Quarantine, by Dr. Joseph J. O'Connell, health officer of the Port of New York. Doctor Teague was sent to Mukden in 1911 as the American delegate to the International Plague Conference, when the epidemic was at its height in Manchuria. He has also had experience with other quarantinable diseases, particularly cholera and leprosy.

Civil Service Examinations.—Among the positions for which the New York State Civil Service Commission will hold examinations on July 25th, are the following: Assistant physician, regular, in State hospitals, salary, \$1,200 to \$1,600 a year, with maintenance; assistant physician, female, in the State Institutions for Women at Bedford Hills, Albion, and Hudson, \$1,000 to \$1,200 a year, with maintenance; analytical chemist, State Reservation Commission, Saratoga Springs, \$1,200; assistant chemist, Department of Agriculture, \$800 to \$1,200; assistant medical officer, Health Officer's Department, Port of New York, \$1,500; county bacteriologist, Onondaga County, open to men and women, \$1,000 a year and expenses. Applications must be received in the office of the commission on or before July 17th.

Eugenics Research Association.—The second annual meeting of this association was held in New York on Saturday, under the presidency of Dr. Charles B. Davenport, who has charge of the Station for Experimental Evolution at Cold Spring Harbor, L. I. Professor J. McKen Cattell, of Columbia University, was elected president of the association for the coming year, and Mr. W. F. Blades, of Cold Spring Harbor, was reelected secretary-treasurer. Dr. Jean Weidensall, of the Laboratory for Social Hygiene, Bedford Reformatory, and Dr. A. J. Rosanoff, assistant physician to Kings Park Hospital, were appointed directors for three years.

Welfare Commission for Cripples.—This national commission held its annual meeting in Philadelphia on June 20th, following the convention of the American Orthopedic Association. Plans were made for the establishment of a central bureau for literature relating to the education and care of cripples, and the *American Journal of Care for Cripples*, published by the Federation of Associations for Cripples in New York, was designated as the official organ of the commission. The following officers were elected: President, Dr. Arthur J. Gillette; vice-president, Dr. H. Winnett Orr; secretary, Mrs. Edith Reeves Solenberger; treasurer, Dr. John L. Porter; editor, Mr. Douglas C. McMurtrie. The commission is now constituted as follows: Dr. Leonard W. Ely, of San Francisco, Cal.; Dr. A. H. Freiberg, of Cincinnati, Ohio; Dr. Arthur J. Gillette, of St. Paul, Minn.; Dr. Michael Hoke, of Atlanta, Ga.; Dr. Robert W. Lovett, of Boston; Mr. Douglas C. McMurtrie, of New York; Dr. John L. Porter, of Chicago, Ill.; Dr. H. Winnett Orr, of Lincoln, Neb.; Hon. Howard Kennedy, of Lincoln, Neb.; Dr. John Ridlon, of Chicago, Ill.; Dr. Harry M. Sherman, of San Francisco, Cal.; Dr. David Silver, of Pittsburgh, Pa.; Mrs. Edith Reeves Solenberger, of Lansdowne, Pa.; Hon. George W. Sweney, of Marion, Ohio, and Dr. H. Augustus Wilson, of Philadelphia.

Changes at Rockefeller Institute.—The Board of Scientific Directors of the Rockefeller Institute for Medical Research announces the following appointments and promotions: Dr. Hideyo Noguchi, hitherto an associate member in the department of pathology and bacteriology, has been made a member of the institute; Dr. Alfred E. Cohn, hitherto an associate in medicine, has been made an associate member for the term of three years; Dr. Wade H. Brown, hitherto an associate in the department of pathology and bacteriology, has been made an associate member for the term of three years. The following assistants have been made associates: Dr. Harold Lindsay Amoss, pathology and bacteriology; Dr. Arthur William Mickle Ellis, medicine; Dr. Thomas Stotesbury Githens, physiology and pharmacology; Dr. Israel Simon Kleiner, physiology and pharmacology; Dr. Alphonse Raymond Dochez, medicine. Doctor Dochez has also been appointed resident physician in the Hospital of the Rockefeller Institute, to succeed Dr. Homer F. Swift. The following Fellows have been made assistants: Dr. Frederick Lamont Gates, physiology and pharmacology; Dr. Louise Pearce, pathology and bacteriology. The following new appointments are announced: Chester Harmon Allen, M. S., Fellow in chemistry; Dr. Alan M. Chesney, assistant resident physician and assistant in medicine; Dr. Harold Knieser Faber, Fellow in pathology; Dr. Ross Alexander Jamieson, assistant resident physician and assistant in medicine; Dr. Benjamin Schönbrun Kline, Fellow in physiology and pharmacology; Dr. John Jamieson Morton, Jr., Fellow in pathology; James Kuhn Senior, M. A., Fellow in chemistry; Dr. Joseph Richard Turner, Fellow in pathology.

Pith of Progressive Literature.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

JUNE 4, 1914.

Deep X Ray Therapy.—A. Schittenhelm and F. Meyer-Betz are of the opinion that the use of the hard rays is capable of giving very satisfactory results in a number of internal diseases, since they penetrate deeply, do not injure the overlying skin, and can be applied with considerable intensity. Certain of the blood diseases, including the anemias, leucemia, etc., often respond very favorably to the use of x rays, but, contrary to the accepted belief, extremely large doses are contraindicated. Acute leucemia is usually made worse by the raying. The results are particularly favorable in the case of tuberculous lymph glands, while lymphosarcoma is quite resistant and must be treated with extremely large doses to prevent the stimulating effect of smaller ones. In spite of its resistance, lymphosarcoma is usually much improved by irradiation. A large number of cases of carcinoma of the stomach, liver, and intestine have been treated, but so far without definite results, even after very large doses. In one case the authors believe that the irradiation caused an almost explosive spread of metastases.

Occult Hemorrhage in Gastric and Duodenal Ulcer.—I. Boas believes that the usual methods of testing for occult blood are not sufficiently delicate to be of value in these conditions. He has perfected a new and extremely delicate test. The feces are extracted by rubbing in a mortar with alcohol to which three to five drops of glacial acetic acid are added. This is filtered through a dry filter and the filtrate is tested by adding ten to fifteen drops of a solution of phenolphthalein and three to five drops of a three per cent. solution of hydrogen peroxide which yields a carmine red if blood is present. One part of blood in three million parts of water gives a definite reaction. Using this test, Boas finds that every case of ulcer will give a positive reaction for blood unless the ulcer is cicatrized, and that in the presence of symptoms of ulcer the failure to obtain a positive reaction is evidence that the ulcer is cicatrized and the symptoms, therefore, are to be attributed to adhesions and other conditions associated with a healed lesion. Tests for occult blood give no evidence for the differentiation between gastric and duodenal ulcer.

Further Contribution on Diphtheria Treatment and Prophylaxis.—W. Braun brings forth much new evidence to show that the virulence of diphtheria varies widely in different epidemics, as well as to show that the mortality of the disease under treatment with antitoxin depends greatly upon the time of the disease at which the antitoxin was first given. The best results are obtained when this can be injected within the first thirty-six hours of symptoms, and Braun advises against waiting for the examination of a culture in any suspected case. On the question of prophylaxis Braun is more hopeful than the majority of German investigators. Of 2,218 exposed persons, including many children, only thirty-six, or one sixth per cent. later had diphtheria, and in most of these the disease was mild. Ten to fifteen times as many secondary cases developed

among those who had not been injected but who were similarly exposed.

June 11, 1914.

New Method of Sterilizing Vaccine Virus.—E. Friedberger and E. Mironsecu call attention to the fact that vaccine virus is always naturally contaminated with a variety of organisms irrespective of the care with which it is collected, and that the attempts to sterilize it by the addition of germicides and by sedimentation usually are only partially effective and always reduce the activity of the virus. The authors find that complete sterilization can be effected by exposure of the virus to the ultraviolet rays, and that this in no way diminishes the activity of the virus, if not continued for too long a time. The vaccine should be exposed in very thin layers, the process is very rapid, and hence lends itself particularly to the manufacture of large amounts of virus in times of epidemic, and it can be carried out shortly before the virus is to be used, thus insuring its full activity.

Radiography of the Liver, Spleen, and Diaphragm.—E. Rautenberg finds that by introducing oxygen into the peritoneal cavity the outlines of the liver, spleen and diaphragm can be photographed with great clearness. To bring out the liver the patient should be placed on his left side, for the spleen on his right. The normal liver is found, under these conditions, to lose its dome shaped upper curve and to present a smooth wavy outline, the congested liver preserves the dome shape, and the cirrhotic organ often shows the nodular character. Metastatic nodules of carcinoma have been demonstrated in the diaphragm. So far the method has been tried only on patients who have been tapped on account of ascites, but there seems to be no reason why the method should not be applied to other patients, and it is certainly capable of giving much valuable information. Where there is ascites, the fact that a considerable volume of gas can be left in the abdomen, seems to be of value, for its slow absorption tends to prevent the disagreeable depression of paracentesis.

Pancreatic Achylia.—Adolf Schmidt says that there is a pancreatic secretory disturbance, which can be most readily demonstrated by examination of the stools which contain undigested nuclei, show a creatorrhea, and a less marked steatorrhea. This occurs most frequently in the course of a gastrogenic intestinal dyspepsia, and is due to an achylia gastrica. Ferment tests of the feces are of little value alone in such cases. A mild form of acute pancreatitis occurs frequently as a complication of disease of the bile passages and is distinguished from pancreatic achylia by onset with pain and slight fever, and by a marked steatorrhea, while a creatorrhea is slight or wanting. This condition is due to the relative absence of bile, which is the most important activator of the pancreatic lipase, just as the gastric hydrochloric acid is the most marked stimulant of the pancreatic trypsin.

Cholesterin in Aortic Atheroma.—M. Anitschkow's experiments show that the mere presence of an abnormal amount of cholesterin in the blood is not sufficient to account for the development of atheroma. There must be another factor,

and this has been shown experimentally to be an elevated blood pressure. The high blood pressure leads to slight breaks in the aortic intima and the penetration of blood serum, and in these areas the e begins to be a deposit of cholesterin, the process finally going on to marked atheroma. The work was done with the lower animals, the rabbit being the one chiefly used, and the author is not ready to suggest that the findings are fully adequate to explain the occurrence and development of atheroma in the human being.

Experiments with the Bacilli of Friedmann's Remedy.—E. Baumann cultivated the bacilli from an ampoule of this remedy and used them in a series of animal experiments to test the claims made by Friedmann that the culture prevented or cured infection of guineapigs by human tubercle bacilli. Baumann finds quite the reverse—that the animals receiving Friedmann's bacilli died sooner than those infected with human bacilli and not receiving the former.

Capillary Puncture in Ascites.—Buth recommends the use of a capillary tube, the inner end of which is perforated laterally by many small holes for the distance of one cm. After the tube is introduced, the trocar is withdrawn and the tube is connected with a rubber tube and left *in situ* for several hours, the fluid draining off slowly. The method shortens the time consumed by the physician in paracentesis, and does away with the danger of collapse from the rapid reduction of intraabdominal pressure. Fibrinous exudates cannot be withdrawn by this method.

Asynchronism of the Ventricles.—S. LaFranca reported a case in which this phenomenon was demonstrated electrocardiographically. It is suggested that the cause of the asynchronism was irregularity in the spread of the impulse over the conducting mechanism.

Soy Bean Urease.—Donald van Slyke and his associates describe a method by which this ferment can be isolated in dry form from the soy bean, the powder obtained being completely soluble in water. They also describe a simple technic for the use of this urease in the determination of the amount of urea in the urine, blood, spinal, and other fluids. They believe that the method is particularly valuable because of its precision, simplicity, and rapidity, requiring only a few minutes for a complete determination.

Colloidal Gold Solution as a Reagent in the Abderhalden Reaction.—J. Matzkiewitsch finds that colloidal gold is an extremely delicate test substance for peptone—quite as delicate as the ninhydrin—and further, that it provides a means of proving the presence or absence of dialysable proteins which fail to give the biuret reaction, because these substances are capable of inhibiting the reaction produced by peptone on the gold solution.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

June 16, 1914.

Sterile Salt Solution for Injections.—Karl Tage prepares normal salt solution by using ordinary tap water and adding hydrochloric acid, neutralizing with sodium hydroxide, and using a one

per cent. alcoholic solution of phenolphthalein as indicator. Any desired strength salt solution can be made. The advantages of this method are: 1. Hydrochloric acid renders water sterile, especially if the acid is added when the water is boiling. 2. No special apparatus is required. 3. Dilute hydrochloric acid can be kept sterile, even if uncovered. 4. Salvarsan readily dissolves in it. The only waters that cannot be used are those containing calcium magnesium, manganese, and iron. These are freed from the salts of these elements by adding a few drops of phenolphthalein and then sufficient caustic soda to the point of neutralization, the water being boiled about five minutes and allowed to stand until the following day. It is then filtered, sufficient hydrochloric acid added, brought to a boil, and stored in the proper receptacles.

Treatment of Ulcus serpens of the Cornea.—

R. Kuemmell uses optochinine in the treatment of this condition. These ulcers are mostly due to the presence of the pneumococcus and quinine has been found of special value in pneumococcic infections. A two per cent. solution is applied to the ulcer, and a one per cent. solution is dropped into the conjunctival sac hourly. As the application of two per cent. solution is painful, it is best preceded by a local anesthetic. This treatment usually causes a great improvement in the appearance of the ulcer and the accompanying symptoms, of which iritis, cloudiness of the surrounding tissue, and hypopyon are the most frequent. If the process does not subside readily, another application of the two per cent. solution may be made locally. Atropine is given until full dilatation is obtained to combat the accompanying iritis. The results of this method of treatment have been very satisfactory. Cases of ulcer which are due to the diplobacillus are best treated with zinc sulphate solution.

Adrenaline and Pituitrin Treatment.—P. Rohmer used these two therapeutic agents in combination in cases of marked circulatory disturbances in children occurring in the course of pneumonia, diphtheria, and typhoid. He injected 0.25 c. c. of a one in 1,000 pituitrin preparation and 0.5 c. c. of a one in 1,000 adrenaline solution in young children, and double the dose in older children. These injections were repeated at intervals of six hours, as this was found to be about the duration of the rise of blood pressure. In the interval camphor or caffeine was injected. This class of cases opens up a new field for pituitrin therapy, which has heretofore been limited mostly to the field of obstetrics.

Salvarsan in the Treatment of Anthrax.—Leonhard Buberl reports a case of this disease treated with salvarsan intravenously, the dose employed being 0.6 gram. The improvement in the patient's condition was almost immediate. The temperature fell very rapidly to normal and the pulse became slower and fuller. The edema of the forehead and cheek, as well as the swelling of the neighboring glands, disappeared rather rapidly under treatment with warm applications of Burow's solution. Tincture of iodine was used locally on the pustule. The scab separated after about a month and left a deep scar. In view of the rapid improvement in the patient's general condition, which

just before the injection was grave enough to cause a guarded prognosis to be made, we must consider salvarsan a valuable remedy against systemic infection due to the anthrax bacillus.

Paratyphoid in Infants.—Kurt Bluehdorn reports a case of paratyphoid in an infant four months old which showed the typical picture of a systemic intoxication such as is seen in intestinal autointoxication and in dysentery. The child was infected from an older member of the family who cleared up quickly under appropriate treatment for intestinal intoxication. He advises the bacteriological examination of the stool in all cases of diarrhea in children, and several negative findings should not be considered as excluding the presence of bacteria, as in some cases they are found only after repeated examinations.

June 23, 1914.

New Vaccine in Tuberculosis.—J. M. Albary, in examining the toxalbumins of Koch's tuberculin, observed that in the presence of blood serum, they undergo a change in their physiological action. The change consists in a loss of reacting power of the tuberculin with tuberculous animals, depending upon the length of time it had undergone digestion with the blood serum. The conclusion was that the blood serum contained definite substances which neutralized the toxalbumins of the tuberculin. Three groups of guineapigs were injected with tuberculin for a period of four weeks as follows: One group received pure tuberculin; the second tuberculin mixed with an equal quantity of blood serum; and the third group tuberculin and an equal quantity of tuberculous blood serum. The animals of group three lived the longest, and at autopsy showed no changes in the liver or lungs. These experiments led to the belief that the mixture of tuberculin and tuberculous blood serum produced a certain degree of immunity. The author termed this mixture "sensitized" tuberculin. He used it in a case of tuberculosis of the larynx, obtaining the serum from blisters of the chest caused by the application of cantharides plaster, and mixing it with tuberculin. This was injected into the patient and brought about a cure of the ulcer in eight weeks, with reduction of the temperature. Immunity can be brought about by using tuberculin mixed with tuberculous serum, but in order to effect a cure it must be mixed with the blood serum from the individual tuberculous patient in whom it is to be injected.

Acute Appendicitis in Pregnancy.—Wanner reports five cases of acute appendicitis occurring during the course of pregnancy operated in by him in which the pregnancy continued in all but one case. The diagnosis of this condition is quite difficult in the early months, as it has to be differentiated from tubal infections, ectopic and right sided ovarian cyst, or tumor with a twisted pedicle; in the later months, from conditions in the pelvis of the kidney, gallbladder and liver and ulcers of the gastrointestinal tract. The prognosis is worse the further the pregnancy has advanced, as the cecum is drawn up and is more apt to cause a general peritonitis or infection of the fimbriated end of the tube and uterus with its contents, leading to general sepsis. The incision is best made on the right side, its

centre corresponding to the point of greatest tenderness. At times this may be high up, depending on the duration of the pregnancy. The stump should be carefully inverted and sewed over with two layers of silk. Drainage should rarely be employed.

Hemiplegia in Typhoid Disappearing during Convalescence.—G. Wulfi describes a case of typhoid, in which during the third week, the patient while attempting to get up suddenly broke down and remained unconscious for two hours. The following morning he showed the typical symptoms of a left sided hemiplegia. The case ran the typical course of a moderately severe typhoid infection, and at the time of discharge, two months from the onset of the disease, the paralysis had disappeared. Whether the hemiplegic attack was due to a hemorrhage, embolism, thrombosis, or encephalitis, could not be determined, although in view of the sudden onset of the apoplectic attack, the course (with complete restitution), and the examination of the cerebrospinal fluid, which was normal, with the exception that it was under greater pressure, indicate that hemorrhage or embolism is the most likely cause. Of interest was the agglutination test, which showed a positive reaction in a dilution of one in 40,000 during the first weeks of hospital treatment, later dropping to one in 640.

Emetine Treatment in Dysentery lamblia.—Assmy, of the German Policlinic in Chungking, China, refers to a case reported by Mayer treated with emetine, which caused the disappearance of *Lamblia* and the other symptoms of dysentery, and questions whether it was due to the action of the therapeutic agent. He had a similar case showing the presence of *Lamblia* and *Spirochaeta obermeieri* in the stool with the typical symptoms of dysentery. The only medication the patient received was a dose of magnesium sulphate, and as *Lamblia* disappeared from the stool, emetine cannot be regarded as a specific.

ARCHIV FÜR SCHIFFS-UND TROPENHYGIENE.

June, 1914.

Neosalvarsan in Various Tropical Affections.—F. van den Branden and A. Dubois say that neosalvarsan distinctly manifests the trypanocide and treponemocide properties of salvarsan, though its activity may perhaps be a little inferior.

PRESSE MÉDICALE.

June 13, 1914.

Dispensing with Isolation in Scarlet Fever and Measles.—M. Nagcotte-Wilbouchewitch urges the general adoption of Robert Milne's method in these infections. At the outset applications to the tonsils and pharynx of a ten per cent. solution of phenol in olive oil are begun; repeated every two hours for twenty-four hours in scarlatina, in measles, three times a day for several days more. Oil of eucalyptus is applied to the entire body, from scalp to toes, morning and evening for the first four days, then once daily until the tenth day. The patient is kept in bed from the beginning. Protection is afforded other persons by placing over the patient a large wooden ring, from which light, transparent gauze hangs to the bed. On this gauze

oil of eucalyptus is sprinkled. The effect is to shorten the disease and prevent complications. No further isolation is required. The patients are kept exposed to the eucalyptus by placing ten or fifteen drops of the oil on a piece of cloth to be worn near the body and by spraying it on the pillows.

June 17, 1914.

Periodical Asthenia.—J. Déjerine and E. Gauckler call attention to a large group of conditions characterized by periodicity, of which cyclical mental disorders and periodical or intermittent asthenia are noteworthy. The term periodical asthenia is applied to cases of intermittent physical weakness, unaccompanied by impairment of intellect. These individuals suffer in periods of a few days' duration, a marked incapacity for muscular work and abnormal fatigue, with more or less sexual weakness. Attacks of asthenia, which appear and leave off suddenly, without apparent cause, are common in the menstrual periods, but occur as frequently in men and independently of these periods, in women. They may appear early in life, and in a few cases seemed to the authors to be a sequel to infections such as typhoid fever or severe influenza. Some subjects have these asthenic attacks—lasting from a day or two to a week—three or four times yearly, while others experience them at fortnightly intervals. In the extreme type, bodily movement becomes almost impossible. With asthenia may be various changes in the pulse or blood pressure, digestive disturbances, mild Basedow symptoms, or headache. In severe cases, duration of the asthenia averages two months. In a number no definite trend was noted, the alternation of asthenia and normal motor capacity continuing regularly without change. At times secondary neurasthenia arises through suggestion and autoanalysis. The authors ascribe the asthenia to disturbed equilibrium of the ductless glands. Often striking results are obtained with thyroid or pituitary. Doses used during the attacks were thyroid, 0.1 to 0.15 gram, total pituitary extract, 0.25 to 0.5 gram. After the attack, 0.02 to 0.05 gram of thyroid or 0.1 of pituitary was continued indefinitely, in some cases with evident results from the prophylactic standpoint. Complete rest during attacks and avoidance of overwork in the intervals were also ordered. Some cases responded only to thyroid, others only to pituitary, and still others only to a combination of the two.

SEMAINE MÉDICALE.

June 17, 1914.

Fractures of the Lower Extremity of the Radius in Children.—H. Vulliet asserts that injuries to the carpal end of the radius are far from rare in children less than twelve years of age, and are commonly true fractures, not epiphyseal separations. In a study of twenty-nine cases, three definite varieties of injury could be grouped: 1, Epiphyseal separation, four certain and two doubtful cases, all in children over twelve years of age; 2, fractures by impaction, twelve cases, and, 3, fractures by flexion, eleven cases, at levels immediately above the epiphyseal line to three cm. above it. In the last group, there is a marked tendency to displacement, and in two there existed also an

inferior epiphyseal separation of the ulna. Anesthesia is essential for proper reduction. In the fractures at the higher levels, the forearm should be splinted both anteriorly and posteriorly in complete supination. The prognosis as to function is excellent, and operative intervention for consolidation in faulty position should be avoided, as spontaneous restoration takes place in time.

ANNALES DE DERMATOLOGIE ET DE SYPHILIGRAPHIE.

May, 1914.

Conditions Resembling Elephantiasis of the Ear.—L. Brocq describes two such conditions. In one the pinna of the ear suddenly becomes red and edematous with tumefaction, tension, and heat of the skin, without any preliminary dermatosis. After a while the redness pales, the swelling lessens, and conditions return to normal, but almost always recurrences take place at variable intervals. The other is a more or less violent exacerbation of an eczematous parakeratosis that has existed for a longer or shorter period either in the auditory canal or in the sulcus behind the ear. This form may resemble erysipelas, and is apt to persist for a long time in certain cases, particularly in women about the time of the menopause.

REVUE MÉDICALE DE LA SUISSE ROMANDE.

May, 1914.

Abdominal Rigidity.—Roux points out the distinction between different grades of abdominal rigidity. Mild grades result from a variety of causes, including fear and simulation, and are devoid of pathological significance. Marked rigidity, boardlike abdomen, retraction, or contracture arises through traumatism or is spontaneous. After traumatism, the boardlike condition may be present or not exist, whether the viscera are intact or injured. Seemingly it may be wanting where there is crushing of muscle tissue locally, or very marked where there has been local irritation of mild degree, provided this irritation has arisen in situations where nerves abound. While the degree of rigidity is frequently proportionate to the trauma, it never supplies information that permits one to reach a conclusion as to the state of affairs behind the abdominal wall; the detailed case history, percussion findings, signs of hemorrhage, and the patient's general condition must also be taken into account. Thus, after traumatism, rigidity is generally devoid of practical value. A spontaneously arising boardlike condition, however, is a very certain and important indication for operative intervention. While this condition does not invariably arise in cases of visceral rupture or inflammation, its presence should always suggest intense local irritation, due usually to the effects of gastric juice or the contents of the small intestine just below the pylorus, escaping into the peritoneal cavity through a perforation. Only in very exceptional cases, the author having met with but one, does the boardlike condition fail as an indication for operation.

Salvarsan Treatment of Syphilis of the Nervous System.—Dind reports his findings upon lumbar puncture at various stages of syphilis and discusses the treatment of syphilitic nervous dis-

ease. In the secondary stage, during the eruptive period, he found almost constantly a well marked excess of lymphocytes in the cerebrospinal fluid and an intraspinal hypertension. These changes were also noticed in a large proportion of cases admitted and examined before the earliest secondary eruption had appeared, thus showing that a cerebrospinal reaction occurs even before the skin reaction, and accounting for the headache which frequently precedes the secondaries. At the close of the eruptive period there remained only a slight spinal lymphocytosis, with but little excess of intraspinal pressure, and these conditions persisted through the period of mucous membrane involvement, with a few exceptions, in which an extremely marked lymphocytosis was found. Of seven patients with secondary syphilis, apparently in good health, and infected at least two years before, three showed a suspicious excess of lymphocytes upon lumbar puncture, while of twenty tertiary cases free from nervous syphilis, nine showed such an excess. Of sixteen cases of long standing syphilis with central nervous involvement, all but four showed the excess, and in three fourths the pressure was also high. Dind writes hopefully of the results of exclusive salvarsan treatment, controlled by lumbar puncture, in nervous syphilis, including the parasyphilitic diseases. He advises persistent intravenous administration of salvarsan, and considers intraspinal salvarsan injections illogical as well as dangerous.

Artificial Pneumothorax in Tuberculosis.—Meyer, in a series of twenty-six cases of artificial pneumothorax, obtained favorable results in fourteen patients. In five cases the results were negative, because of complicating enteritis, bilateral bronchopneumonia, etc., while in seven they were bad, four patients having tuberculosis of the opposite side, two meningitis. One died, probably because of perforation of the visceral pleura. Meyer considers these results highly satisfactory, in view of the fact that all the patients treated were already in an advanced, incurable stage.

Treatment of Cerebrospinal Meningitis.—Mallet reports a case of meningococcic cerebrospinal meningitis in a child of four years, in which complete recovery followed seven intraspinal injections of Kolle's antimeningitis serum—130 c. c. in all. The child was already practically well after the fourth injection. From this and other cases treated the author concludes that the subcutaneous route should be abandoned, the serum being preferably injected intraspinally or intracranially (beneath the brain meninges).

BRITISH MEDICAL JOURNAL.

June 27, 1914.

The Vicious Circles of Neurasthenia.—Jamieson B. Hurry contributes another chapter to the growing subject of vicious circles by his discussion of the interacting factors in neurasthenia. Only a few typical examples are cited in order to put the clinician on the lookout for the frequency of occurrence of such circles of interaction. For example, in nosophobia, disordered ideation and nervous exhaustion are also present to complete the circle, melancholia is associated with the same pair of interacting factors, and the same may be said of an-

orexia nervosa and insomnia. Circles of this class may be grouped together as psychical vicious circles. Among the somatic vicious circles, disordered ideation and exhaustion of the nerves may be associated with autosuggested dyspeptic or cardiac disorders, nervous exhaustion and hyperesthesia may accompany ovarian neuralgia, and asthenopia may be combined with excessive fatigability and nerve exhaustion. A host of other analogous circles might be cited, but these are sufficient to indicate the methods which must be adopted to break the circle at its weakest link. Psychotherapy, constitutional treatment, and less often local treatment must, one or all, be employed, and it is seldom sufficient to trust to one of the methods alone. Hurry concludes with the remark that, "It is strange that so little attention has hitherto been directed to this self-perpetuating factor in disease. Primary reactions are the commonplaces of our textbooks. But the reciprocal influence of those reactions on the original disorder is scarcely thought worthy of consideration. And yet this factor is of immeasurable significance in the evolution, progress, and termination of disease."

Internal Secretions and Dental Caries.—H. P. Pickerill calls attention to the fact that the thyroid, pituitary, and thymus glands may, by their secretions, be capable of influencing the resistance of the teeth to caries, it being possible that each of these glands pours into the circulation substances which affect calcium metabolism and utilization, "and which might be called 'osteogenetic' or 'dento-genetic' hormones." It is a deficiency in the case of each of these secretions which might lead to an increased susceptibility to caries. There is clinical evidence which inclines the author to think that there is a relation between dental caries in children and the condition of thyroid insufficiency. So far this is incapable of proof, for the other possible factors clinically encountered in cases of caries are so frequently present as to obscure the exact bearing of the secretion of the thyroid. Pickerill succeeded in securing one thyroidectomized rabbit which survived the operation for a long enough time to permit of observations. This animal showed a loss of calcium in the feces considerably in excess of that occurring in controls, along with a considerably more complete carbohydrate digestion. The teeth of this animal were well formed and grossly normal except that they were very white and lacked that "fine black deposit which is almost universally present on rodents' and other animals' teeth (and also in many cases on human teeth immune to caries)." The specific gravity of this animal's teeth was slightly below that of controls, and the teeth yielded slightly less ash than normal. The calcium present in these teeth fell two and one tenth per cent. below the normal of controls. The saliva of the thyroidectomized animal showed slightly reduced alkalinity and contained less calcium than normal. No experiments have been performed to test the influence of the pituitary or thymus, but it would seem that if the latter does play a part it could involve the deciduous teeth only. Pickerill warns against any generalization from either the clinical observations and suggestions or from the experimental findings here reported.

LANCET.

June 27, 1914.

Intravenous Injections of Iodoform in Leprosy.

—B. J. Courtney adopted Crofton's technic for the injection of iodoform in tuberculosis, leaving out the tuberculin. Half a grain of iodoform is dissolved in a hypodermic syringe in a mixture of three minims of liquid paraffin and seven of ether and the solution is injected into one of the superficial veins of the arm. Courtney increased the dose from half a grain twice a week to one grain five times weekly, and in four of the twelve patients treated, he gave local injections of iodoform into the substance of certain of the nodules. "Of the four tuberculous cases treated three showed undoubted improvement, and in the fourth the signs were distinctly encouraging at the time the treatment was unavoidably discontinued. In all of these cases the injections were given locally into the nodules as well as intravenously. . . ." The local injection leads to an ulceration and sloughing of the nodules, which goes on to perfect healing in a few weeks. In some of the cases in which the intravenous method alone was used a similar effect on the nodules was observed. In five of the cases the leonine expression disappeared and the thickening vanished from the ears and lips. Old anesthetic cases showed no improvement, and in one anesthetic case of two years' duration the improvement was too slight to be considered as definitely due to the treatment. It is to be recalled that in tuberculous leprosy, the disease may be present for years with apparently complete limitation to the skin, the internal organs escaping infection. The iodoform treatment was associated with an enormous increase in the numbers of bacilli escaping in the secretions from the ulcerated nodules, and it is possible that the treatment may thus serve to diminish the actual intensity of the infection in a direct manner.

Bacillus Friedländer Vaccine in Lung Fibrosis.

—Alexander Sandison presents the record of a case of long standing pulmonary fibrosis from the sputum of which the bacillus of Friedländer was isolated. A stock vaccine of this bacillus was administered in doses beginning with thirty and increasing to one hundred and fifty million organisms. Under this treatment the bacilli disappeared from the sputum, the patient gained much weight, there was progressive and marked improvement in general health, and distinct improvement in the dyspnea and palpitation—sufficient to enable the patient to resume work.

Acute Noncalculous Cholecystitis in a Child.

—Frederick C. Pybus described a case of this rare affection occurring in a boy six years old. The onset was marked by persistent vomiting, pain in the abdomen, and fever. A mass and local tenderness could be made out in the right upper quadrant of the abdomen, and the diagnosis of subhepatic appendicitis was made. At the laparotomy, the gallbladder was found much distended and pus was aspirated from it. No stones were present or in the ducts. Drainage was followed by recovery and a cure. Bacillus coli was isolated from the pus. Only five other cases of this condition have been recorded in the literature.

JOURNAL OF LARYNGOLOGY, RHINOLOGY AND OTOTOLOGY.

May, 1914.

Intranasal Operations for Frontal Sinus Suppuration.—P. Watson-Williams states that an efficient intranasal operation is preferred to an external one, except where the symptoms are indicative of intracranial complications, of bone necrosis, of osteomyelitis, or where ocular complications exist of such a nature as to make any operation short of a radical one a source of danger to the patient. Skiagrams should first be taken to determine the size and condition of the sinus. The operation is no more painful than a submucous resection of the nasal septum, takes less time, and can be performed under local or general anesthesia. The author prefers the following operation: The anterior margin of the middle turbinate is attacked at its junction with the outer wall. The plunge of the curette enters the anterior ethmoidal cells in front of the frontonasal duct. These cells are entered, as well as those belonging to the agger group. In order entirely to eliminate the anterior cells with safety, it is important to keep to the inner side of the vertical plate of the ethmoid. The opening produced should be sufficient to permit the entrance of a number eighteen or nineteen bougie into the frontal sinus. If difficulty is encountered, the opening may be enlarged with a sliding cutting forceps, or a guarded burr. In the majority of the author's cases, the use of the latter was not necessary. The sinus is well irrigated. The anterior portion of the middle turbinate bone is sacrificed to prevent future obstruction by exuberant granulations. The author believes that the operations of Ingals and Halle are too dangerous.

Intranasal Treatment of Empyema of Frontal Sinus.—H. Tilley emphasizes the importance of preliminary cleansing of the operative field and sinus to avoid postoperative septic infection. The author suggests that the presence of the curette in the region of the lacrymal bone can be determined by placing a finger over the inner canthus. The excursion of the curette is limited by the lacrymal bone and the os planum of the ethmoid. Following the operation, if the discharge does not show signs of ceasing in a week or ten days, the part is to be cleansed as thoroughly as possible, dried by the insufflation of warm air, and a sixty grains to the ounce silver nitrate solution injected into the sinus, thus destroying any villous outgrowths of the pyogenic membrane and permitting the regrowth of more normal mucous membrane.

PRACTITIONER.

June, 1914.

Symptoms and Complications of Sinusitis.—

St. Clair Thomson says that the symptom which usually directs attention to suppurative sinusitis is a discharge of pus into the nose, but this symptom is absent or not complained of in a considerable number of cases, and not infrequently some vague disturbance of health, or some neighboring symptom, or some more distant catastrophe, is the first thing to call attention to the original purulent focus. He groups the symptoms of sinusitis in four classes: 1, Diseases of neighboring regions, nose,

pharynx, eyes, ears, head, and face; 2, diseases of more distant organs, lower respiratory tract and digestive tube; 3, interference with general health, prostration, loss of weight, fever, neurasthenia; 4, intracranial complications. The main nasal symptoms are obstruction and discharge. The obstruction will vary with the amount of discharge, the time of day, the weather and the general health. The discharge may be unilateral or bilateral. A disagreeable smell or taste appreciable by the patient but not by his friends is very symptomatic of nasal suppuration, especially of the maxillary sinus, while the smell of ozena and of syphilitic necrosis is noticed by others, but not by the patient. The presence of pus and polyps in the nose is almost characteristic of purulent ethmoiditis. The vague condition postnasal catarrh is referable to sinusitis in the majority of adults. Pharyngitis, especially when suppurative or scabbing, pharyngeal abscesses, and recurrent suppuration in and around the tonsils are not uncommonly due to the same cause. Ocular symptoms may be produced directly, by obstruction or infection of the lacrymal passage, or by inflammatory extension into the orbit, or indirectly by reflex action, producing conjunctivitis, blepharitis, asthenopia, and certain nervous symptoms of the eye. Optic neuritis is frequently met with, and in quite a number of cases a retrobulbar neuritis has been traced to disease in the accessory nasal sinuses. Sinusitis may cause tinnitus, vertigo, earache with no signs of inflammation in the middle ear, Eustachian catarrh, and purulent otitis media. It may also cause perfectly healthy teeth to ache. Headache, faceache, hemicrania, and neuralgia are apt to be caused by the same troubles, as well as certain cutaneous affections of the face. A nasal or sinus suppuration may be productive of a purulent or scabby laryngitis, bronchorrhea, gastric disturbances, obstinate vomiting, or diarrhea. The bad taste and disagreeable breath may mislead by attracting attention to the stomach, the more so as a furred and flabby tongue with various gastric symptoms may be complained of in nasal sinusitis. Anemia, phlebitis, and bradycardia have also been found. Among the conditions that have been traced to a sinus empyema are those of general ill health, loss of weight, feverish attacks simulating typhoid or malaria, pyemic metastases, insomnia or marked somnolence, reflex cough, irritability, loss of memory, languor, weariness, stupor, aprosexia, neurasthenia, melancholia, and weakened resistance to alcohol and tobacco. Intracranial complications may follow the spread of the infection through the communicating blood and lymph channels, or by destruction of the bony wall. These remote symptoms and complications of nasal sinusitis are not the ones most commonly met with, but they do occur, and would naturally prompt a patient to consult a general practitioner rather than a rhinologist.

Neuritis: Treatment with Electricity.—Naunton Davies maintains that, by the method he describes, every case of neuritis, whether acute or chronic, can be cured. A needle long enough to reach the affected nerve must be inserted into the exact spot, or the result will be disappointing. The spear pointed platinum needle, insulated to within one third of an inch of the point, and attached to

negative pole of a galvanic battery, is pushed gently through the skin at the seat of pain toward the underlying nerve. The positive disc is placed on an indifferent part a few inches away from the needle. The current is turned on very gradually, as soon as the needle makes contact with the skin, and increased up to, but never more than 6 milliampères. The current is continued for ten minutes and turned off very slowly, for sudden stoppage causes pain.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

July 4, 1914.

Some Unhealthy Tendencies in Therapeutics.

—This paper, by J. F. Anderson, was abstracted in our issue for June 27, page 1310.

Research in Ophthalmology, and the Training of Ophthalmologists.—This paper, by F. C. Todd, was abstracted in our issue for July 4, page 54.

Ocular Manifestations of the Toxemia of Pregnancy.—This paper, by W. A. Holden, was abstracted in our issue for July 4, page 54.

Painless Tumors of the Spinal Cord.—P. Bailey states that since 1896, when he reported two cases of this kind, several other examples of spinal cord tumor have been observed by him, in which the characteristic root pains were absent; and that a recent review of the literature has shown that in a very considerable number of recorded cases pain is either not mentioned or is specifically stated to be slight or wanting. The relation between trauma and spinal cord tumor he believes to be well established. The following are particulars of four cases: 1. Intramedullary sarcoma, lower cervical and upper dorsal cord. Three years' duration. No spontaneous pain. Laminectomy, but removal of tumor impossible. Perfect surgical recovery. 2. Intramedullary lesion in cervical cord. Eight years' duration. Pain intermittent and varying in location. Operation. Death. 3. Extradural psammoma of upper dorsal cord, of six years' duration. No characteristic pains. Laminectomy, with removal of tumor. Perfect surgical recovery. Slight symptomatic improvement. 4. Intramedullary perithelioma of middorsal cord, of nine months' duration. No characteristic pains. Laminectomy, with partial removal of tumor. Death nine months after first operation.

Residuum in the Empty Stomach.—M. E. Rehfuess, O. Bergeim, and P. B. Hawk, of Jefferson Medical College, conclude: 1. The accepted limit of the normal residuum of the empty stomach as twenty c. c. is false. 2. Examination by means of the old stomach tube, as demonstrated by Harmer and Dodd and by their own experiments, is entirely inadequate. 3. Examination by means of the new modified stomach tube is the only satisfactory one of determining the complete residuum. 4. In a series of healthy medical students, the residuum in every instance exceeded twenty c. c., and in several instances was above 100 c. c., without the presence of any evidence of gastrointestinal or general disorders. 5. The significance of this symptom is relation to the diagnosis of ulcer must be seriously considered.

Chronic Ocular Tuberculosis.—F. H. Verhoeff reports necropsy findings in a case in which death was due to tuberculosis of the hypophysis cerebri.

Having referred to cases in the literature, he states that the features of chronic ocular tuberculosis in general, including those of this case, make it plain that there is something special about this type of tuberculosis in addition to the mode of origin of the eye lesions. This is indicated, among other facts, by the following: 1. Chronic ocular tuberculosis almost never occurs in cases in which there are well marked clinical signs of systemic tuberculosis, and in which, therefore, metastases would presumably be most apt to occur. On the contrary, it occurs chiefly in cases in which it is difficult, or even impossible, to find any other indications of tuberculosis. 2. Although chronic ocular tuberculosis is rare compared to tuberculosis in general, when it does occur, it is almost always sooner or later bilateral; thus showing that it does not represent chance metastases. 3. It occurs almost exclusively in adults, and sometimes even in patients of advanced age. 4. It occurs far more frequently in females than in males. 5. The temperature is almost never elevated, and is often subnormal.

Tumors of the Optic Nerve.—W. G. M. Byers concludes from his investigations that tumors of the optic nerve, growing within its dural sheath, can be sharply divided into two groups. In the first, the basis is essentially an overgrowth of the fibrous connective tissue elements of the nerve, though varied in character. In the second, the changes, also varying somewhat in character, are attributable to a proliferation of the local endothelial cells; the growths being classified as endotheliomas. These two groups appear to be closely related histogenetically, but the first exceeds the second in frequency of occurrence in the proportion of about thirty-five to one. As regards prognosis, it must be remembered that in many, if not most instances, the tumor of the optic nerve is but part of a neoplasm with a more or less wide intracranial distribution, which in its eventual development will prove fatal. It is a question whether it is possible and permissible to do anything further in those cases in which, after removal of the orbital growth, an intracranial portion remains.

MEDICAL RECORD.

July 4, 1914.

Laboratory Diagnosis of Acute Mastoid Disease.—Gorham Bacon calls attention to the importance of skiagraphy, microscopical examination of pus from the tympanum, and daily examinations of the blood to determine whether leucocytosis is increasing or decreasing, and relative changes in the cell percentage.

Error in the Diagnosis of Pulmonary Tuberculosis.—M. Fishberg reaches the following conclusion: Errors in the diagnosis of active tuberculosis can be avoided if we bear in mind that no single symptom or sign is pathognomonic. The most reliable is undoubtedly the tubercle bacillus, but even this may lead us astray; the extensive use of the antiformin method has increased errors of this character. Signs revealed by physical exploration of the chest, as well as x ray, are indicative of the physical condition of the thoracic viscera, particularly the air content of the lung, but at times anomalies of the chest wall obscure the picture and

lead to error in findings and interpretation. To avoid error we must also bear in mind that there are nontuberculous apical catarrhs caused by the pneumococcus, the streptococcus, and the influenza bacillus, also collapse induration of the right apex in mouth breathers; all of which show local signs simulating tuberculosis. Error in judgment and fallacy in reasoning can best be avoided by correlating all the subjective and objective symptoms and signs elicited at several examinations, and assigning to each one its proper place and value.

Relation of Divorce, Accidents, Crime, etc., to Mental Defects.—S. Block endeavors to show connections between mental deficiency, divorce, alcoholism, insanity, and accidents. Illegitimacy is a cause of mental defect, and weakened judgment is undoubtedly hereditary. Alcohol, and perhaps some other drugs, have a definite connection with mental defect. As regards accidents, when a person does not know whether it is better to go backward or forward in order to avoid an accident, and gets caught for the mistake, it may mean that he has not responded quickly to a stimulus which surely was important to the individual concerned. To take hazard risks is not always a sign of mental deficiency, but to take such a chance without careful forethought is a sign of lack of judgment. One of the most interesting points in connection herewith is that the same individuals meet with frequent accidents. Of 112 persons interrogated in four semiprivate hospitals, forty-six had had a previous accident, thirty-two had had more than one previous serious accident, and twelve had near relatives who had been in hospitals on account of some injury. Block is unable to recall a single instance, out of possibly 40,000 or 50,000 examinations, in which an undoubted defective did not have a scar from some accident.

Wound Healing with the Aid of Vaccines.—J. Gardiner says that to close a wound in the presence of infection is considered bad surgery, but a case in his experience demonstrates the advantage of combining vaccine treatment with the suturing of an infected wound, where limited tissue portions of tissue have been lost or removed. Great tension may be employed, as in this instance, with a negligible amount of cutting through the sutures. The wound in the case described was one resulting from the removal of a sacral dermoid filled with hair.

AMERICAN JOURNAL OF ORTHOPEDIC SURGERY.

April, 1914.

Congenital Luxation of the Hip.—P. Le Damany reviews the mechanism and treatment of congenital luxation of the hip. He asserts that the etiology is torsion of the femur and partial leveling of the acetabulum, resulting from the accommodation of the human fetus to the form of the maternal uterus, so that the hyperflexed femur becomes a lever of the first class during late uterine life. In his treatment he admits that all procedures are good providing the head of the femur is brought back into the acetabulum. He describes his simplification of the Paci-Lorenz method. Following the reduction, apparatus is used for a period of from three to six months.

Treatment of Scoliosis.—A. Schanz goes into considerable detail of the past and present treatment of scoliosis. He states that all real scolioses show three symptom complexes; that is, lateral curvature of the spine with formation of principal and counter curvature, cultivation of wedge shaped and oblique vertebræ, and torsion; he believes in massage, electricity, curative gymnastics, etc., in selected cases only. In many instances gymnastics finally aggravate instead of improve the scoliosis. He describes his methods of using plaster of Paris beds, portable corrective apparatus, etc. In summing up the writer remarks that the mild scoliotic cases are easily corrected; that the rachitic cases are easy to influence therapeutically; that in certain constitutional cases the process can be brought to a standstill, but that in other constitutional cases which are apparently of the same type, the treatment is unsuccessful. He is inclined to believe that most forms of treatment eventually reach the same end. He states that the next step must come from pathology and asks the real nature of the process of the constitutional scoliosis.

Pseudarthrosis Produced by Interposing Sheet Silk and Bayberry Wax.—Roland O. Meisenbach has successfully used sheet silk and bayberry wax in four cases of bony ankylosis, thereby producing a pseudarthrosis. He says that the materials used produce less postoperative reaction than those prepared according to the method of Lange, the only difference being that the former has a final immersion in bayberry wax and the latter in paraffin.

Traumatic Periostitis of the Lumbosacral Spine.—Clarence E. Coon presents eight cases of injury to the back, the x ray of which shows no fractures or dislocations of vertebræ, but merely a haziness or indistinctness of certain vertebræ. He calls these cases traumatic periostitis and gives his reasons for doing so.

Spontaneous Luxation at the Hip Joint as a Sequel of Typhoid Fever.—Charles M. Jacobs reviews cases of spontaneous luxation of the hip joint as a sequel of typhoid fever. He states that most authors believe that luxation is caused by a large effusion in the joint which distends the capsule, weakens and stretches the support of the joint, forcing it apart. He used the Lorenz reduction in three cases, one successful. The treatment is successful with careful procedure and proper technic.

ANNALS OF OTOTOLOGY, RHINOLOGY, AND LARYNGOLOGY
December, 1913.

Pathology of the Accessory Sinuses.—J. C. Beck states that in a microscopical study of the turbinate and ethmoid tissue removed from patients suffering from asthma, whether a suppurative or a nonsuppurative condition existed, the bone changes showed large areas of rarefaction. On the other hand, the tissue surrounding these rarefied areas showed little evidence of any inflammatory condition. The variation in the appearance of the tissue covering the bone was quite marked. Some cases showed a considerable inflammatory edema as the prominent feature; some a predominance of round

cell infiltration and old connective tissue; while other cases existed in which the glands were distended and increased or showed evidence of having undergone myxomatous degeneration. A particular point noted in cases of chronic nonsuppurative sinusitis, where the symptoms of asthma had not manifested themselves, was that the rarefying process was not so marked as in those cases in which asthma existed.

Cavernous Sinus Thrombosis and Streptothrix.

—H. Horn believes that the presence of streptothrix is far more common in ear infections than is generally reported; the organism causing the infection of the human being is not apt to produce any marked constitutional symptoms, but rather physical changes in the tissues actually involved. In complicated cases symptoms of systemic infection are noted. In the case cited, the infection, which eventually involved the cavernous sinus, was traced to the external ear as the point of origin.

Aphthous Ulceration of the Upper Air Passages in Pulmonary Tuberculosis.—J. N. Mackenzie states that aphthous ulceration appears as a small, superficial, irregularly round or oval erosion of the mucous membrane, varying in size from a pinhead to a small pea. It may appear separately and stud the surface of the membrane, or may coalesce and form a large ulcer. Although at first superficial, as it develops, its walls become sharp, irregular, and somewhat elevated, and it varies in color from a light reddish shade to a pronounced livid hue. The base is either smooth and red in color, or presents a rough, uneven appearance, and is generally covered with a yellowish slough or with an orange colored exudation. The ulcers are surrounded by a brilliant scarlet border, and the mucous membrane between them is slightly swollen and deeply hyperemic. The ulcers are always multiple and are most frequently found in the lower portion of the trachea and bronchi; in the former, usually on the posterior wall. They are seen less frequently in the larynx and pharynx. In the former, the laryngeal aspect of the epiglottis, the anterior surface of the arytenoids, and the interarytenoid fold seem to be the selected points. The lesions, however, in this locality appear to lose the characteristic picture as described and assume an appearance not unlike simple catarrhal ulceration. The pyriform sinuses seems to be the favorite seats in the larynx. The ulcers are sometimes found associated with, or in the vicinity of, tuberculous ulcers, appearing to bear a definite relationship. Evidence points to the predilection of the ulcers for those places which are in constant contact with the tuberculous sputum. They increase in number as the lungs are reached, and are much less common in the upper portion of the trachea and larynx. They are absent in the bronchi of the lung, which is not the seat of cavities or advanced tuberculosis. Their occasional presence in the esophagus, stomach, and intestines results from swallowing the sputum. They are occasionally found in suppurative pneumonia and gangrene of the lung.

Bone Conduction in Syphilis.—O. Beck noticed in a large number of syphilitic patients suffering from disease of the ear, that bone conduction was strikingly reduced compared to the shortening of

air conduction in affections of the internal ear; lengthening of bone conduction frequently could not be so distinctly elicited in lesions of the sound conducting apparatus as we are accustomed to obtain it in nonsyphilitic patients. The shortening was particularly evident in cerebral syphilis. In the presence of normal hearing, it seemed to precede all other symptoms of general luetic infection.

Proceedings of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-ninth Annual Meeting, Held at Boston, May 19, 20, and 21, 1914.

The President, Dr. J. WHITRIDGE WILLIAMS, of Baltimore, in the Chair.

Forward Fixation of the Cervix; Operation.

Dr. EDWARD REYNOLDS, of Boston, recalled that the supports of the uterus were largely muscular, with the exception of the forward attachments of the cervix. The shortness of the latter formed an essential element in the ante flexion of the cervix. Firm forward fixation of the cervix while the fundus was comparatively movable, created a predisposition to retrodeviations. The release of the forward fixation of the cervix as a preliminary to the performance of the standard operations for the retrodeviations added greatly to their percentage of success. The author described in detail the operation he performed.

Dr. HERMAN J. BOLDT, of New York, stated that for what was called ante flexion of the cervix by Doctor Reynolds, and, he believed, by all other writers, he had been accustomed to use the term retroversion of the cervix, considering the direction of the cervix from the position of the external opening. It was a condition which was always congenital unless caused by pelvic inflammation. Heretofore he had always looked upon the shortened, and not infrequently indurated condition of the sacrouterine ligaments as being the main factor in causing this position of the cervix, and he had, on a number of occasions in the last twenty years, cut the shortened ligaments to overcome the backache of which many persons so afflicted complained; several times relieving this symptom by the surgical intervention. That the holding forward of the fundus was due to the action of the round ligaments was questionable in the greater number of such instances. These ligaments were not taut, except when the bladder and the rectum were full. The condition was usually an association of ante flexion of the body of the uterus with a retroversion of the cervix; and unless there was an atrophy of the anterior cervicocorporal junction, probably as a result of long standing of the condition, they would find the tissue at this junction unyielding; indurated, if he might call it so, since it was impossible to straighten it permanently by manual or mechanical means. Hence the mechanical dysmenorrhea of which many patients frequently complained. The usually present shortened anterior vaginal wall was part of the congenital malformation and was, of course, an additional factor in causing the retroversion of the

cervix. He had always regarded the shortened and thickened sacrouterine ligaments to be a low grade inflammatory process, a parametritis posterior. Furthermore, when the condition was of long standing, and more or less atrophy had taken place in the anterior part of the cervix at the flexion angle, owing to long duration and not infrequently increased size of the body of the uterus, the organ could not straighten itself by any physiological factor brought to bear upon it. They might indeed see the uterus assume a position farther backward in the pelvis, thus constituting a retroposition; and then the intraabdominal pressure might cause a still more acute flexion angle.

Dr. HENRY T. BYFORD, of Chicago, had usually regarded this condition of forward fixation of the cervix with retroversion of the uterus very much as the rest of the members. He had in many cases separated the bladder from the uterus quite extensively through a transverse incision and had drawn the parts together from the side to the median line, but he had not done exactly the same operation as that described by Doctor Reynolds. He had operated with the idea that when he drew the connective tissue from the sides of the cervix as far back as he could, he was drawing the tissues taut, getting support in front of the cervix which would hold it back more, making lateral support, drawing from the connective tissue around the sides of the cervix, and in that way replacing the cervix backward by the support of the connective tissue to the side of the cervix, instead of releasing the cervix merely from the traction of the anterior abdominal wall.

Dr. I. S. STONE, of Washington, D. C., said that it seemed to him, Doctor Reynolds's suggestion had been more or less covered in effect if they remembered the Mackenrodt fixation operation for retroversion, that is, denudation and separation from the anterior vaginal wall, dropping forward of the body of the uterus and fixing the anterior vaginal wall would answer the same purpose and overcome permanently the retroversion.

Dr. J. WESLEY BOVEE, of Washington, D. C., about fifteen years ago, began doing this work. He received his inspiration and instruction from one of the editions of the work on gynecology by Dr. William H. Byford, in which the latter stated that if the cervicovaginal junction was less than two and one quarter inches from the pubic arch, it was abnormally short and should be remedied. Taking his instruction from that, he devised procedures, working on the lower ligaments of the uterus. He studied the subject carefully and found they had another characteristic in certain anomalies of development to deal with, that is, an abnormally high attachment of the uterosacral ligaments to the cervix and abnormally low attachment of the anterior wall of the vagina, so that he realized many of these cases needed to have the defects remedied, and he did this by severing the anterior wall from the cervix, attaching it to a higher point and severing the uterosacral ligaments from the cervix and attaching it to the lower point, which changed the leverage of the anterior wall more from the junction of the cervix with the body, thus giving stronger posterior leverage on the posterior wall of the

uterus. He did this procedure in two ways—one very much after the plan mentioned by Doctor Reynolds, by detaching the anterior wall from the cervix and attaching it again higher, and the other by making a transverse incision and lengthening the anterior wall, except that he added this modification: he used interrupted sutures and inserted a small amount of soft rubber on account of oozing into the opening between the cervix and the bladder, which was attached to a piece of gauze with suture, the gauze being placed in the vagina, and the gauze, when removed, pulled the rubber drainage out. The uterosacral ligament operation was beneficial in cases in which there was traction of the uterosacral ligaments from inflammation, such as Doctor Boldt called posterior parametritis.

Dr. JAMES R. GOODALL, of Montreal, was struck by the fact that two classes of cases were being placed in one category; that the type of acute ante-flexion of the uterus and the type of retroflexion were two distinct types which could not be considered as belonging to one class. For instance, if they took young girls who complained of severe dysmenorrhea, they would find associated conditions of the vagina and pelvis. Associated with an acute ante-flexion of the uterus there was a short anterior lip of the cervix and a long posterior lip. This type of uterus when removed from the body and held by the cervix could not be undone. The anterior uterine wall was very fibrous in part, a type of uterus which in his experience seldom if ever became retroverted or retroflexed. That type of girl was big, muscular, whose physical development had gone on to an advanced stage, but the pelvic organs had remained somewhat infantile. In the other type of cases in which retroversion and retroflexion took place, there was a lack of tone and a tendency to enteroptosis even before pregnancy had taken place, and with that type of uterus the fundus could be flopped about in a very few hours after death. In one type of case, with acute ante-flexion, the cervix was drawn into the hollow of the sacrum; in the other type of case they did not get a long cervix such as they expected to find in a case of acute ante-flexion. These were absolutely two different types of cases which should not come in the same class, for in the one class they had tautness of the uterosacral ligaments, while in the other there was a laxity of everything and marked elongation of the uterosacral ligaments.

Doctor REYNOLDS, in closing, stated that there was a distinction between these two classes of retroverted and ante-flexed uteri. Retroversion seldom occurred in the class in which the anterior wall at the angle of flexion was hard and firm, and when he began to work with Dudley's operation, he was doubtful whether the ante-flexion could be corrected for any purpose in that class of cervix. Where they thought the cervix was the cause of the mechanical dysmenorrhea, release of the anterior fixation and posterior discission would straighten the uterus.

An Internal Alexander Operation.—Dr. HENRY T. BYFORD, of Chicago, considered the Alexander operation the most satisfactory for replaceable retroversion due to relaxation of the pelvic tissues. If lacerations about the vaginal entrance were

present, they were also repaired. Operations upon the uterosacral ligaments were not advocated in ordinary cases because, according to his experience, these ligaments would gradually grow shorter after an Alexander operation, if a small sized pessary was worn for a few months to protect them from overstretching. When a median abdominal incision had to be made for pelvic conditions, the ligaments were shortened through the incision in such a way that they drew toward the internal inguinal ring, as in the Alexander operation, and in such a way that the sutures were extraperitoneal. A fold was taken in each ligament and sutured. These folds were drawn through a peritoneal puncture near the internal ring and attached along the inner surface of the abdominal wall at this point, but extraperitoneally. This was easily accomplished by separating the peritoneum from the abdominal wall on either side as far as the internal ring.

Effect of Laparotomy upon the Circulation.—Dr. W. D. GATCH, of Indianapolis, stated that the anatomical arrangement of the abdominal vessels presented three points of special significance. 1. The circulation through the abdominal viscera was through two sets of capillaries, separated by the portal vein and its radicles. This must slow down the rate of the circulation through the abdominal organs. It was well known that the pressure in the vessels of the liver was very low. 2. The veins of the abdomen had walls so thin that they were easily compressed by the slightest pressure upon them. 3. None of the abdominal veins had valves. In a series of experiments carried out on dogs, he took simultaneous tracings of the intrathoracic pressure, of the intraabdominal pressure, of the pressure in the inferior vena cava, and of the general blood pressure. The pressure in the vena cava was taken by thrusting a cannula up through an opening in the femoral vein. He raised the intraabdominal pressure by injecting warm salt solution into the peritoneal cavity. The tracings showed that the intraabdominal pressure and the pressure in the inferior vena cava were always equal and rose and fell together. When the intraabdominal pressure was elevated until it was higher than the blood pressure, the circulation through the abdomen was abolished, the abdominal viscera being found bloodless at autopsy. What was the explanation of these findings? Suppose that the intraabdominal pressure was increased above the venous pressure, the veins would be compressed and no blood would flow through them until enough blood had been forced into them from the arteries to raise the intravenous pressure to the level of the intraabdominal pressure. Experiments had driven him to the conclusion that the chief and essential course which propelled the blood through the abdominal organs was the beat of the heart. The well known fact that pressure upon the abdomen increased the output from the inferior vena cava was not evidence against this view, because such increase was not maintained unless the circulation was greatly depressed. The absence of valves in the abdominal veins prevented any variations in intraabdominal pressure due to movements of the abdominal walls from pumping the blood toward the thorax with any degree of efficiency, because as soon as the pressure was released there was

a regurgitation. That the heart alone was capable of keeping up the abdominal circulation was proved by the experiment described. The effect of anesthesia so deep as to abolish completely the tone of the abdominal wall was to promote the accumulation of blood in the abdomen and limbs, and in his opinion not uncommonly caused a failure of the circulation during and after operation.

It was fortunate that laparotomy was nearly always performed with the patient either in the horizontal or in the Trendelenburg position, for if it was usually done with the patient deeply anesthetized and in the feet down posture many more fatalities would occur. Operations both on animals and on man were much better borne under anesthesia so light as to preserve the tone of the muscles. This was the reason why there was much less so called shock under nitrous oxide oxygen anesthesia than under anesthesia due to more powerful agents. In performing exploratory laparotomy which he had recently done for gunshot wounds of the abdomen, he had several times noted on opening the abdomen what he felt certain was a great increase in the hemorrhage from a severed intraabdominal vein. In one case in which the bullet wounded the vena cava, there was but little blood found when the abdomen was first opened, but when he raised the transverse colon a frightful gush of blood took place. He had made similar observations in two cases of gunshot wounds of the liver.

Experiments Defining the Dangers of Anesthesia.—Dr. YANDELL HENDERSON, of New Haven, said the time was close at hand when in every well ordered and scientific operating room, where ether was used at all, instead of it being poured as a liquid over the patient's face and into his mouth, there would be a device, and it could be a very simple device, on a stand at the elbow of the anesthetist, or over in the corner, or possibly even down in the basement, in which the ether would be volatilized, and from which it would be conducted to the patient's nose and mouth as if it was merely an unusually strong variety of nitrous oxide. That this idea was rapidly gaining recognition and acceptance was evidenced by the insufflation method of Meltzer, the simple and accurate device of the speaker's colleague, Dr. J. M. Flint, and most recently by the anethetometer of Connell. It was at once a simpler, safer, and more scientific procedure to administer the gas which they called ether vapor than it was to handle liquid ether.

Insufficient breathing was an extremely common consequence of etherization. It added to evil influences of a more or less prolonged period of insufficient oxygen supply to the other conditions lowering the patient's vitality. It was clear that the logical procedure to prevent this was some method of administering ether vapor such as Doctor Gatch showed to be so advantageous with nitrous oxide and also some method of administering a sufficient amount of carbon dioxide in the air breathed after the anesthesia was ended to stimulate respiration to a more rapid elimination of the ether with which the body was saturated, and to prevent apnea or subnormal breathing, anoxemia, and cyanosis.

Nerve Blocking.—Dr. M. L. HARRIS, of Chicago, stated that while experiments showed that

novocaine was only about one seventh as toxic as cocaine, it should not be forgotten that serious and even fatal results might follow an overdose. The amount of novocaine that could be injected without producing toxic symptoms varied considerably and depended largely upon the rapidity of absorption. If a plain watery solution was used and injected in the region where absorption was rapid 0.3 gram to 0.4 gram might produce symptoms, but if the solution was one which absorbed slowly, 0.5 gram to one gram might be used without danger. The more rapid the absorption, the less marked the anesthesia, for it required a certain length of time for the drug to act. The addition of adrenaline to the solution materially increased the degree and duration of the anesthesia. Hoffmann had found that the addition of from one quarter of one per cent. to one per cent. of potassium sulphate also materially increased the duration of the anesthesia, and that he was able to produce anesthesia with a much weaker solution. The speaker had found in his own work that by the addition of calcium chloride in varying strengths, the anesthesia might be prolonged for two or three hours without difficulty, and that a weaker solution might be used than without the calcium chloride. The formula which he was using at present and which had given him the best results was novocaine, one quarter to one per cent., calcium chloride, one quarter to one half of one per cent., chlorbutanol, 0.8 of one per cent. in distilled water, to which were added four to five drops of the one to 1,000 adrenaline solution to thirty c. c. of the mixture. It was very essential that the mixture be properly prepared, and the method he used was the following: The distilled water was sterilized by boiling. The novocaine was then added and the boiling continued not to exceed two or three minutes, as prolonged boiling spoiled novocaine. When this had cooled down to below 150° F., one gram of chlorbutanol was added to every 100 c. c. of the novocaine solution. Water dissolved only about 0.8 of one per cent. of chlorbutanol, but one per cent. was added merely as an easy way of insuring a saturated solution. The undissolved part simply settled at the bottom. A two to four per cent. solution of calcium chloride in distilled water was made and sterilized, and then the chlorbutanol added the same as to the novocaine solution. The solutions were kept separately and mixed just before using. In this way the percentage of the ingredients might be quickly varied to suit the particular case. The adrenaline should never be added until just before using, as it was very unstable and soon spoiled if left standing in the solution, which was indicated by the solution gradually turning a reddish color. The adrenaline solution should be comparatively fresh, and if it had turned reddish in color, it should not be used. The chlorbutanol was added because it had distinct anesthetizing properties of its own, and being soluble in lipoids increased the anesthetizing effect of the novocaine.

As to the advantages of nerve blocking, it was less dangerous. It would be admitted that practically all substances used for this purpose were more or less toxic, but the degree of toxicity was comparatively well known, and as the substances were injected locally to affect nerve trunks and not used

generally to affect nerve centres, it was easier to guard against an overdose. The method was devoid of dangerous and unpleasant complications which so frequently followed the use of general anesthetics, particularly ether and chloroform. In his experience the great majority of patients preferred being conscious, and looked upon the loss of consciousness as one of the greatest drawbacks to an operation. The psychic elements in these cases had been greatly underestimated. The horror of an operation was based on, first, the fear of pain; second, the loss of consciousness; and, third, apprehension as to the outcome. He had done under nerve blocking 234 operations on 217 patients; the number of failures was six, and the number of deaths was seven.

(To be continued.)

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

A Manual of Clinical Diagnosis. By Means of Laboratory Methods. For Students, Hospital Physicians, and Practitioners. By CHARLES E. SIMON, B. A., M. D., Professor of Clinical Pathology and Experimental Medicine at the College of Physicians and Surgeons; Pathologist to the Union Protestant Infirmary and the Hospital for the Women of Maryland, etc. Eighth Edition, Enlarged and Thoroughly Revised. Illustrated with 185 Engravings and 25 Plates. Philadelphia and New York: Lea & Febiger, 1914. Pp. xviii-809. (Price, \$5.)

Little need be said concerning a book whose general excellence is so widely appreciated. This new edition is of the same high standard as those previously issued and is of greater value only on account of the larger amount of material which it now contains. It has been brought entirely up to date, the methods depending upon complement fixation being revised and the Abderhalden reaction adequately described. The section on the urine is complete, both the chemical and microscopical portions. The second part of the book, consisting of 250 pages, is devoted to the essential factors in the laboratory diagnosis of various diseases. The different diseases are given in alphabetical order and under each are placed the laboratory tests that are to be used in making the diagnosis of that particular ailment. The idea appears to be unique and it is most useful. This is indeed a publication that can be highly recommended.

The Biology of the Blood Cells. With a Glossary of Hematological Terms: for the use of Practitioners of Medicine. By O. C. GRUNER, M. D., London, Author of *Studies in Puncture-fluids*, *A Code-system for the Hospital Pathologist*; Pathologist to the Royal Victoria Hospital, etc. New York: William Wood & Co., 1914. Pp. xii-392. (Price, \$6.)

The author believes that in carrying on investigations concerning the blood cells we are too apt to follow the stereotyped lines of presentation of ideas. He holds that we should study the appearances of things from a standpoint as nearly abstract as possible. It is along these lines that this book has been conducted. It may be that the ideas are correct, and it is evident that there has been a great amount of study and research, but those ideas must be presented in a manner readily appreciated by the readers for whom the work is intended. In this instance it is for the use of practitioners of medicine, but of what use can it be to them if they must study what is practically a new language? There is what is termed a glossary, but when it extends to thirty-three pages, with some thirty words to a page, it approaches the dignity of a dictionary. Another objection is, that when one wishes to find out what the consensus is concerning the origin of some particular

cell, all the views are presented, but there is nothing to show which the author considers the most satisfactory. After giving this book careful consideration one cannot feel that it is going to be of very much value to the usual practitioner of medicine.

Interclinical Notes.

A book reviewer in one of the most careful of our contemporaries, in discussing a book which once appeared serially in the *NEW YORK MEDICAL JOURNAL*, takes exception to the expression "lower limb" as being prudish. We think that a physician ought to know that the leg extends only from the ankle to the knee, and when the entire extremity, including both leg and thigh, is in question, lower limb is the correct name.

* * *

Don Marquis, in the *Evening Sun* for July 7th, offers the following cradle song for the soothing of up to date babies, who demand something better than the illiterate nonsense in vogue since prehistoric times:

Rock a bye, baby, up on the bough,
You get your milk from a certified cow!
Before your eugenic young parents were wed
They had decided how you should be fed.

Hush a bye, baby, on the tree top,
If Grandmother trots you, you tell her to stop;
Shun the trot horse that your Grandmother rides—
It will work harm to your little insides.

Mamma's scientific—she knows all the laws—
She kisses her darling through carbolic gauze.
Rock a bye, baby; don't wriggle and squirm;
Nothing is near you that looks like a germ.

* * *

Fact and Rumor, the title given by the *Outlook* for July 4th to its comments on current events, might with but slight modification serve for a caption to a list of medical discoveries real and imaginary during the past decade. We are too apt here to accept as fact from Germany and elsewhere what should be treated first as rumor. *A priori* reasoning is an elementary logical process; even the mathematicians now decline to establish major premises. Induction is the watchword for the physician.

* * *

As usual, the *Century* for July strikes one first by its beautiful illustrations, including the artistic cover by George Inness, Jr. Katherine Fuller Gerould, who has arrived with drums and trumpets at a leading position in the story writing world, gives us *The Great Tradition*, while John Luther Long, who has achieved an extraordinary immortality by attracting the attention of Belasco and, later, Puccini, is represented by *The Sandwich Man*. Dr. R. Tait McKenzie describes his struggles to complete his statue of Benjamin Franklin, a work well nigh of genius if we may judge from the photograph. The *Century* is really worth very much more than two and one third times the ordinary magazine.

* * *

Current Opinion for July again gives an admirable survey of the world for the past month; apart from the simple news, we find an account of the most recent investigation of faith healing, of the discovery of transmutation among microbes, Mrs. Roger Watts's rediscovery of the principles of Greek sculpture as related to the muscles of the human body, the latest arguments for personal immortality, religious aspects of our colleges and of recent movements in England and Germany, as well as an excellent selection from recent poetry, criticisms of books, plays, and moving pictures, and a whole story by John Masefield. These things make up a literary feast indeed, as well as giving instruction in tabloid yet sustaining form.

* * *

The *Popular Science Monthly* for July is as useful to the doctor as that periodical always is. It is frequently interesting to see facts with which we are familiar translated into popular language, as in *Man and the Microbe*, by Professor C. E. A. Winslow, and *How We Defend Ourselves from Our Foes*, by Professor Fraser Harris. Articles that will make the physician think along other lines are *The Struggle for Equality in the United States*,

by Professor Charles F. Emerick, *The Bad Habit of Having Law Makers and Lawyers*, by John Cotton Dana, and *Graphics of the American Whaling Industry*, by Dr. J. Arthur Harris.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service, for the seven days ending July 8, 1914:

Anderson, J. F., Surgeon. Granted seven days' leave of absence from June 29, 1914, under paragraph 193, Service Regulations. **Bahrenburg, L. P. H.**, Surgeon. Granted two months' leave of absence from August 1, 1914. **Banks, C. E.**, Senior Surgeon. Granted three days' leave of absence from July 6, 1914. **Creel, R. H.**, Passed Assistant Surgeon. Directed to proceed to New Orleans, La., for duty in the eradication of plague infection. **Duffy, B. J.**, Assistant Surgeon. Granted fifteen days' leave of absence from May 9, 1914. **von Ezdorf, R. H.**, Surgeon. Relieved from duty at Vera Cruz, Mexico, and directed to rejoin station at Mobile, Ala. **Goldberger, J.**, Surgeon. Directed to visit the State asylums at Cleveland and Toledo, Ohio, en route to Detroit, Mich., for inquiry as to presence of pellagra in these institutions and the dietaries furnished to patients. **Hamilton, H. J.**, Acting Assistant Surgeon. Granted two days' leave of absence, July 6th and 7th. **Laughlin, J. B.**, Assistant Surgeon. Directed to report to Surgeon L. L. Lumsden at Cambridge, Md., for duty in investigations of rural sanitation. **Long, J. D.**, Surgeon. Directed to send twelve sanitary inspectors to New Orleans, La., for duty in the eradication of plague infection. **Lumsden, L. L.**, Surgeon. Directed, in connection with field investigations of typhoid fever, to make necessary trips to Berkeley County, W. Va.; Lawrence County, Ind.; Union County, Miss., and Dorchester County, Md., for the purpose of supervising the work; directed to present a series of lectures on typhoid fever at the George Peabody College for Teachers, Nashville, Tenn., July 16th to 18th, in connection with the educational work of the service. **Mathewson, H. S.**, Surgeon. Granted two months' leave of absence from July 30, 1914, with permission to go beyond the sea. **Miller, K. E.**, Assistant Surgeon. Directed to report to Surgeon L. L. Lumsden, at Cambridge, Md., for duty in investigations of rural sanitation. **Rucker, W. C.**, Assistant Surgeon. Directed to proceed to New Orleans, La., for duty in the eradication of plague infection. **Simpson, F.**, Passed Assistant Surgeon. Directed to proceed to New Orleans, La., for duty in the eradication of plague infection. **de Valin, H.**, Passed Assistant Surgeon. Directed to proceed to Philadelphia for inspection of methods of furnishing water for drinking and cooking purposes to vessels in the harbor and obtaining samples of water for analysis. **Wheeler, G. A.**, Acting Assistant Surgeon. Directed to report to Surgeon L. L. Lumsden, at Cambridge, Md., for duty in investigations of rural sanitation. **Williams, C. L.**, Assistant Surgeon. Directed to proceed to New Orleans, La., for duty in the eradication of plague infection. **Wilson, J. G.**, Assistant Surgeon. Granted sixteen days' leave of absence from July 17, 1914.

United States Army Intelligence:

Official list of changes in the stations and duties of officers in the Medical Corps of the United States Army for the week ending July 10, 1914:

Archer, William M., Jr., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort St. Philip, La., and will take September 5th transport for the Philippine Islands, for duty. **Clayton, J. B.**, Major, Medical Corps. Detailed to camp at Gearhart, Oregon, July 13th to 23d. **Eckert, Meyer M.**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Wood, N. Y.; will proceed to his home, and stand relieved from active duty. **Freeland, Herbert L.**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Mott, N. J., and will take September 5th

transport for the Philippine Islands, for duty. **Goldthwaite**, R. H., Captain, Medical Corps. Relieved from duty at Fort Hamilton, N. Y. **Hart**, James W., First Lieutenant, Medical Reserve Corps. Ordered to active duty on account of an existing emergency, and will report in person to the commanding officer, Washington Barracks, D. C., for duty from about August 4 to 22, 1914, during the absence from that post of Major Carroll D. Buck, Medical Corps; upon the return of Major Buck to his station Lieutenant Hart will return to his home and stand relieved from active duty in the Medical Reserve Corps. **Haverkamp**, C. W., Captain, Medical Corps. Granted leave of absence for two months and twenty days on arrival in the United States. **Jones**, Edgar C., Captain, Medical Corps. Relieved from duty with the Second Division, Texas City, Texas, and from further duty at Fort Des Moines, Iowa, and will proceed to Madison Barracks, N. Y., and report in person to the commanding officer of that post for duty and by letter to the commanding general, Eastern Department, relieving Captain Morrison C. Stayer. **Keller**, William L., Captain, Medical Corps. Relieved from duty at the United States Military Academy, West Point, N. Y., on or about August 15, 1914, and will then proceed to the Army and Navy General Hospital, Hot Springs, Ark., and report in person to the commanding officer of that hospital for duty. **Lawson**, James H., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Jay, N. Y., and will proceed to his home and stand relieved from active duty. **Marietta**, Shelley U., First Lieutenant, Medical Corps. Granted leave of absence for one month and fifteen days from about July 15, 1914. **Morse**, Charles F., Captain, Medical Corps. Upon being relieved from duty at the Letterman General Hospital, the Presidio, San Francisco, Cal., will proceed to Boston, Mass., for duty as attending surgeon in that city, and will report by letter to the commanding general, Eastern Department. **O'Connor**, R. P., Major, Medical Corps. Resignation accepted, to take effect July 3, 1914. **Reasoner**, Matthew A., Captain, Medical Corps. Relieved from duty with the Second Division, Texas City, Texas, and from further duty at Fort D. A. Russell, Wyo., and will proceed to New York, N. Y., and take station at that place for the purpose of attending a course of instruction at the Rockefeller Institute. **Rutherford**, H. H., Major, Medical Corps. Ordered to Indiana, Pa., July 25th to 28th, to inspect Sanitary Troops and Field Hospital, Number One. **Stayer**, Morrison C., Captain, Medical Corps. Upon being relieved from duty at Madison Barracks, N. Y., will proceed to the Letterman General Hospital, the Presidio, San Francisco, Cal., and report in person to the commanding officer thereof for duty, relieving Captain Charles F. Morse. **Weston**, Henry R., First Lieutenant, Medical Reserve Corps. Relieved from duty in the Philippine Department and will proceed to the United States.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers in the Medical Corps of the United States Navy for the three weeks ending July 4, 1914:

Boone, J. T., Assistant Surgeon, Medical Reserve Corps. Ordered to the Naval Hospital, Portsmouth, N. H. **Clark**, G. F., Passed Assistant Surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to the *Michigan*. **Cook**, F. C., Surgeon. Detached from the receiving ship, Navy Yard, Norfolk, Va., and ordered to the *Louisiana*. **Elliott**, M. S., Surgeon. Detached from the *Florida* and ordered home to await orders. **Hamilton**, A. J. A., Assistant Surgeon, Medical Reserve Corps. Commissioned an assistant surgeon from June 19, 1914. **Longabaugh**, R. I., Passed Assistant Surgeon. Detached from the Naval Hospital, Guam, and ordered to treatment at the Naval Hospital, Mare Island, Cal. **Mann**, W. L., Passed Assistant Surgeon. Detached from the Naval Station, Cavite, P. I., and ordered to the *Cincinnati*. **May**, H. A., Passed Assistant Surgeon. Detached from the *Solace* and ordered to the *Washington*. **McMurdo**, P. F., Assistant Surgeon, Medical Reserve Corps. Detached from the *Vicksburg* and ordered to the *Colorado*. **Richards**, T. W., Surgeon. Detached from the *Wash-*

ington and ordered to the *Florida*. **Stone**, E. P., Medical Director. Placed on the retired list from June 24, 1914, on account of physical disability, in accordance with section 1415, Revised Statutes. **Woodland**, E. E., Assistant Surgeon. Detached from the *Michigan* and ordered home to await orders.

Births, Marriages, and Deaths.

Married.

Bassett—Bassett.—In Salem, N. J., on Thursday, June 25th, Dr. Norman H. Bassett and Miss Margaret G. Bassett. **Biggs—Hurst.**—In Jackson, Mich., on Wednesday, July 1st, Dr. H. L. Biggs and Miss Minnie Hurst. **Denny—Hemenway.**—In Boston, Mass., on Thursday, July 2d, Dr. George P. Denny, of Baltimore, Md., and Miss Charlotte Hemenway. **Hoover—Henderson.**—In New York, on Monday, June 28th, Dr. J. Ernest Hoover and Miss Virginia Henderson, both of Altoona, Pa. **McRae—Kitchen.**—In Easton, Pa., on Monday, July 6th, Dr. Earl Herbert McRae, of New York, and Miss Helen R. Kitchen. **Riley—O'Neill.**—In Everett, Mass., on Thursday, July 2d, Dr. William H. Riley and Miss Josephine O'Neill. **Trudeau—Garretson.**—At Paul Smith's, N. Y., on Tuesday, July 7th, Dr. Francis L. Trudeau and Miss Eleanor H. Garretson. **Walcott—Vaux.**—In Bryn Mawr, Pa., on Tuesday, June 30th, Dr. Charles D. Walcott, of Washington, D. C., and Miss Mary M. Vaux.

Died.

Cook.—In Clingman, N. C., on Wednesday, July 1st, Dr. C. L. Cook, aged ninety-one years. **Davis.**—In Richmond, Va., on Monday, June 29th, Dr. Hugh W. Davis, aged seventy-three years. **Duguet.**—In Paris, France, on July 4th, Dr. Nicolas Jean Baptiste Duguet, aged seventy-seven years. **Edgerton.**—In Lebanon, Tenn., on Wednesday, July 1st, Dr. Howard K. Edgerton, aged forty-nine years. **Eidson.**—In San Antonio, Texas, on Sunday, June 28th, Dr. L. M. Eidson, aged fifty-four years. **Eife.**—In Elmhurst, N. Y., on Tuesday, July 7th, Dr. Arthur F. Eife, aged fifty-two years. **Ellis.**—In Worcester, Mass., on Tuesday, June 30th, Dr. Dean S. Ellis, aged fifty-seven years. **Gleitsmann.**—In New York, on Thursday, July 2d, Dr. Joseph W. Gleitsmann, aged seventy-three years. **Hawes.**—In Charlottesville, Va., on Monday, July 6th, Dr. Walker A. Hawes. **Hazlett.**—In California, Pa., on Monday, July 6th, Dr. Isaac C. Hazlett, aged seventy-four years. **Howard.**—In Owensboro, Ky., on Friday, June 26th, Dr. B. P. Howard, aged eighty years. **Hummel.**—In Louisville, Ky., on Wednesday, June 24th, Dr. John L. Hummel, aged forty years. **Keator.**—In Accord, N. Y., on Monday, July 6th, Dr. Thomas O. Keator. **Lewis.**—In Minneapolis, Minn., on Wednesday, July 1st, Dr. John M. Lewis, aged fifty-eight years. **Magee.**—In Oil City, Pa., on Friday, July 3d, Dr. George W. Magee, aged forty-nine years. **McClure.**—In Allegany, N. Y., on Tuesday, June 30th, Dr. Sanford B. McClure, aged seventy-nine years. **McEachern.**—In Statesboro, Ga., on Saturday, June 27th, Dr. D. E. McEachern. **Montgomery.**—In Thurman, Tenn., on Thursday, July 2d, Dr. J. W. Montgomery, aged fifty-eight years. **Morgan.**—In New London, Conn., on Sunday, July 5th, Dr. George S. Morgan, aged sixty years. **Patterson.**—In Wilmington, Del., on Tuesday, June 30th, Dr. Henry Patterson, aged fifty years. **Quandt.**—In Detroit, Mich., on Sunday, July 5th, Dr. Edmund Quandt, aged thirty-four years. **Ridout.**—In Annapolis, Md., on Tuesday, June 30th, Dr. William G. Ridout, aged seventy-eight years. **Robertson.**—In Cool Spring, Tenn., on Monday, June 29th, Dr. John Robertson, aged eighty-nine years. **Scott.**—In Rockford, Ill., on Friday, June 26th, Dr. Lee O. Scott, aged thirty-six years. **Seifert.**—In San Francisco, Cal., on Thursday, July 2d, Dr. George W. Seifert, of San Jose, Cal., aged fifty-four years. **Shiptock.**—In Jackson, Mich., on Tuesday, June 23d, Dr. Gordon R. Shiptock, aged ninety years. **Trott.**—In Raus, Tenn., on Sunday, June 28th, Dr. W. J. Trott, aged fifty-three years.

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PRIMARY PERINEORRHAPHY BY BURIED AND SUBSURFACE CATGUT SUTURE.*

BY ROBERT L. DICKINSON, M. D.,
New York.

Summary.—Upon buried catgut of small size entire reliance may be placed for pelvic floor repair after labor. It is even more satisfactory than in secondary operation. In our fifty-seven fresh injuries of various degrees, primary union resulted, whether interrupted stitches were closed over by running intercutaneous lacing, or whether a single strand ran as continuous tier suturing and the two ends came together, one submucous, the other subcuticular, the whole secured by one deep knot and one hidden surface knot. The wound is practically invisible from the first. Levator laceration particularly demands tier suture, and anterior fascial gaps are thus best united.

Distressed by the loose lying purulent condition of some perineal skin stitches, even in the presence of perfect union (Fig. 1), and impressed with the fearless burying of catgut in secondary operations in Germany, I have taken fresh courage to do layer suture of all injuries to the pelvic floor, primary and secondary. The perineum, if anywhere, would seem to be the spot for the avoidance of such seton possibilities as a protruding stitch soiled with urine, sweat, lochia, or feces, and shut into a warm, damp, incubating conduit. Here also is a place to minimize observation or sponging or the pulling out of stitches on a surface singularly sensitive, inaccessible, and retiring. The buried layers provide for almost immediate disappearance of the wound, freedom from dressing and stitch drag, skin comfort and skin dryness, and notable swiftness of union.¹

Material.—Plain catgut No. 1 does well for all lesser tears, and it may be that it will be found to suffice for all. Chromic gut No. 1 has been employed for about two thirds of the cases. In layer work this has sometimes been used doubled. For doubled chromic continuous suture No. 0 is, however, large enough, and even for the single tier

suture one thread twenty to twenty-four inches is cut, but actually only three to six inches are used. Two Mayo needles, needleholder, scissors, and thumb forceps are needed.

Methods.—Postponing for the moment sphincter and levator tears, we take up the three ways that have been tried and found to work well.

1. Interrupted buried stitches, either circular in sweep or of figure 8 form. In this method the vaginal portion of the injury may be closed by buried sutures whose knots come just under the surface. Better still, the stitch furthest up the vagina has one end left long and this becomes a submucous suture. In like manner the stitch nearest the anal angle has an end that works forward, as subcuticular, to meet the vaginal stitch.

2. Continuous layer catgut, in two or three tiers, the last being subsurface, the work being done, generally, with one strand, the larger bights locked by the buttonhole form of stitch. One begins either at the upper end, or in the middle, working in both directions with the same strand or several strands.

3. Figure 8, continuous, centrelocking, the same strand going on to make the subsurface closure.

Any choice or combination of the foregoing may be used. In using the second method, the first sweep is placed to coaptate the deepest and least accessible part of the injury, taking in about half the height of the side walls of the tear, if deep, then tying. The knot is placed near the middle of the strand to show two long ends (Fig. 2). The upper end is used to close the vaginal section of the injury by a series of circular sweeps (Fig. 2), finally becoming a line of vaginal submucous suture that closes the vaginal wall as far forward as the hymen (Fig. 2). This first part is then turned up out of the way.

The second part, still hanging from the (only) knot, in the deepest part of the wound (Fig. 2), is now threaded and in tier suture closes the wound down to the anal angle (Fig. 2); then the strand, as subcuticular, returns to tie to the first part at the hymen or thereabout (Fig. 2.)

The continuous centrelocking figure 8 stitch is, I think, new. It gives all the advantage of the others without the multiple buried knots of the interrupted figure 8 or the dead space that may occur

suturing alone, burying the uppermost layer beneath the mucous membrane and the skin, and using one strand and two knots. His deeper suturing was accomplished with the shoemaker's stitch by which the needles, one from the right and one from the left, pass through the same hole. For the most part he backed up buried tendon by a kind of safety pin of metal. He made no general application or advocacy of the principle of trusting to sutures entirely buried. Anspach (1908) has applied the subcuticular stitch to secondary repairs to finish off his buried interrupted stitch, but in the vagina he coaptates the surface with interrupted stitches. It was his subcuticular stitch in secondary repair that started my series of both primary and secondary attempts.

*Report from Gynecological-Obstetrical Service of Brooklyn Hospital, read before Buffalo Academy of Medicine, October 21, 1913.

¹After this paper was completed, I searched the literature and found that in principle, Marcy had made suggestions for covering almost all this ground, as far back as 1880. Bröse (1882) first employed continuous and layer suture in primary perineorrhaphy; he used surface stitches. Schroeder, his chief, took it up. Doléris (1885), learning from Schroeder, modified the stitch and carried back his surface layer to tie the last end of the strand to its start up in the vagina. A. Martin (1912) has long advocated continuous catgut in recent injuries. He uses surface suturing in the last layer. Marcy speaks of having occasionally trusted to the layer

between tiers. The diagram (Fig. 3) shows this much more simply than any description.

Applied to a deep laceration of the pelvic floor, the method is this: The least accessible pocket of the wound is first coaptated by a sweep that takes approximately one half of the vertical depth of the



FIG. 1.—Perineal repair by chromic gut. Frequent purulent appearance of stitch hole as stitches drop out or are removed.

tear. The strand is then tied not far from the centre of its length; one portion is used to close the upper half of the wound and the other portion later closes the lower half. The first bight after knotting enters to the operator's left and sweeps upward, coming out near the surface of the injury (Fig. 3). It reenters at the opposite edge, sweeps downward to the right, and emerges close to the knot. Dipping under the knot or under the beginning of its own sweep it completes the figure (Fig. 2). Such a figure 8 starts at the waist line of the numeral, so to speak, and returns there. This

process is now repeated—without the initial knot (Fig. 3)—until the whole wound has been approximated by sutures each made up of a double circle, one part for the depth of the wound and one for its more superficial portions (Fig. 3). All the bulk of the wound having been drawn together one has only the surface to coaptate by the ends that emerge, one at the upper angle and one at the lower. These are laced beneath the surface (mucous membrane and skin respectively) and meet near the middle. This last knot sinks in between the edges. Thus we have a one strand, two knot, invisible suture. The order of procedure is the same as that given in the previous paragraph. The vaginal portion of the injury is first closed in bulk; then, on the surface; next, the nearer section is cared for; and last, the perineal skin surface.

Dr. Eliot Bishop has tabulated all the cases of recent injury of the pelvic floor mended by buried sutures covered in with subsurface sutures. This includes the details of fifty-seven cases in the obstetrical service of Brooklyn Hospital and private cases of Doctor Pomeroy, Doctor Hussey, Doctor Cary, and myself. The hospital cases were therefore done both by the expert and by the resident who changes every three months. Some were complete lacerations; some perineotomies on primiparæ. Every union was primary. The ordinary wound, after the first few hours, is practically invisible. Patients, other than those with torn sphincters, were often allowed to get up to urinate and defecate at least once a day. When they were extensive, these repairs were done from the second to the fourth day. This insures a better study of the anatomy and a less tired and impatient oper-

ator, with a field less distorted and no bleeding to obscure it. In many instances the histories read that days or weeks or months after operation no scar could be found.

Objections fall into two classes, the danger of infection, and the bother of delicate manipulation.

It is true that dependence is all upon one strand; that the neighborhood, deep or surface, is favorable for colon bacillus infection; and that, one strand becoming infected, the breakdown may be complete. Theoretically these are truths. Practically the method proved safe. Only one surface opened. Perhaps this region has, like the mouth, nose, eye, and scalp, a high resistance and a high absorbability.

The need for better craftsmanship is admitted. In immediate repair a vaginal plug must dam the flow, and a good light exhibit the edges. It is not like our old side to side sweeps, guided by the finger, in the dark of a vaginal blood puddle, and carefully done, it takes longer than the swing and tie. The first deep stitch, however, handily controls the bottom of the gutter. The beginner is

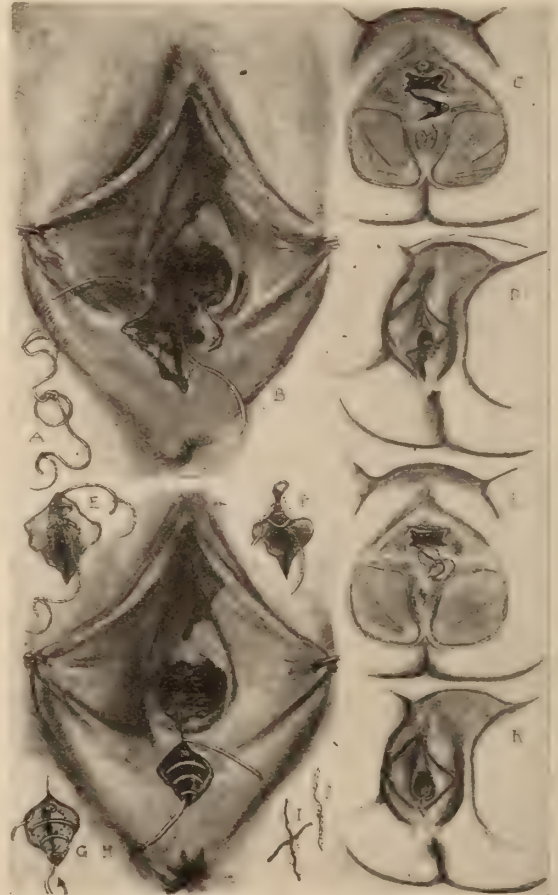


FIG. 2.—Primary perineorrhaphy by layer suture, single strand, subcuticular. A, anchorage in deepest portion of wound; particularly effective in irregular forms of tear. Result is accurate coaptation (L) almost invisible line of union (K).

more likely to coaptate deeper strictures with this whipover than by single sweeps.

The worse the tear, the better is this method adapted to unite it. Take, for example, the laceration which extends along the vaginal wall a con-

siderable distance upward, or which pockets deeply toward the sacrum, literally stripping one side of the rectum from the structures about it. The levator ribbon may be torn across, or the tear may be

across live levators in making Schuchard incisions for vaginal hysterectomies, and also from transferring to the post partum week the side wall operation which I do on old levator tears. In placing these stitches one need not fear to do damage. The sweep to the rear will not enter the rectal lumen if one has a stick sponge in it to draw the bowel away or render it easy of recognition. The sweep forward cannot do hurt near or along the ischiopubic ramus except to the dorsalis clitoridis nerve that follows the ramus. The ureter is not in range (Fig 6). The first stitch deep in the gap along the rectum brings within touch and sight the torn retracted levator mass. This is carried forward toward the ramus. The next stitches help also to make the anatomy reasonably clear.

Anterior injuries.—All that has been said regarding tears opening on the posterior vaginal wall is equally applicable to injuries running along the anterior and anterolateral walls. Indeed, the continuous suture started by a tie at almost any point along such an injury frequently brings into view, by its action as a tractor, unsuspected depth and length of damage. To the educated touch there is transmitted from the needle point the knowledge whether fascia has been seized and a secure anchorage obtained. The routine examinations for an-

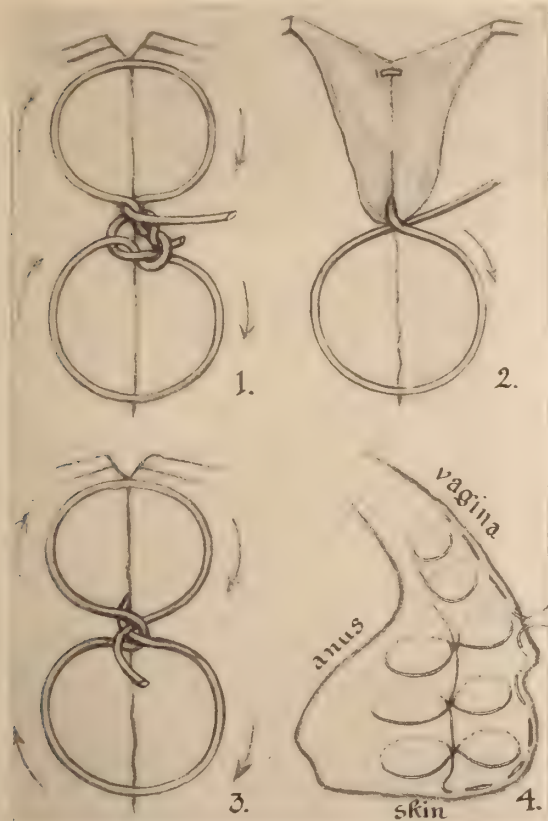


FIG. 3.—Three tier suture, by the employment of the figure 8, which is continuous and middle locking.

a gaping of layers. Any circular stitch tied on the vaginal surface fails to restore proper anatomical relations. The figure 8 suture with its ends coming out on the vaginal mucous membrane, may do well; but it is needlessly clumsy to place, whether with one needle or two, and one of its sweeps is backhanded.

Levator suture.—If two fingers of the right hand enter the vagina of a fairly muscular woman and are curved to press in the direction of the right lateral pelvic wall and then are slowly withdrawn, the lower edge of the intact levator ribbon jumps across the finger tips an inch within the hymen on the side wall of the vagina. Let us now think of this edge beneath the vaginal lining as having been torn apart. Were we now to pass our fingers into the vagina and press them over to the pelvic wall, spread them apart, and withdraw them, the finger tips would follow the torn edges. Then if the fingers in the vagina were drawn together they would represent the location of the levator masses drawn together, and the fingers held together, the cleft between them would represent the line of union.

The edema and bruising following labor render recognition of levator structures difficult. Indeed, my own stitching of the fresh injury was the result of knowledge obtained less from dissection of attenuated dead levators than from cutting freely



FIG. 4.—The gauge of the amount of denudation. A, Kocher clamps seize remains of hymen and draw them over two fingers. B, another grip, with another pair up lateral vaginal walls, makes test further in. Stick sponge in rectum facilitates suture of levator.

terior injuries is one of the more recent requirements of obstetrics often neglected and too little obeyed. Observation carried out immediately after every delivery, will develop a knowledge of how



FIG. 5.—Secondary perineorrhaphy by continuous catgut layer and subcuticular. The test of the rectocele (1, 2, 3) and the guide to the levator (4) being made by stick sponge in the rectum; 11 and 12 show three and four layer method, respectively.

the triangular ligament and the levator attachments and the vesicourethral anchorages at the back of the pubes should feel when uninjured. Comparison of one side with the other will give training. The "learned touch" will be developed for these conditions immediately post partum, and the result will be fewer cystoceles.

Slits in the labia minora.—On the whole, slits in the labia minora are better united by a buried running suture than by one that whips along the face of the mucous membrane. The slightly longer time required is repaid by quicker surface healing and less irritation in the meatus region, hence less likelihood of the need of catheterization.

Complete lacerations.—I am almost ready to advise that the stay suture of silkworm or other non-absorbable material may be dispensed with in the so called complete laceration of the perineum. Three cases do not furnish sufficient material to form a judgment upon, even though they are successful. I showed long ago² that the sphincter is never torn in the median line, but always at some distance to one side, even exactly right or left of the middle of the opening. Hence the layer suture that can be made to follow the winding caves of this tear should, theoretically, provide better coap-

tation of torn muscles end to end, than any stitch that sweeps with more or less symmetry from side to side. On the anal aspect the submucous suture is found to do its work reasonably well, provided it is No. 0, plain or chromic, and an isolated suture unconnected with the others. No one obstetrician can have extensive experience with recent complete lacerations. Therefore, I recommend trial for the method some days post partum, by the use of fine catgut and with delicate apposition of tissues that there may be no strangulation.

Cervix repair.—Whenever pelvic floor repair is postponed to some time between the second and tenth day post partum, the cervix injuries should be mended at the same time. Continuous suture effects this best. Starting at the inner end within the cervical canal, the line of stitches grasps almost all the thickness of the cervix and thus works down to the external os. Thence a submucous stitch, more or less exact, runs along the vaginal aspect of the cervix if necessary. Repairs immediately after labor I have ruled out after long trial, because of the difficulty of recognizing the relation of parts owing to distortion and abrasion. They are now done only for arterial hemorrhage. In hysterotomies, Pomeroy has formulated a rule: Begin at the vaginal surface of the cervix at the rear; close this by a running or buttonhole suture; next, the canal side; then with the second stitch, the opposite canal side; last, the remaining anterior vaginal aspect of the cervical lip. The same rule holds good

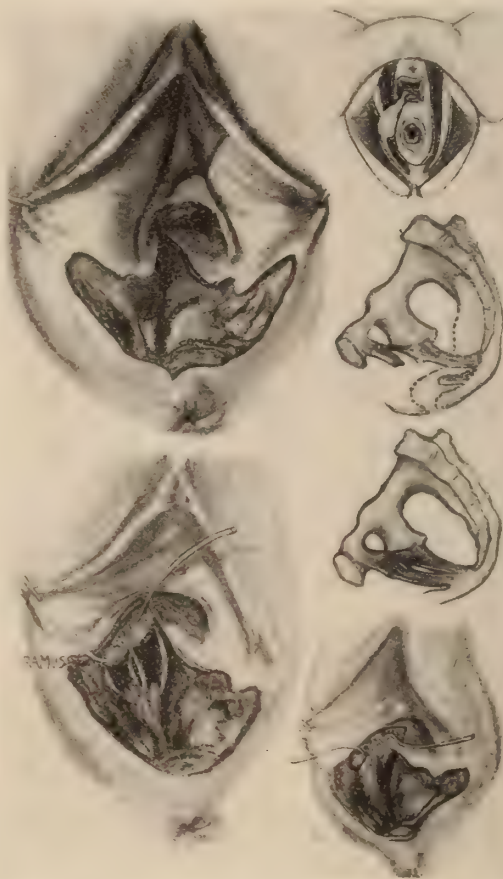


FIG. 6.—Primary perineorrhaphy with identification of torn levator and continuous suture of the injury by drawing the retracted muscle from the cavity alongside the rectum forward toward the pubic arch.

²Does Laceration through the Sphincter Ani Ever Occur in the Median Line? *American Gynecological and Obstetrical Journal*, May, 1895.

for immediate repair; outside, inside, inside, outside. The work was even easier than in our secondary trachelorrhaphies and amputations with the continuous suture.

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ROENTGEN EXAMINATION OF THE APPENDIX.

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Holzkecht (1), in 1907, presented one of the earliest studies on the Röntgen ray examination of the bismuth filled alimentary tract in the diagnosis of diseases affecting the ileocecal region. During the preceding year, Albers-Schönberg drew attention to the possibility of an appendicular concretion suggesting the diagnosis of ureteral stone, and Fittig (2) and Weisflog (3) have reported a case of appendicular calculus diagnosed röntgenographically. Röntgen studies of the appendix have also been reported by Bennett (4) in 1908, Béclère (5), Leven and Barret (6) in 1909, Aubourg (7), Liertz (8), and Jordan (9) in 1910.

Before the American Röntgen Ray Society, 1912, I described (10) my technic for the examination of the ileocecal region, particularly the appendix. Most workers with the Röntgen ray have on more than one occasion accidentally found the shadow of the appendix. I must state, however, my conviction that many shadows which have been attributed to the appendix were really shadows of the terminal ileum. The reason for the rarity of röntgenographs showing the appendix, is explained by the fact that until recently most bismuth examinations have been conducted in the upright position and most röntgenographs have been made with the patient erect. It was only when I began to devote special attention to the ileocecal region, making the examination

of this part chiefly with the patient in the reclining position, following the bismuth meal, rather than the bismuth enema, that I began to find the appendix shadow with anything like regularity. In



FIG. 1.—Bismuth filled appendix. Appendix seen to be narrowed at its base. The mere fact that the appendix filled is not evidence of serious disease. It is the poorly drained appendix which is likely to give rise to symptoms. In this case the appendix retained its contents several days longer than the time required for the emptying of the colon.

1912 I reported sixty cases in which the appendix had been seen and studied during the bismuth examination.

By many it is still believed that the Röntgen



FIG. 2.—Long, bismuth filled appendix in a case of spastic constipation. Antiperistalsis is increased in these cases, with resulting delay in the emptying time of the right half of the colon. The appendix is especially likely to be filled in cases of spastic constipation. Appendix not yet definitely diseased.

study of the appendix is out of consideration. Professor Riedel as late as 1912, in a paper before the German Congress of Internal Medicine, dismissed the Röntgen study of the appendix by stating that it



FIG. 3.—Bismuth filled appendix constricted near its middle. The half of the appendix distal to the kink is much narrowed and poorly drained.

is attended by many difficulties. In April, 1913, Groedel published the details of the Röntgen examination in two cases where the appendix was found patent. Both of these patients were operated on, and in both the appendix was found diseased. Inasmuch as he had found the bismuth filled appendix in only two out of several thousand bis-



FIG. 4.—Appendix deformed by a pericolic membrane, of the variety described by Eastman.

moth meal examinations, Groedel voices the belief that the bismuth filled appendix is always a diseased appendix.

Following my paper, George and Gerber (11) have reported a large series of cases in which bismuth studies of the appendix have aided in the diagnosis. Desternes and Belot (12), in 1912, reported a case of chronic appendicitis in which adhesions were proven by röntgenographs following the ingestion of bismuth. Jordan, in 1912, stated that he had observed bismuth in the appendix in several cases and gave a detailed description of his findings. Previous to the sixty cases which I published, Jordan's observations were the fullest and most complete published.

In acute appendicitis, little need or opportunity for x ray examination will be likely to present itself. Perhaps in doubtful cases, as, for instance, suspected left sided appendicitis, a careful injection of the colon with the bismuth clysma under the



FIG. 5.—Retrocecal adherent appendix. In the ordinary röntgenogram, the retrocecal appendix is not easily appreciated, but in the stereoscopic röntgenograph, and particularly under the fluorescent screen, the appendix is seen to lie in behind the cecum and by manipulation is found to be adherent.

guidance of the fluorescent screen, followed by careful and intelligent palpation of the abdomen under the screen, may be of some service. In studying *chronic* appendicitis, however, and its complications and sequelæ, I believe the Röntgen examination to be capable of rendering valuable service in a large number of cases. Of course, when the lumen of the appendix is closed as the result of an obliterative process, bismuth will fail to enter and the appendix shadow will not appear, but in the large percentage of cases in which the appendix shadow can be studied under the fluorescent screen, there are a number of facts capable of demonstration. One may study the size and length of the lumen, the presence or absence of constrictions or kinks; adhesions; the question of drainage (emptying time) of the appendix; the relation of the visible appendix shadow to a point of pain on pressure; the position of the appendix, whether retrocecal, procecal, etc.

Often the lumen is seen to be constricted. Important conclusions may be drawn from a broad

appendix shadow persisting for a long time, perhaps even for several days after the rest of the bowel is empty. The writer has seen the tender appendix shadow still filled with bismuth on the twentieth day, and A. Howard Pirie has recently told me of a case in which the bismuth shadow persisted for forty-three days. The exact disposition of the appendix is often suggestive of a pericolic membrane of the variety described by Eastman. Kinks of the appendix are frequently made out under fluorescent screen examination. The relation of the bismuth filled appendix to the sigmoid, the transverse colon, the terminal ileum, and the cecum itself may be accurately studied by intelligent palpation.

The technic of examination of the appendix was fully described in my previous paper.¹ I need not

by Holzkecht, or, in certain cases, with my modification of Holzkecht's spoon.

The time of the examination is of some importance. Shortly after the cecum begins to fill, the



FIG. 6.—Appendix and cecum buried in adhesions. The arrows point to the appendix, the proximal half only being filled. This residue in the cecum and appendix persisted for at least six days after the rest of the bismuth had left the colon, being found by operation at that time. In the roentgenogram, the rest of the bismuth is seen to have passed along, leaving the ascending colon, hepatic flexure, and first two inches of transverse colon empty of bismuth, the residue still persisting in the cecum. It is the adherent cecum which is most often the seat of stasis.

here repeat the details, except to emphasize two points; first, the necessity of examining the patient in the horizontal position, the screen being held over the abdomen, and tube underneath the table; and, second, the necessity of palpating the abdomen under the screen with the gloved hand or preferably with the wooden spoon of the type described

¹I first described my technic for the examination of the appendix in a paper before the American Röntgen Ray Society at its annual meeting held in Niagara Falls, N. Y., September, 1912. Since then I have had the pleasure of demonstrating my appendix technic to a number of American roentgenologists who have made visits to my clinic. I personally demonstrated this method to Dr. A. J. Quimby, of New York (March 13, 1913), whose paper on the examination of the appendix by means of the x ray, appearing in the NEW YORK MEDICAL JOURNAL for October 11, 1913, was based on the examination of 141 cases between May 1, 1913, and September 15, 1913, about one year after the publication of my first paper.



FIG. 7.—Residue in the appendix on the twentieth day following a bismuth meal. Such a poorly drained appendix possesses great potency for danger.

appendix, if patent, also fills. This usually occurs at about the sixth hour, although there are many cases in which the cecum is filled earlier or later. From this time on until the bowel is empty, and frequently for many days afterward, as I have suggested, the appendix remains visible. At least one of the fluoroscopic observations of the appendix, however, should be made at a sufficient interval after the bismuth meal to insure that the ileum is empty; otherwise, a very thin shadow still remaining in the terminal ileum may be mistaken for the appendix. The making of a roentgenographic rec-



FIG. 8.—Bismuth residue about the base of the appendix on the fifth day following a bismuth meal, the rest of the colon having been empty at the forty-eighth hour.

ord of the shadow of the bismuth filled appendix is a matter of considerable difficulty. The ordinary technic of röntgenography with the patient standing or lying is not likely to show the appendix shadow.



FIG. 9.—On the third or fourth day following a bismuth meal, it is not unusual to find a small residue in the cecum, the rest of the colon having been completely emptied. This residue is often about the size of a button and represents, I believe, stasis about the base of the appendix. This spot of bismuth is especially likely to appear after the appendix has been removed. In such instances, it seems to correspond to the portion of cecal musculature involved in the purse string invaginating suture.



FIG. 10.—Long, doubly kinked appendix, the kinks involving the terminal ileum. In this case, the terminal ileum is the seat of stasis.

Except in occasional fortunate instances, one must first find the appendix fluoroscopically and then make the röntgenograph. The cecum or other bismuth filled bowel is held out of the way by a wooden *Palpatorium* (Holzknecht's spoon).

Out of more than 300 cases (November 1, 1913) in which I have secured röntgenographs of bismuth in the appendix, the appendix was first seen and studied with the fluoroscope in all but one. Only those who have had experience in fluorescent screen studies of the bowel with the patient in the horizontal position and the tube underneath the table, can appreciate the degree of accuracy with which shadows can be identified in all except the heaviest patients. In one series of 827 bismuth meal examinations, tabulation of the facts shows that in sixty-four the appendix had been removed. Out of



FIG. 11.—Long, narrow appendix, entirely retrocecal. Without the aid of the wooden spoon to lift up the cecum during the making of the röntgenograph it would be impossible to produce the outline of this appendix. The light area showing the appendix is due to the pressure of the wooden spoon.

the remaining 763 cases, the appendix was demonstrated in 273 cases, or just one third, apparently a high percentage until it is recalled that all of the patients of the series referred to were submitted to x ray study because they exhibited various gastrointestinal symptoms. In a large majority of cases, constipation was a prominent symptom. Hence one might expect to find in this particular series of cases a larger percentage than usual in which the appendix would be visible. Further, I believe, in only a very small percentage of cases does the filled appendix escape observation under the careful fluoroscopic technic possible with the Haenisch or some similar trochoscope. I cannot believe that the ratio of the patent appendixes can be very much greater than one in three of patients with gastrointestinal symptoms.

Groedel has recently taken the stand that every appendix which permits the entry of bismuth is a pathological appendix. I believe that, technically speaking, it is pathological for the contents of the colon to enter the appendix. However, I do not wish to be understood as holding that every appendix which permits the entry of bismuth is in need of surgical attention. I am quite ready to believe that there are many cases in which the appendicular shadow is visible where surgery is distinctly not indicated. For instance, such cases as are frequently encountered where the contents of the appendix have disappeared by the time the colon is empty, and there is no tenderness on accurate palpation over the appendix shadow.

It is to be presumed that when the appendix rid

tient's leucocyte count on the date of entry into the hospital, four days before the commencement of my examination, was higher than it was on the day of her operation, and clinically the case was one of recurrent appendicitis.



FIG. 12.—Illustrating the author's technic of pushing aside the cecum and intervening tissues in making a roentgenograph of the appendix. The light area surrounding the appendix is caused by the pressure of the bowl of the wooden spoon.

itself promptly of the bismuth mixed cecal contents, the fact of the entry into the appendix is of little consequence, but when the cecal contents are retained for several days, perhaps even weeks, one may certainly conclude that under favorable circumstances, when the fecal mass is especially rich in pathogenic bacteria, its retention within the appendix will be a matter of greatest importance. Hence, when the appendix remains visible for more than a day or two following the bismuth examination, it is, in proportion to its poor drainage, a dangerous appendix. There are a large number of cases in which the bismuth shadow persists for many hours or days and sometimes several weeks after the rest of the bowel has been emptied of the bismuth content. In the case of Pirie's, referred to above, on the forty-third day an acute appendicitis developed. In one case of mine, on the eighth day acute appendicitis developed. Reference to the records showed, however, that in my case, the pa-



FIG. 13.—Bismuth filled appendix, retrocecal, pointing upward, adherent along the posterior inner border of the cecum.

It was suggested that perhaps in these cases the presence of the bismuth in the appendix was a menace to health. In connection with the discussion of this question, I made an inquiry into the fate of bismuth administered in medicinal doses for therapeutical purposes. I had occasion to examine



FIG. 14.—Here the cecum and appendix are pelvic organs. The cecum is pushed over toward the midline to allow the retrocecal appendix to show in the roentgenograph. The appendix is five inches below McBurney's point.

five patients who were being given bismuth in fifteen grain doses in the usual manner in the course of treatment of acute gastric disease. In all five, bismuth was found in the appendix. In one of



FIG. 15.—Traction upon the cecum and ascending colon upward and outward has stretched the adherent appendix, giving the appearance shown in the illustration.

them it was found on the nineteenth day after the last dose of bismuth. Although this is a limited number of cases from which to draw an inference, the conclusion seems warranted that there is no more likelihood of bismuth entering the appendix and, by remaining there, causing acute appendicitis when the bismuth is taken in the course of an x ray examination, than when bismuth is being administered therapeutically.

In the series of 273 cases above referred to, where the appendix was filled with bismuth there was very definite tenderness corresponding with the appendix shadow, in 236 or eighty-five per cent. In only thirty-seven, or fifteen per cent., was there lack of definite tenderness on pressure over the appendix shadow. I believe that in these thirty-seven cases the appendix was practically normal. They were characterized by the short time during which the appendix lumen was visible, by the lack of tenderness, by free mobility of the cecum and appendix, and by the absence of kinks or constrictions of the appendix. On the other hand, of the 236 patients in whom there was definite tenderness on pressure over the appendicular shadow, eighty-eight have had the appendix removed, many during operation for other causes, and in all but a very few instances, the report from the pathologist (Dr. B. N. Colver) showed disease of the appendix.

I now have more than 325 cases in which, following the bismuth meal, the appendix has been visible fluoroscopically and hence capable of being studied and recorded roentgenographically. Out of

this larger experience I wish to repeat what I stated in my previous communication, that in practically every instance in which the appendix has been visible on the first examination, examination repeated even a third time, has shown the appendix again filled with bismuth. On the other hand, when the appendix could not be demonstrated on the first examination, in practically all the cases repeated examinations have also failed to demonstrate it. In the few cases where the results have not been the same on repeated examination, the exceptions may, I think, be attributed to technical faults.

When the appendix is not visible, there may be several reasons. Its lumen may be closed by a chronic obliterative process, by kinking near the cecal end, or by the infiltration and swelling associated with an acute appendicitis, or the appendix may be filled and the fact not noted by reason of such dilatation or adhesions of the cecum that the retrocecal appendix cannot be made out. Even in cases where the appendix lumen has been obliterated, the x ray gives definite information as to whether or not a tender area coincides with the shadow of the lower inner border of the cecum at a point where the appendix should be. If on palpation under the greatly improved conditions afforded by fluoroscopy, there is no tenderness in the appendicular region, granted even that the lumen is obliterated, is it likely that an essential pathological point is being overlooked?

There are numerous cases, it must be admitted, in which the adherent, dilated cecum may prevent the bismuth filled appendix from being discovered when it lies retroceally. This source of error is likely to occur very frequently, perhaps even in the great majority of cases when the examination is



FIG. 16.—Part of an artery forceps left in the abdominal cavity following hysterectomy. This shadow might have been mistaken for the appendix. The patient also has a duodenal ulcer.

made *röntgenographically* alone, or when the patient is studied in the erect position; but this source of error cannot be a very large one when the patient is examined *fluoroscopically in the horizontal*



FIG. 17.—Colon filled by the bismuth enema. The redundant sigmoid colon is adherent in the appendicular region. The arrows point to the appendix.

position, using the wooden spoon or the gloved hands for palpation. Out of my large series of cases in which the appendix has been visible, I have only occasionally been able to fill the appendix by the clysma.

The presence of enteroliths and other foreign bodies in the appendix has been *röntgenologically*



FIG. 18.—Adherent, retrocecal appendix, pointing upward. In this case the patient was suspected of having gallbladder disease, but at operation the surgeon concluded that the appendix was responsible for the symptoms.

demonstrated by Fittig and Weisflog. I have successfully demonstrated appendicular calculi by means of the Röntgen ray in two cases. In a third case, a very large calculus removed from the appendix at operation had not been recognized during the previous Röntgen examination as being other than a bismuth shadow. Adhesions, resulting from appendix disease, are sometimes suggested by an abnormal, fixed position of the sigmoid, as in several cases which I shall demonstrate. The adhesions may sometimes involve the terminal ileum and produce iliac stasis, or, on the other hand, they may be productive of ileocecal valve incompetency. On several other occasions, the removal of the appendix has resulted in relief of the ileocecal valve incompetency.

I recognize the fact that the appendix is a very small part of the alimentary tract. The x ray investigation of any part of the alimentary tract must be incomplete unless it includes a careful study of the entire digestive system. Just as in *röntgenography* of the urinary tract for calculi, one does not feel justified in reaching conclusions until the entire urinary tract has been studied, so also in gastrointestinal *röntgenography*, conclusions regarding any one part should be withheld until the entire tract has been studied. The importance of recognizing this necessity has been repeatedly urged by Jordan, of Guy's Hospital, especially in reference to the study of intestinal stasis, where there may be a relation between the intestinal stasis and various symptoms in the stomach and duodenum.

The technic of the examination of the appendix is only a part of the routine which should be pursued in every gastrointestinal case,² and unless circumstances prevent, no opinion is expressed on any single part of the digestive tract until the entire examination has been completed.

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Poisoning by Male Fern.—An unusual case of fatal poisoning by the administration of male fern as a vermifuge is reported by M. C. Hall, of Washington, D. C. (*Journal A. M. A.*, July 18, 1914). The patient was a young man who suffered from constant hunger and feverishness at night and was prescribed for by a so called "Quaker doctor" or Indian doctor, of Joplin, Mo. He died in convulsions and with tetanic symptoms after taking a large quantity of what seems to have been extract of male fern. There is always the possibility that consulting by letter an advertising "Indian or Quaker doctor" may cause a patient's death.

²The technic of the complete examination of the gastrointestinal tract is described in the reprints of an article by the writer entitled *Röntgenoscopy of the Liver and Biliary Passages with Special Reference to the Gall Bladder*, *Journal A. M. A.*, September, 1913.

TUBAL GESTATION.*

With a Report of Sixty-six Cases.

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It is impossible, in the space at my disposal, to discuss the entire subject of ectopic gestation, and I will therefore limit myself to a consideration of several mooted questions in connection with the tubal variety. The conclusions reached in this report are based on a personal experience with sixty-six cases. Sixty-five of the cases were operated in without a fatality and one case ended fatally before operation could be done.

The question of the cause of tubal gestation has not been definitely decided. The majority of observers hold that it is due either to an actual obstruction of the Fallopian tube or else to conditions which prevent the tube from properly performing its function of carrying the fecundated ovum to the uterus. In the main these causes are dependent upon changes in the tube incident to inflammation. Webster holds, however, that while obstruction may play a part in the causation of the condition, there is no proof that it is the ultimate factor in its causation. He demonstrated the existence of the decidua reaction in the tubal mucosa in all cases of tubal gestation, and advanced the view that the fertilized ovum could develop only on tissues capable of undergoing the genetic reaction. Normally in the human female this reaction, occurring as the result of fertilization, takes place in the body of the uterus. Its occasional occurrence in other portions of the Müllerian tract, e. g., the Fallopian tube, is to be regarded as a reversion in these tissues to an earlier mammalian type, either in structure or reaction tendency. As far as I am aware this view of Webster's has not obtained general recognition. We do know, from the history of the case and from operative findings, that inflammatory lesions of the tubes, causing either obstruction or altered function are present in practically all cases.

The obstructive lesions most frequently observed are: Diverticula in the lumen of the tube, stenosis from thickened mucous membrane, constrictions from adhesions, torsion of the tube from adhesions, and polypi of the tube. Obstruction may also be due to pressure by tumors in the tube wall or of adjacent structures.

The manner in which the fecundated ovum reaches the uterus from the Fallopian tube is not definitely known. The two most common views are that the tube by a peristaltic motion propels the ovum through its lumen, or that it is propelled by the wave of the ciliated epithelium lining the tube. If either or each of these theories is correct, the function of the tube can be interfered with by inflammatory processes. In the first place adhesions may limit or destroy the peristaltic action, and in the second may destroy the cilia. These views, however, have met with objection. Kelly asserts that even in advanced cases of inflamed tubes, the cilia are not destroyed and some authorities have

advanced the view that the movements of the cilia are not toward, but away from the uterus.

The general acceptance of the view that tubal gestation is caused by changes incident to inflammation has led to an error in the symptomatology. The majority of textbooks teach, as a cardinal point in the diagnosis, that there is always a history of a long period of sterility preceding the lesion. In my experience this is not altogether true. Many of my patients did present such a history, but a considerable number of them gave a history of a very recent normal pregnancy. This question will be considered more in detail further on.

I purpose to say very little in reference to the diagnosis of tubal gestation before rupture; not that the subject is unimportant, but because so few opportunities present themselves for such a diagnosis. It has been my fortune to see but one case before rupture and this I failed to diagnose. No doubt, if the patients presented themselves for examination and a careful history was elicited and an examination made, many cases would undoubtedly be recognized. As a matter of fact, in my experience, the patients presented so little in the way of symptoms outside of those incident to normal pregnancy, that with one exception, none of them consulted a physician before the onset of rupture. In fact in many of the cases the symptoms of pregnancy were entirely absent. When we realize that in the majority of cases rupture occurs by the sixth week, we can readily understand why they present so few symptoms foreign to a normal pregnancy. In some cases, however, the symptoms of early pregnancy are exaggerated, and in addition the symptoms due to a mass in the pelvis are also present. The further the pregnancy advances before rupture, the more likely are symptoms of an unusual character to be present; consequently the chances of a diagnosis are increased.

I feel that the principal points in the diagnosis before rupture are the symptoms of early pregnancy with the finding of a unilateral mass in the pelvis of a patient in whom an acute pelvic infection can be eliminated. The mere fact that the mass is unilateral will usually eliminate pyosalpinx, as practically all of these cases are bilateral. All unilateral tubal enlargements should be looked upon with suspicion, and a careful history should be taken tending to confirm or discredit the suspicion. It must be borne in mind, however, that tubal gestations are at times bilateral (two cases in my series) and that hematoma of the opposite tube is a possible concurrence. In doubtful cases the Abderhalden reaction may help to clear up the diagnosis.

The symptoms of tubal rupture, as set forth in the books, are stereotyped as a rule and are given about as follows: The patient gives a history of a long period of sterility, there are present the early symptoms of pregnancy, the menstrual period has been missed, but is followed by a return of the bleeding at a varying date beyond the expected time. In the menstrual discharge are found shreds of the decidua vera. The patient is seized with acute agonizing pain in the lower abdomen, on the side of the affected tube; this is followed by loss of consciousness and all the symptoms of profound shock,

*Read before the Philadelphia County Medical Society, February 11, 1911.

depending on the amount of the hemorrhage. Return to consciousness is followed by nausea and vomiting and the continuation of the symptoms of shock. A physical examination discloses an enlarged uterus with a softened cervix and a doughy mass to the side of, or posterior to the uterus. It is admitted that this details more or less imperfectly the history of a classic case, but unfortunately for our diagnostic acumen the cases rarely follow the books.

It has been my experience that many of these cases do not present a history of a long period of sterility. As stated before, a considerable number of my patients gave a history of a recent normal pregnancy. It is easy to understand why this should be so. Before involution has taken place, the tubes are in a dilated condition with weakened muscular walls, so that proper peristaltic action is absent. Again at this period, the tubes are likely to be displaced and present diverticula in the thickened mucous membrane, which would not be present after full involution had taken place. The idea that there must always be a history of a long period of sterility in these cases is so strongly engrafted in the minds of physicians, that I fear that many cases are overlooked because such a history is not obtainable. It must be borne in mind, that while such a history is frequently given, it is not pathognomonic and that tubal gestation may occur shortly after a pregnancy at term or an uncomplicated miscarriage.

Menstruation may or may not be missed. More frequently, in my experience, there is a history of a missed period with a return of the bleeding shortly before, concomitant with, or shortly after the rupture. The association of the pain of tubal rupture or tubal abortion with the return of bleeding, is responsible for the most frequent mistake in diagnosis, namely, miscarriage. It must be borne in mind that the pain of tubal rupture is not always excruciating in character nor always associated with collapse.

It is not always possible to demonstrate macroscopically the presence of decidual shreds in the menstrual discharge. I can recall but one case in which I was able to make such a demonstration. There is a condition of the menstrual discharge, however, which to me is very characteristic and which has been present in all my cases. The menstrual blood, instead of presenting its usual characteristics, is tarry in color and consistence. I have never failed to note this characteristic, and whenever I see such a discharge I am always suspicious of ectopic gestation.

The classical symptoms of shock are frequently present at the time of rupture, but not always. I can recall one case where the operation disclosed a large amount of fresh blood in the pelvic and abdominal cavities, and the woman showed absolutely no signs of shock. She had her first rupture and hemorrhage in Atlantic City. Her husband, wishing to consult their family physician, brought her to Philadelphia in an automobile. When they reached Hammonton, she had another attack of severe pain which probably denoted another hemorrhage. I saw her within two hours after her arrival in the city as showing a supposed case of acute appendicitis. Her general condition was excellent and the diagnosis of appendicitis was apparently clear

until her history disclosed the possibility of an early pregnancy and a pelvic examination showed a large mass to the right of the uterus.

In another case the picture was just the opposite. At the time of rupture, the woman had a severe collapse from which she rallied slightly. On attempting to rise up in bed she had another collapse and fell, apparently lifeless, to the floor. Operation disclosed a very small rent in the tube with several ounces of fresh blood in the pelvic cavity. Another case presented the usual signs of an early abortion. This patient was out shopping early in the morning, when she had an attack of pain in the lower abdomen with bleeding from the uterus. She returned to her home, prepared breakfast for her husband, and did a few tasks about the kitchen. The pains, which were intermittent, continued and the uterine bleeding increased in amount. Thinking that she was aborting, she went to bed and sent for her physician who confirmed her suspicions. When I saw her she had a pulse of 130, a subnormal temperature, and was apparently anemic. Examination located a large mass in the pelvis and free fluid in the peritoneal cavity. Operation disclosed a ruptured tubal gestation sac with tremendous hemorrhage, it being the largest amount of free bleeding from this condition in my entire experience. While this patient showed the objective signs of shock and had a very large hemorrhage, she did not collapse and at no time was the pain more severe than that of an early abortion.

It will be seen from the recital of these three cases, that the symptoms of shock and pain at the time of rupture are variable. I believe that if the cases were seen immediately after rupture, they would all show some increase in pulse rate and a reduction of normal temperature. Many patients recover from the depression rapidly and it is not unusual to find, at the first examination, the pulse and temperature normal. If the cases are seen some hours after rupture, the pulse is likely to be found slightly increased and the temperature above normal. This early rise in temperature is due to the absorption of fibrin ferment from the blood. Many of the late cases present a high temperature which is due to infection of the blood clot, either from a preexisting salpingitis or to secondary infection from the intestines.

I have learned to place great dependence on the examination of the blood in many of the cases, particularly where the bleeding has been more or less profuse. Early examination will disclose a reduction in the number of red cells, a deficiency in hemoglobin, and a moderate leucocytosis. This secondary anemia will last for many weeks in some cases.

There is one condition which so closely resembles a ruptured tubal sac in its symptomatology that it is impossible to separate the two conditions. The condition, I speak of, is a small ovarian cyst with a twisted pedicle and hemorrhage into the cyst cavity. I had two cases in which the symptoms were so deceptive that the diagnosis of ruptured tubal sac was made and operation disclosed the other condition. The mistake in diagnosis, however, is unimportant as the indications for treatment are the same and equally imperative in both conditions.

TREATMENT.

The important question in tubal gestation is that of treatment at the time of rupture. Shall we operate at once irrespective of the general condition of the patient, or wait until she has recovered from shock? To hear this question discussed, one might think that surgeons were divided into two irreconcilable camps, whereas as a matter of fact most surgeons are in accord, belonging to neither camp and treating each case as their judgment dictates. Some years ago, Dr. Hunter Robb published a paper in which he held that not more than five per cent. of patients died at the time of rupture and that the other ninety-five per cent. would recover from the shock if given a chance. He argued that the five per cent. would not be saved by immediate operation, and that to operate in any of the other cases during the period of shock would increase the mortality. His conclusions were based on the belief that the severity of shock was not due to the amount of the hemorrhage, and that practically no patient bled to death. He confirmed his theory by a long series of animal experiments. He further believed that operations should be performed only when the patient had recovered from shock and only when the blood picture was entirely normal. This meant a delay, in many cases, of several months. His opponents held that the surgical indication was always to control hemorrhage, and there came into vogue the penknife operation or the ill advised operations done irrespective of the condition of the patient or the surroundings.

Both these views are extreme and are not followed by surgeons in general. The proper procedure, I believe, is to operate as early as the condition of the patient will permit and in proper surroundings.

I fully agree with Robb that the amount of the hemorrhage does not always determine the amount of shock. One case which goes to prove this, has already been described. Another case is even more striking. This is the case where I failed to make a diagnosis before rupture. This patient went on the operating table with a pulse of 80. During the preliminary curettement, the anesthetist informed me that the patient had suddenly had a profound shock and that the pulse was 130. An examination disclosed the fact that the mass which had been present on the right side, had disappeared. A diagnosis was then made that a tubal sac had ruptured and the abdomen was immediately opened. A small rent was found in the right tube with not quite an ounce of fresh blood in the pelvic cavity. Here was a case in which the amount of blood lost could not have been responsible for the shock. In fact it is hard to understand why she should have been in shock at all, as she was well under the anesthetic at time of rupture. I have had cases where the shock was undoubtedly due to the bleeding and where I am satisfied that prompt surgical intervention to control continued bleeding saved life.

If it was possible to tell definitely in each given case when shock was due simply to rupture without much bleeding, and when it was due to continued bleeding, the solution of the question would be an easy matter. As this is impossible, I am firmly of the opinion that all cases should be operated in as

soon as possible, providing the patient is not in such severe shock that the added shock of operation would determine an unfavorable outcome, also provided the surroundings are such that an aseptic operation can be performed. I have had but one case in the entire series in which I thought it advisable to wait until the patient had partially recovered from shock. In a number of cases the operation was performed during the stage of shock, but prompt and energetic measures were instituted at the time of operation to combat it. There is a word of warning which might be of value in reference to combating shock. It is dangerous to transfuse salt solution and unduly stimulate the patient if the abdomen is not to be opened immediately. Such a measure will only further increase the bleeding and add ultimately to the danger.

That women die as a result of hemorrhage from ruptured tubal gestation sacs is illustrated by one of my cases. This was a patient of Doctor LeCompte, of Bristol. The symptoms, as detailed over the telephone, were so typical of tubal rupture that a diagnosis was made and an immediate operation urged. On returning to the patient's family to notify them of my coming to operate, the doctor found the patient dead. Death occurred within thirty minutes from the time of rupture. Post mortem examination disclosed the abdomen filled with fresh blood due to a tubal rupture.

I am firmly of the opinion that long deferred operations are not advisable. The longer the delay, the more likely are the remaining pelvic organs to be irreparably damaged. Again there is the danger of infection of the blood clot which, if it does not kill the patient, at least permanently cripples her. I have operated in several late cases, in not one of which was it possible to save the remaining tube and ovary. In many of the cases dense adhesions involved all the pelvic structures and coils of intestines or omentum. With such adhesions the danger of intestinal obstruction is always present. On the other hand, if a prompt operation is performed, a thorough toilet of the pelvic cavity can be made, the remaining tube and ovary frequently saved, and the danger of intestinal adhesions eliminated.

In some cases, of course, it is impossible to do ideal surgery even if the operation is performed early. The condition of the patient may be such that it is wisest simply to control bleeding by removal of the affected tube, and to get out of the abdomen as quickly as possible, leaving the blood to take care of itself. Drainage is seldom necessary if the operation is performed early. In three of my late cases, however, I deemed it necessary to institute drainage, either on account of infection or to take care of bleeding resulting from breaking up dense adhesions. In many of the late cases organized blood clots are densely adherent to the intestinal walls. To remove these simply invites infection by destroying the serous coat of the bowel.

The question is sometimes raised whether it is wise to do a conservative operation on a ruptured tube or to save a tube that has been the seat of a tubal abortion. Personally I deem it unwise to make any attempt to save a tube which has already proved its inability properly to perform its function.

In connection herewith I wish to recount a case in which a conservative operation on a crippled tube resulted in tubal gestation. A patient with a chronic salpingitis due to an infection after a miscarriage, refused operation unless structures were conserved to make it at least possible for her to conceive. At operation one tube and ovary were so badly damaged that it was necessary to remove them. On the opposite side it was found possible to save a portion of the ovary and about two inches of a patulous tube. She became pregnant some months after this operation, but unfortunately the remnant of the tube could not properly perform its function and I had to operate the second time for a tubal abortion.

One of the vital questions now generally discussed is, Should the opposite tube be removed to prevent the possibility of a second tubal pregnancy? I do not believe that this question can be settled, statistically at least, at the present time. That there is always a possibility of a recurrent tubal gestation on the opposite side is unquestioned. As stated before, practically all cases are dependent upon changes in the tubes as the result of inflammation. Inflammatory lesions of the tubes are nearly always bilateral, and it is fairly sound reasoning to conclude that if one tube cannot properly perform its function, it follows that the opposite tube is also likely to show the same deficiency.

Maternity, however, is a priceless gift and I believe it is wanton and unjustifiable surgery to sacrifice an apparently sound tube and ovary on purely theoretical grounds. I have been unable to follow all of my cases, but in the sixty-six only two were recurrent. One of these cases had an intervening normal pregnancy between the tubal gestations. How many of the patients became normally pregnant I do not know. Within the past week I have seen two patients who were operated on last summer and both are now normally pregnant. My rule is to remove the opposite tube if it is macroscopically diseased. If it is apparently normal, I do not remove it.

I have had no personal experience with advanced tubal gestation, and consequently will not discuss that phase of the question.

113 SOUTH TWENTIETH STREET.

THE SIGNIFICANCE OF HIGH BLOOD PRESSURE.*

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Probably the very earliest accurate clinical observation concerning disorders of the circulatory system was recorded when, instead of a simple statement of a slow or of a fast pulse, an actual count was given. Doubtless for many years after this period, accurate methods for the determination of the cardiac mechanism in the human being remained practically a sterile field until the methods of auscultation and percussion were elaborated by Laennec. During the past ten years, however, one may

almost say that the literature of internal medicine has been deluged with new methods designed to furnish accuracy in our studies of disorders of the circulatory apparatus. The almost forgotten sphygmograph has been resurrected and has been delivered from that ever pregnant womb for the internist, the physiological laboratory, in the form of the definitely useful polygraph. Improved stethoscopes, the electrocardiograph, the sphygmobolometer of Sahli, the orthrodiascope, the micrograph of Crehore and Meara, and, perhaps most definite and helpful of all in clinical work, the fluoroscopic screen have been added to the instruments by which we may now accurately measure conditions and changes in the circulatory organs.

Many of these instruments are still so new and the data collected from their use so inadequate, that we are not prepared to estimate the real clinical value which they may ultimately possess. Indeed there is little doubt that, at least in hospital practice, many of them may have, as Hun, of Albany, says, done no inconsiderable amount of harm, inasmuch as they are teaching some of our young men, especially hospital interns, to neglect the older, more accurate methods, to say nothing of more portable methods of physical diagnosis so wonderfully worked out by Laennec, Flint, and their successors.

There is, however, one kind of investigation of circulatory phenomena which has been sufficiently long in general use to permit us to consider in retrospect its value in clinical medicine. I refer to the accurate methods for the determination of blood pressure. It seems a curious fact that the first absolute recognition of blood pressure was published by Hale nearly 100 years after the epoch making demonstrations of Harvey, and it was nearly another 100 years before Poiseuille and Ludwig separately elaborated methods by means of which intravascular pressure could be determined. The means employed by these investigators implied the direct connection of the blood stream with the manometer, and the results recorded were not the diastolic and systolic pressures with which we are now most familiar, but the mean pressure, which is a factor which we as clinicians are now inclined perhaps to undervalue. Although these methods were applied occasionally to the study of human circulation, they are such as to prevent their general adoption in clinical studies.

It was not until the now obsolete little tonometer of Gaertner and the instrument of von Basch were devised, that it was seen that accurate instrumental determination of the intravascular force was possible, and that the findings might very likely become of great diagnostic and perhaps therapeutic value. Once this seemed certain, there quickly followed the invention of many ingenious and mostly satisfactory methods for the more definite and yet simple determination of the blood pressure. The market is now flooded with sphygmomanometers, most of them good and many of them so portable and practical that one is now expected to determine the blood pressure almost as much a matter of routine as we chart the temperature and pulse or estimate the hemoglobin and body weight.

It is quite natural that the first and most extensive studies resulting from this practical method of clini-

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cal investigation should have been most generally directed to the study of high pressure cases, since these furnish the most spectacular findings. One may say that more or less routine pressure determinations have been recorded by most of us for a space of from five to ten years, and it appears to me that we are now prepared to discuss, as it were from the standpoint of experience, our findings in this respect and their apparent significance in clinical medicine.

As to the question of the significance of the mean blood pressure, or that of the diastolic, the last perhaps the most important of all, or as to the value of the newly suggested methods designed for the purpose of accurately estimating the cardiac work, many of us are still so much in doubt that profitable discussion is as yet perhaps not possible. As to the significance of high pressure, this point cannot be raised. Every one, from the ophthalmologist to the obstetrician and dermatologist, feels that he knows at least something of the significance of high pressures in his particular line of work.

At first, as is usual, the enthusiasts among us probably greatly overestimated the significance of high pressure. This spirit is still noticeable in the lay public and press, and accounts for the agony of those patients who appeal to us after the discovery that their blood pressure (systolic) reaches 150 mm. There can be no doubt that the pendulum of professional opinion is now well on the reactive swing that always follows such enthusiasm as hailed the startling discoveries which succeeded the accurate measurements of blood pressure. We begin to hear good men openly question if the very high pressures are really important in prognosis or treatment, and not only question, but definitely advocate that no methods be taken to lower these high pressures since such means, when successful, are undoubtedly followed in no inconsiderable number of instances by suspended renal secretion, pulmonary edema, and cerebral anemia with all their attendant symptoms and sequelæ.

The incontestably firm ground for these apparently retroactive arguments is careful and elaborate study, such as that, for example, of Janeway (*Archives of Internal Medicine*, XII, 6, p. 755), who has shown that in point of longevity, but little difference is found between those whose pressures rise to or above 200 mm. and those whose systolic pressure lies between this and 150 mm.

I believe that we are now prepared to discuss intelligently this question from all angles, most of us from the standpoint of a tolerably wide actual clinical experience. I hope to bring up points which may lead us to some sane and workable estimate of the *significance of high blood pressure*. That I may not be called upon constantly to repeat, I wish to state that I refer to the significance of high systolic pressure—I have in mind arguments and data which lead me to believe that we shall ultimately find that studies of mean pressure, of cardiac work, and quite certainly of the minimum or diastolic pressure, may come to be considered as of even more valuable clinical import.

As has been the case in so many other branches of clinical research, investigation of the pathological in regard to blood pressure, has led back to studies

of the normal or physiological of far greater basic value than the former observations based on physiological research alone. No real understanding of physiological blood pressure, nor of its direct value in the applied science of medicine, existed until clinicians had from the pathological worked back to discover elementary physiological conditions, which under absolutely natural states determined great variations in blood pressure. I think that every one is now fully prepared to accept the statement that high, even very high blood pressure, may exist as a direct response to physiological stimuli, and that such a reaction may be entirely natural in its response. It is but a step farther, and a fact well substantiated by numerous clinical observations and studies, that in many disease conditions a high systolic blood pressure develops as a definite physiological effort on the part of nature to circumvent or cure pathological conditions.

Janeway in his textbook has well summarized the chief physiological factors governing blood pressure as (a) the energy of the heart; (b) the peripheral resistance; (c) the elasticity of the vascular walls; and (d) the volume of the circulating blood. But a moment's thought will show that in the ordinary requirements of physiological life, all these factors must undergo great variations, hence great variations in normal pressure must and do take place. Vagus stimulation or inhibition and splanchnic disturbances also profoundly affect pressure, though the mechanism is a very complex and intricate one beyond any doubt.

Posture is a factor of primary importance, its mechanism simple and obvious. The systolic pressure is of course lowest with the subject in the prone position. Pressure is higher in the standing than in the seated position, and it is still higher during such exercise as walking and higher again when forced exercise, as mountain climbing, is performed. These all may be satisfactorily accounted for on simple mechanical principles. Of course, the locomotive requires a higher steam pressure in making grade than when running down hill.

Sleep is the period of rest for all the tissues of the body, even for the heart, and correspondingly blood pressure is naturally lowered during rest. It is entirely logical to assume that opposite conditions, whether wholly natural or pathological, may produce the contrary effect. Beyond any doubt, the factors which most profoundly, most quickly, and most invariably raise blood pressure are psychic states. Excitement will cause a marked rise, even of as much as 100 mm., in neurotic or temperamental individuals, a rise in systolic pressure greater than can be induced in man by any drug in therapeutic doses, or by any mechanical method, even severe physical exercise. Diastolic pressure, it is interesting to note in passing, is apparently much less affected than the systolic. It is important to recall that these changes in pressure may occur very suddenly, almost instantaneously, and every one who has intelligently studied blood pressure curves taken from excitable persons, recognizes them. We are perhaps likely to overlook this fact when we are first called upon to make determinations in a strange patient, to whom perhaps the method of investigation is new and terrifying.

Pain, in acute stages, naturally causes an elevation in pressure, but when long endured and when finally the patient becomes exhausted, a fall below the normal is to be expected, as in other exhausting states.

As is well known, the usual systolic pressure ranges in the neighborhood of 120 mm. in the average man. This will be found to be the case in ordinary hospital patients, but in private practice a quite different state of affairs will be found. Thus, from my own studies I find that the average systolic pressure in healthy medical students, physicians, lawyers, and the higher type of business men ranges between 140 and 155 mm., taken in the seated position. Such a systolic pressure certainly cannot be considered as pathological in these persons, therefore, in correctly estimating the normal pressure, occupation and life habits must be considered. Almost without exception pressure in persons whose occupations entail mental activities of marked degree, especially stress or worry, will be found to go persistently higher than in those who live by more primitively physiological efforts, as the common laborer or those of phlegmatic temperament.

Nephritis is beyond doubt that condition of definitely pathological nature which is most constantly associated with high systolic blood pressure. Not all nephritics are however so characterized. In those forms of kidney disease which are chiefly marked by changes in the parenchyma, that is in the secreting cells, high pressure is not the rule, but it is chiefly in those in which interstitial alterations predominate that high tension is mostly found. It is very important to recognize, I believe, that in a considerable number of these instances the high systolic tension appears to be physiological, at least in intent, for in many of these persons, when through drug action, phlebotomy, or by other artificial means the pressure is depressed, almost invariably deficient renal secretion follows, and it appears that in frank, chronic interstitial nephritis a high blood pressure is essential. When in these cases excretory decompensation occurs, as a rule a lowering of the maximum blood pressure will be found, and the same picture of defective excretion develops when a circulatory break occurs. The reestablishment of a relatively normal excretion appears only when the pressure is again raised to or near its original degree, indicating apparently that this is the optimum or physiological pressure in such an instance. I think that most of us who have had much to do with renal disorders, long ago learned not to attempt to depress the systolic pressure in cases where the amount of urinary solids excreted was subnormal.

Although my experience in the high systolic pressures of cerebral compression is much more limited, and I should perhaps not attempt to draw too sweeping conclusions from my own observations, I am of the opinion that in these cases temporary benefit may be achieved when the pressure is diminished by phlebotomy, purgation, or even by the vasodilators. Of course a circulatory decompensation is not to be favored, even in these often critical instances, but in these more than in any other high tension states, it would appear that artificial methods of tension depression are indicated. I am unprepared to dis-

cuss the dynamics of high tension from cerebral pressure.

It is stated by some that the systolic pressure is much increased in arteriosclerosis. Reasonable as this theory may appear in purely speculative medicine, in practical clinical observation it is commonly found to be definitely untrue, and in my experience quite as many cases of arteriosclerosis, even in the actively progressive stages, show minus as plus pressure. This statement is also apparently borne out by Janeway's elaborate analysis.

Quite a different state of affairs exists when there is a persistently increased peripheral resistance, as in arteriocalillary fibrosis, a condition which may not inaptly be compared to a generalized chronic interstitial nephritis. Such is the anatomical picture in that very interesting and increasingly frequent syndrome, variously known but most frequently as the circulatory renal complex. The dominant, anatomical alteration in these instances is a compression of the peripheral arterioles or a reduced calibre, which thus adds materially to the factor of peripheral resistance which, as already stated, is one of the primary factors concerned in vascular tension.

Very closely allied to the condition just mentioned is the high pressure which is normally present in physiological senility, before that stage of senescence has appeared which is evidenced by general visceral incompetence and by more or less active exhaustion. James Mackenzie insists that this high pressure of old age is physiological in origin and that it is due to the natural shrinkage of tissues and the fibrosis which occurs in old age, thus increasing the factor of peripheral resistance and necessitating increased blood pressure. Clifford Albutt, under the name of hyperpiesis, describes a condition occurring frequently in the middle aged and senile and sometimes in youth also, in which marked fluctuations of blood pressure from low to high are shown. Periods of considerable time in which the blood pressure is raised to a very high level are found associated with headache, mental torpor, and malaise. Active purgation, especially with the cholagogue cathartics, often serves to relieve these cases, which I am inclined to call, in many instances at least, ordinary constipation, for a high blood pressure is commonly seen in protracted cases of this kind. The explanation is, of course, quite simple and along entirely mechanical lines—we need no fine spun and unprovable theories of autointoxication; simple increased capillary resistance in the enormous splanchnic distribution of the abdomen is a quite sufficient explanation. These are the cases of high blood pressure which give such brilliant results when treated at Nauheim, by the violet ray, faradization, vibration, massage, or Christian science. All these measures are equally efficient, provided that catharsis and exercise, with appropriate diet, are also prescribed. These cases may be cured quite as effectually in Hoboken as in Vichy or Carlsbad.

Something definite as to the true significance of high blood pressure may perhaps be gleaned from a brief discussion of the prognosis. That hard headed and wonderfully logical clinician, James Mackenzie, says: "There has been so much non-

sense talked and written about high blood pressure, that I am constrained to draw attention to our extreme ignorance of the cause and consequence of raised blood pressure." (*Diseases of the Heart*, third edition.) Theodore Janeway says that "the relation of the height of blood pressure to prognosis is doubtful. . . . The exact height of the blood pressure does not seem to have much bearing on the expectancy of life." (*Ibidem.*) From my own experience I would say that nothing can be told as to prognosis from the height of the reading, but that from the nature or probable cause of the pressure, a quite definite prognosis can be usually determined. That high pressure weakens the resistance of the vessels, favors cardiac decompensation and hemorrhage, is no more brilliant a truism than that high water pressure in an old fire hose is likely to burst it or to decompensate an old and defective engine.

It is most tempting to enter into an elaborate discussion of the treatment of high blood pressure, but I shall discuss it only very briefly. Except for emergency conditions, high pressure in itself is not to be treated. The cause may and should be treated, but most cases come to us so well established that our efforts must be more directed to maintain, rather than to depress the blood pressure.

I can perhaps very briefly then summarize my opinion of the significance of high blood pressure by saying that it is not a cause, but usually a result. It is not disease, though the evidence of it. It is not pathological, but is usually, if not always, physiological in meaning. It tends more to prolong life than to shorten it. Where its causes cannot be removed, it is not to be treated, but maintained.

A paper of this kind does not well require illustrative cases, but during the past week a case which applies so definitely to this subject under discussion ended fatally on my service that I wish very briefly to cite it:

CASE. J. L. entered the service of a colleague on December 22, 1910. He was thirty-three years of age, gave a history of juvenile scarlet fever and of pneumonia nine years before admission; also of excessive use of alcohol and tobacco; he had worked as a cook chiefly. He entered the hospital with a lobar pneumonia from which he made a good recovery. His admission blood pressure was 160 systolic. He reentered the hospital in March, 1912, again suffering with pneumonia and giving a history of various injuries, excessive alcoholism, and exposure. At this time he showed a systolic blood pressure of 200 mm., which at times during the course of the disease fell to 150 mm. The urinary picture was that of a chronic interstitial nephritis with an acute parenchymatous complication. He again made a good though somewhat slow recovery, and was discharged with the diagnosis of chronic interstitial nephritis. He reentered the hospital once more in 1912, under the diagnosis and with the typical picture of a chronic interstitial nephritis. At this time the high pressure was a matter of obvious importance and the carefully kept chart of the systolic pressures shows a variation with a minimum of 170 mm. and a maximum of 240 mm. For the greater part of the time the systolic pressure ranged in the neighborhood of 200 mm. He was discharged as improved in March, 1913.

He entered my service at the City Hospital February 27, 1914, giving the usual history of alcoholic excesses with dyspnea, swelling of the ankles, dizziness, defective vision, and the typical urinary picture of chronic interstitial nephritis. The pressure on admission was 190 mm. After a day in bed it rose to 200 and for a time it seemed as though he would again recover. March 28th, however, he showed active symptoms of uremia with a rapidly falling blood pressure down to 150, 100, and finally to 80 mm., when after

two days he died in spite of most active stimulation, hot packs, etc. Urinary suppression was first threatened, then present, and all our efforts to maintain a viable blood pressure were in vain. The autopsy was performed by Doctor Larkin. To quote from the protocol:

"Heart weighs 325 grams. Lies free in the pericardial sac, which contains about 8 c. c. of a straw colored fluid. Heart is hypertrophied; muscle is firm. On section shows a marked hypertrophy of the left ventricle. Aortic valve is 6 cm., shows a slight amount of thickening, especially in the region of the corpora aurantii. Right ventricle is 2 cm., muscle firm, normal in color. Mitral is 8 cm., shows hypertrophy of the papillary muscles; chordæ tendineæ appear shortened. Mitral valve is normal in appearance. Tricuspid is 13 cm., right ventricle also hypertrophied. Pulmonary valves also normal. Left kidney weighs 100 grams. Surface is smooth and white. On removing capsule numerous small petechial hemorrhages are seen. Kidney is very firm. The markings are very indistinct, the cortex diminished, shows a chronic diffuse nephritis—a small red kidney. Right kidney weighs 100 grams; similar in all respects to the left."

The point that this case illustrates most vividly is that argued in this paper, namely, that the increased blood pressure was truly a conservative process. It is inconceivable that the blood could have been forced through these greatly shrunken and sclerosed organs without a very high pressure; without it death must have taken place months or years before, with it, as you see, very little real damage had been inflicted on the heart, which remained up to the last perfectly competent.

POTTS' PARALYSIS. RESTORATION BY ALBEE'S OPERATION.

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Paraplegia occurring during the illness of patients affected with tuberculous osteitis of the vertebral column, has been generally ascribed to compression of the cord. It has been more or less a matter of speculation, and various explanations have been offered as to the exact etiology of this compression. Painter and Moore, in their classical contribution upon the subject, describe the following possible causes: Narrowing of the lumen of the canal; sharp angularity of the cyphos; circulatory disturbances in the cord; bony sequestra; sclerosis of the tissues of the cord; cold abscesses between the dura and the cord; tuberculous granulation tissues in the same region and divided by extension from osseous disease in the vertebral bodies; and penetration of the dura by tuberculous granulation tissue, and in consequence a tuberculous infiltration of the pia and later of the neuroglia of the cord itself.

From a consideration of the foregoing possible causes, it will be seen that symptoms of compression, in the large majority of cases of Pott's disease, must be considered as evidence of the activity of the tuberculous process. The cessation of paraplegic symptoms must not be accepted merely as assurance that the mechanical compression has ceased, but rather as the subsidence of the activity of the tuberculous process in the vertebral body. The treatment of the paralysis should, therefore, be included in the

treatment of the disease of which it is a symptom. The principle of rest of the part affected and hyperextension of the spine, has been accepted as essential, at the same time due consideration being given to the patient's general health. The real difficulty often lies in determining how rest and hyperextension can be best secured with the greatest possible benefit to the patient. Recumbency, when efficiently carried out, affords the most complete rest and fixation of all the methods usually employed, and especially when combined with traction. But recumbency is difficult to accomplish and necessitates confinement, and long confinement in bed is followed by loss of appetite, general inactivity, and increased emaciation, all of which tend to diminish the power of resistance. The modern tendency in the treatment of bone tuberculosis has for its principal object efforts toward reasonable activity with restraint of the affected joint. The application of a plaster of Paris jacket or some form of spinal brace, will permit of such activity and, in many uncomplicated cases of spinal tuberculosis, is a very satisfactory method of treatment when skillfully applied. It is easily demonstrated that complete and absolute fixation of any part of the spine is impossible by means of any form of external support.

The two modern methods of operative internal spinal fixation that appear most advantageous are the Hibb method and the Albee method. The principle of both operations is to secure fixation of the spine in a desired position by ankylosing the spinous processes of the diseased vertebrae above and below. By the Hibb method this is accomplished by carefully stripping the periosteum from the spinous processes, which are then partially fractured and transposed to bridge the gap between the vertebrae, the tip of each spine coming in contact with the base of the one below. A bone bridge is thus established by the fusion of the spinous processes. In the Albee procedure it is accomplished by splitting the spinous processes of these vertebrae and placing in the cleft, between the split halves of the spinous processes, a graft taken from the tibia of the same patient. The graft, by virtue of its osteogenetic activity, results in ankylosis *en masse* of the spines of the vertebrae thus treated, thereby securing permanent fixation.

The writer has employed this latter method of treatment in a considerable number of cases of tuberculosis of the spine, in adults and in children, with most gratifying results. The failures or recurrences that have been reported, could probably have been avoided had the operators used a sufficiently long graft to secure the necessary anchorage, or had external fixation been continued for a longer time. In no instance were less than five vertebrae included in the autogenous bone transplant, and external fixation has been required for at least one year after operation.

Two illustrative cases of Pott's paraplegia treated by this method will be reported in full. Both cases are from the service of the orthopedic department of the Jefferson Medical College Hospital.

CASE I. George S., aged five years, mother living and well; father died of pulmonary tuberculosis. Had usual diseases of childhood. Was brought to the orthopedic outpatient department of the Jefferson Medical College

Hospital in September, 1911. A diagnosis was made of tuberculosis of the spine and was confirmed by an x ray examination, by Dr. W. F. Manges, showing involvement of the body of the first lumbar vertebra. The patient was treated by the ambulatory method, consisting of the application of, first, a plaster of Paris jacket and, later, a spinal brace, the object being to immobilize the spine in a position of hyperextension in conjunction with the usual constitutional and hygienic measures. Progress was favorable until October, 1912 (thirteen months under treatment), at which time the patient began to decline very rapidly. The child lost weight, complained of considerable pain in anterior chest and abdomen, and a beginning weakness of both legs. He was brought to the hospital for inspection and it was found that although the brace had been constantly worn, it had been used carelessly, not having been adjusted, and now quite inefficient. The brace was adjusted to increase the posterior leverage and the child was put to bed. The pain was more or less relieved by recumbency, but the weakness of the legs became progressively worse until the patient lost entire control. Motor paralysis was complete, with exaggerated reflexes. Babinski sign and ankle clonus present; no loss of sensation nor atrophy. Considerable spasticity, but with no disturbance of bowel or bladder functions. It was desired at this time to have a radiographic examination, but this had to be abandoned on account of the great amount of pain suffered by the patient on being moved, or by having the brace removed. An anesthetic could have been administered for this purpose, but this was deemed unwise on account of the desperate condition of the patient and in view of a subsequent operation.

Operation was now advised for the purpose of thoroughly immobilizing the spine in a hyperextended position and with the hope of relieving the paralysis. With the mother's consent the operation was performed January 23, 1913. It was necessary to etherize the child before removing the brace. The back and one leg was then thoroughly prepared and the patient placed upon the operating table, face down, with sand bags under the neck and thighs, allowing the body to sag into a hyperextended position. An incision was made directly over the spinous processes, extending from the ninth dorsal to the fourth lumbar vertebra. The spinous processes of the tenth, eleventh, twelfth dorsal, and the first, second, and third lumbar vertebrae were exposed and divided with a chisel, into halves, one half being fractured and pushed to one side; the interspinous ligaments also being divided to complete a cavity for the reception of the transplant, according to the method of Dr. Fred Albee, of New York.

An incision about seven inches long was then made over the crest of the left tibia. The internal surface of the tibia was exposed and freed of all muscular attachments. A graft about five inches long, one inch wide, and one quarter inch thick, was then removed by means of a wire saw, the graft constituting the inner surface of the tibia and containing periosteum, cortex, and medulla. The graft was next shaped and fitted into the previously made cavity and held in place by interrupted kangaroo tendon sutures closely approximated. The sutures which passed through the strong spinal ligaments, when made taut, brought the divided halves of the spinous processes in contact with the graft and completely buried it. The incisions were both closed with catgut sutures, without drainage, and a plaster of Paris case applied to the thorax, holding the spine in the position of hyperextension.

The child made an uneventful recovery, without rise of temperature or shock, with entire disappearance of pain and complete recovery from paralysis.

Both wounds healed by first intention. A cast was worn for six months and replaced by a brace, which is still being worn as a precautionary measure. There has been absolutely no return of paralysis; the child has gained considerably in weight, and greatly in general health.

CASE II. Bennie L., aged eleven years; family and personal history, negative. First came under observation at the orthopedic outpatient department of the Jefferson Medical College Hospital in July, 1911. A diagnosis of tuberculosis of the spine was made and was confirmed by a radiograph by Dr. W. F. Manges, which showed involvement of the sixth and seventh dorsal vertebræ. The usual ambulatory treatment for spinal tuberculosis was instituted. A plaster of Paris cast was worn for several months, this being replaced by a spinal brace which was worn continuously for one and one half year. The patient had discontinued his visits to the hospital and, as he had gained considerably in health and had no active local symptoms for a long time, considered himself cured and removed the brace without the knowledge or advice of his physicians. Three weeks later he presented himself at the hospital on account of an increasing weakness of both legs. On examination, the small cyphos in the spine was found not to have enlarged to the slightest degree. There was no pain, tenderness, nor any other sign or symptom of an active disease of the spine. The brace was reapplied in the extreme hyperextended position of the spine, and the patient put to bed. Extension was also tried for a time. These various methods were tried for a period of three months, during which time the weakness of the legs was rapidly developing into a progressive paralysis.

A neurological report on July 1, 1913, by Doctor Gilpin and Doctor Dugan was as follows: Complete motor paralysis of both lower extremities (patient unable to move a single muscle); incontinence of bowels and bladder; no sensory disturbance; no atrophy; paralysis, at times spastic, at times flaccid; reflexes exaggerated; ankle clonus, Babinski and Gordon signs present. An x ray examination at this time showed marked destruction and almost complete absorption of the body of the seventh dorsal vertebra. Inspired by the very satisfactory result of operation in the previous case, operation was now advised, and performed on July 3, 1913.

Operation. The technic was quite similar to that used in the first case, the difference being that a curvilinear incision was used in the spinous processes and that a heavier and stronger transplant was removed from the tibia (this being a larger and heavier patient). The spines immobilized were from the fifth to the tenth dorsal inclusive. Silkworm gut skin sutures were used. A cast was applied to the thorax as in the first case, and this was fenestrated at the time of its application, for the removal of stitches. A few strands of silkworm gut were used for drainage for the first forty-eight hours in the leg incision.

The patient reacted very nicely from the operation; there was no shock—very little pain or inconvenience from the cast. The stitches were removed from both incisions on the tenth day. The first evidence of reestablishment of function occurred July 14, 1913 (the eleventh day after operation), when the patient suddenly discovered that he could voluntarily move the great toe of his right foot. This function disappeared later in the day, but reappeared the following morning. The control of the muscles of the toes gradually increased and became permanent. Later, motion was established in the entire foot, then in the leg, and eventually there was control of bladder and bowels.

Three weeks after operation, the patient was moving about in bed. In five weeks he was allowed to sit up, and in six weeks walking was first at-

tempted. The first efforts in walking were not successful, as the patient was very weak. Walking was practised each day in conjunction with massage and exercises. The cast was removed in eight weeks and replaced by a light brace. In ten weeks he could walk perfectly without assistance. Neurological examination now showed complete muscular control of both lower extremities, reflexes normal, with entire disappearance of ankle clonus and Babinski and Gordon signs. The patient was last seen in April, 1914 (ten months after operation). He had gained about fifteen pounds in weight and was in very good condition. The brace was still being worn.

THE PRESENT STATUS OF CATARACT EXTRACTION,

As Performed at the Manhattan Eye, Ear, and Throat Hospital.

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The history of cataract extraction dates back to the year 1745, when the celebrated French surgeon, Jacques Daviel, performed the operation for the first time. He was attempting to depress the lens into the vitreous chamber, and it accidentally came forward into the anterior chamber instead. The anterior chamber became filled with blood. He determined to follow the example of Petit, who in 1708 had a similar experience. He opened the anterior chamber with a sharp, curved needle and enlarged the opening with a pair of curved scissors. Succeeding in expelling the lens, he made a virtue of necessity, and from that time forward made it a practice of making a corneal section for the extraction of cataract lenses.

When von Graefe devised his linear knife, and with it his classic incision for opening the eyeball, the percentage of recoveries with useful vision was greatly increased. Ophthalmic surgeons throughout the world soon adopted his methods, which are followed to the present time. His idea was that, if the incision was placed well back in the vascularized tissues of the limbus, it would heal faster, and that the traumatism produced was less liable to result in suppuration. Results by this method were better than had ever before been obtained. The advent of asepsis and of antiseptic methods still further increased the percentage of successful recoveries, so that the operation is looked upon with a great deal less fear than formerly. It is the purpose of this paper to give, in as clear and concise a manner as possible, the rules observed in this hospital in operating for the removal of cataracts and of dealing with the more serious complications that arise.

1. An accurate history is obtained of the patient's condition previous to the onset of blindness.

2. We determine the nature and maturity of the cataract, which includes a record of the vision, or if that is reduced to light perception, we determine whether this is good in all parts of the field.

3. A careful examination is made of the eyelids, conjunctiva, puncta, and lacrymal sac. If any of these structures is inflamed, it must receive proper treatment before opening the eyeball.

4. The cornea is explored for the detection of opacities, and the iris likewise for determining the presence or absence of posterior synechia.

5. The tension of the eye is noted (preferably with the Schiotz tonometer).

6. The patient's general physical condition is then looked into; a record of the blood pressure and a careful analysis of the urine are made.

These steps are necessary, not for the purpose of determining whether we shall or shall not operate, but that the operation may be done under most favorable circumstances. Roughly speaking, no patient is denied operation who does not show the absence of light perception. The general rule of not operating on immature cataracts is observed in this hospital. Exceptions, however, are becoming more frequent. It may be briefly stated that useful vision in either eye is a contraindication for the extraction in the fellow eye until its lens becomes thoroughly opaque. Cataracts that begin in comparatively young individuals, that are slow in developing, should be removed before they mature. This should be done when the patient can no longer follow his chosen line of work. When there is only one eye affected with cataract, the time of election for its removal is when the prognosis is most favorable. This again does not mean that we must always wait for maturity. Very often such an eye is associated with some other diseased condition, or the cataract may be traumatic in origin, giving rise to sudden increase of tension. Such a lens should be removed without delay.

Having determined by the foregoing methods that the case is one for operation, the patient is prepared in the following manner: Two days previous to the day set for the operation the patient is restricted to a semisolid diet, and a mild laxative is prescribed to be taken before going to bed. The same is prescribed for the following day, except that the patient's bowels are thoroughly emptied by giving a strong cathartic. The writer has observed one case in which the corneal wound was torn open and a prolapse of vitreous followed on the fourth day, while the patient was violently straining to expel a mass of hard fecal matter. Should the bowels then not be completely emptied, the patient should have an enema on entering the hospital. Patients are usually admitted on the morning of the day of operation, having been instructed to confine their breakfast to tea or coffee and toast. On admission, the blood pressure is taken and a specimen of urine is sent to the laboratory for examination and report before the time set for the operation. The patient is given a cleansing bath. Should the patient show signs of fright or nervousness, it is the practice of some to give a hypodermic injection of one quarter grain of morphine, one half hour in advance of the time set for the operation. Beginning at this time, the nurse is instructed to instill two drops of a four per cent. solution of cocaine in the eye to be operated on, every five minutes, until the patient is carried to the operating room.

With the doctor, assistants, nurses, instruments, and dressings all prepared in the usual manner, the patient is placed on the table in a horizontal position, the head being slightly elevated with a small pad. A few drops of cocaine are instilled in the fellow eye in order that it may not be sensitive to drops of water or any other foreign substance that may accidentally fall into it during the course of the operation, and thus cause an uncontrollable spasmotic contraction of the lids of both eyes. The lid, brow, face, and forehead are thoroughly scrubbed with soap, water, and sponges that have been sterilized, the conjunctival sac is irrigated with normal salt or weak boric acid solution, and a drop of adrenaline chloride, one to 10,000, is instilled into the eye. A wet bichloride towel is applied to the head, over which a dry, sterile one is placed. Sterile sheets and towels cover the remaining portions of the uncovered surface of the body and table. Should the patient's eyelashes be long, as is often the case in the upper lid, they are cut short that they may not be accidentally cut during the operation and drop into the wound. As a source of light, diffuse daylight which enters the room from the north, when condensed by means of a large convex lens, is best for making the corneal section, provided the day is a bright one; otherwise, we must depend upon artificial light so focused as to give a uniform illumination of the entire eyeball.

Since, in operating on either eye, the surgeon always stands behind the head of the patient, using the right hand in making the section on the right eye, and the left hand on the left, a description of the operation on the right will suffice. The patient is cautioned to do as he is told, but under no circumstances to squeeze the eye. The less said, with firmness and assurance, the better. A small steel wire speculum is introduced, the lids are well separated, and by means of a small set screw the prongs of the speculum are held fast. Fixation forceps are applied beneath the cornea in the vertical meridian, grasping the conjunctiva close up to the limbus and at right angles to the sclera. The patient is told to look slightly down, the eye is steadied in this position by means of the forceps held in the left hand, the handle pointing upward and outward to the left, forming an angle of about forty-five degrees with the plane of the corneal section. In this position the eye can be held firmly with the least chance of lacerating the conjunctiva. The first assistant stands to the right of the patient, the instruments having been placed on a small table, arranged in the order in which they are to be used. The second assistant or nurse looks after the dressings and solutions, knowing just when they are needed and producing them without having to be told. These minor details are very important. They impress the patient with the simplicity and ease with which everything is carried out, and tend to bestow confidence and composure.

The section is now ready to be made. Before describing it, it might be well to state that a good section has for its object an incision amply large to admit of an easy delivery of the lens; it must be so placed that it will heal with the greatest rapidity, and when firmly united, produce a minimum amount of astigmatism. Such a section must begin in the

limbus, continue in the same vertical plane throughout, until the knife emerges beneath the conjunctiva, at the summit of the cornea. The knife is then so directed as to transfix a conjunctival flap three or four mm. in its vertical diameter. To attain this end, the point of a medium width Graefe knife (some prefer a broad knife and others a narrow one) enters the limbus on the temporal side, cutting edge uppermost, at a point on a line drawn tangent to the outer extremity of the horizontal meridian of the cornea, one mm. distant from the clear corneal margin. This point is usually 0.5 mm. above the horizontal meridian. The flat surface of the knife must be kept parallel with the plane of the iris. If the knife is directed in this manner, it will sweep across the anterior chamber and engage in clear cornea at the point of counterpuncture and emerge within the limbus at a point corresponding to the point of puncture. Should the operator endeavor to carry the counterpuncture well up to the limbus, he will find that the point of his knife will emerge about four mm. internally to the corneal margin, lacerate the tissues at the root of the iris, cause the rapid escape of aqueous, a prolapse of iris before his knife, a bloody and obscure field in which to complete the section; not infrequently, the zonule of the lens is ruptured, followed by an escape of vitreous at the termination of the incision. It is during this stage of the operation that the surgeon is more often at fault than the patient, for if the latter is properly prepared and the corneal section is as it should be, there is no cause for any unruliness on his part, since the operation is without pain, and upon the proper completion of the section he is assured that the remainder of the operation will be attained with equal ease, and composes himself for the remaining half of the ordeal, which, though it is slightly painful, is not beyond his power to withstand.

Following the completion of the section, the fixation forceps are removed. The patient is again told to look down and cautioned not to squeeze the eye. The operator, with iris forceps in the left hand, introduces the closed blades into the anterior chamber from above. As soon as the pupillary border is reached, the blades are slightly separated and a small amount of iris tissue falls between them. They are now closed and gently withdrawn. The surgeon, with iris scissors (De Wecker's) in the right hand, removes a small section of the iris as soon as the pupillary border has been withdrawn from the wound. Some prefer cutting the iris with the scissors held parallel to the line of corneal incision; others at right angles to it. The latter insures a small sacrifice of iris tissue, but is slightly more awkward to perform; it is not, therefore, done as often as the former. If the patient becomes unruly at this stage, it is best to complete the operation without the aid of the speculum, or, if it is not removed, the assistant sees that no contraction of the lids is allowed to force the upper blade of the speculum into the wound. It might be well for us to adopt Major Smith's method of elevating the upper lid with a strabismus hook, since he avers that, with a firm grasp of the lid in this manner, while the lower lid is held down with the thumb of

the other hand, no amount of effort on the part of the patient can result in pressure on the eyeball.

There seems to be no uniformity of opinion at this hospital as to the size of the iridectomy wound desired. It seems to the writer that preference should be given to a narrow iridectomy, inasmuch as it leaves the sphincter muscle more active, hence with less likelihood of prolapse. The escaping aqueous finds its way as easily through a narrow opening as through a wide one. There is no less difficulty in expelling the lens as long as the sphincter is cut. The amount of light entering the eye is under better control, hence the annoyance from dazzling is reduced to a minimum.

The next step in the operation is that of opening the anterior capsule of the lens. This is done by means of a sharp cystotome, which is introduced with the point away from the wound. The handle is held about forty-five degrees above the horizontal, and inclined to the temporal side, so that if the patient attempts to roll the eye upward, it can be quickly and easily removed. Having reached the lower edge of the capsule, the instrument is turned through an angle of 180 degrees, so that the cutting edge comes in contact with it. An upward drag opens the capsule vertically. The lens is usually seen to leave its bed and follow the instrument. Should this not occur, however, and we are not sure that the lens will come out easily, we make another opening in the capsule at right angles to the first, then withdraw the instrument, blunt surface forward, in order to avoid entangling the iris. Inexperienced operators are apt to rupture weak zonules in performing this step by exerting too much backward pressure.

We now come to the extraction of the lens. From a standpoint of immediate danger, this step is the most serious of all. Having directed the patient to turn his eyes slightly downward, the operator sees that the conjunctival flap has not become agglutinated, by removing blood clots and passing a thin spatula between the lips of the wound. Gentle pressure is now made with the back of a Daviel spoon in a backward and upward direction, beginning at the inferior border of the cornea. The upper border of the lens is thus tilted forward, while the lower is carried backward. Further continuation of the pressure causes the lens to engage in the wound, the spoon follows the lens upward, the surgeon exercising a slightly intermittent pressure, and the lens is expelled. Should there be some difficulty in getting the lens to engage, gentle pressure on the posterior lip of the wound with a spatula will usually suffice, provided pressure is not relaxed from below. Having succeeded in delivering the lens, it remains to facilitate the escape of any remaining cortex, blood, and shreds of capsule that often get between the lips of the wound and retard its closure as well as acting as a constant source of irritation.

Opinions are about equally divided as to whether we should irrigate the anterior chamber, some fearing the increased possibility of infection. If we could be absolutely sure that by so doing no infected organisms would be conveyed to the interior of the eye, it is difficult to conceive of any contra-

indication, so long as we confine ourselves to the use of normal salt solution at body temperature. The pressure of soft lens matter in an eye is a source of irritation until absorbed.

The last step in the operation consists in a proper replacement of the pillars of the iris, which means that they shall be entirely free of the wound. This is facilitated by a gentle stroking of the cornea from below upward, care being taken not to allow the corneal epithelium to become too dry, by having the assistant at regular intervals apply a few drops of salt solution. This prevents abrasions which might open up an unnecessary avenue through which infection would gain entrance. A thin spatula is finally introduced into the anterior chamber, the pillars are fanned out, and the conjunctival flap is restored to its original position, blood clots are removed, and the operation is completed.

Proper behavior on the part of the patient subsequently constitutes the most important part of the aftertreatment. A drop of a twenty-five per cent. solution of argyrol is instilled just before the eye is closed. A Knapp dressing is applied to each eye, over which a roller bandage is snugly, but not tightly wound. As a further source of protection, a mask is applied and worn until the wound has entirely healed. The wound is inspected twenty-four hours after the operation; if there is no prolapse of iris or other disturbance, the lids are gently cleansed, a drop of atropine is instilled, fresh dressing applied, and the eye rebandaged. The patient is cautioned to remain quietly on his back, and must not move without assistance. He is allowed to turn on his side opposite to the eye operated on after the second dressing (forty-eight hours after the operation). On the third day the patient may be propped up in bed, and on the fourth, assisted from the bed to an easy reclining chair. He is kept in the hospital for fourteen days, being allowed each day a few more privileges. The surgeon then determines whether needling is necessary, and uses his discretion in selecting the time; the time of election is when the reaction following the extraction has disappeared. The sooner done the better, since the membrane will not have had time to become tough and can be easily divided with a small knife needle. The one most commonly used is that devised by Doctor Ziegler, of Philadelphia. The knife is passed through the cornea in the periphery of the upper and outer quadrant, so that the small opacity produced by the puncture will be covered by the iris beneath and the lid in front, and thus not interfere with the refraction of light that enters the eye.

It has been a long standing custom of a number of operators to precede extraction with iridectomy, allowing the wound to heal and the eye to become free from congestion. This requires one week, and often longer. The advantages claimed for this method are that it divides trauma, acquaints the operator with the temperament of the patient, renders the prolapse of iris less likely, and makes it possible for the less skillful operator to make his incision well back in the limbus. Others do not approve the method, asserting that it has no advantages over the combined method.

Simple extraction for senile cataract occupies a still more limited field. The cases where the more experienced men feel justified in doing it are in comparatively young subjects and well behaved patients. Still, others, feeling that the risk is great, think they are never justified in performing simple extraction. A limited few attempt simple extraction in all cases, determining, after they have expelled the lens (or fail to do so), whether iridectomy is advisable. The inability to judge correctly this point is a strong argument against the practice, for it not infrequently happens that the wound fails to close by first intention, and the iris becomes prolapsed maybe several days after the operation. The writer is not an advocate of this practice. A method of preliminary capsulotomy done twenty-four hours previous to the extraction, as described by Dr. Homer Smith for removing immature senile cataracts, is being tried by quite a number of operators at this hospital. The advantages claimed for this method are that it allows the aqueous to enter the lens capsule, causes a rapid swelling at the transparent cortex, and its easy separation and expulsion at the time of extraction. Results thus far obtained seem to substantiate this claim. It has been the writer's experience thus far in the observation of two cases in which a forty-eight-hour interval was allowed to elapse, that the soft lens matter came away much easier and more completely than when only twenty-four hours was allowed for the swelling of the lens. The only objection to this delay might be the setting up of a secondary glaucoma. In the cases observed, this complication did not arise.

The future will determine the efficacy of this procedure, and should the consensus be in its favor, the extraction of premature cataracts will become more frequent. The operation will be divided into four stages: First, preliminary iridectomy; second, preliminary capsulotomy; third, extraction; fourth, needling of capsular membrane. Prolapse of iris following cataract extraction is not an uncommon occurrence. It is due to many causes, the most prominent of which are: First, a faulty section; second, failure on the part of the operator properly to replace it after extraction; third, delayed union of the corneal wound, and, fourth, a restless and irritable patient. Once the iris becomes prolapsed, it must be recognized as soon as possible and incised, freeing the wound so that the remainder falls back in position. This is the important reason for inspecting the eye on the day following the operation. Efforts to free the wound of such a prolapse become progressively more difficult the longer we delay. Should it become impossible to do so, we content ourselves with trying to promote the formation of a flat cicatrix. There is always a tendency toward ectasia. Our first resort usually unsuccessful, is a pressure bandage; should the prolapse not be too great, cauterization combined with a paracentesis of the cornea may be tried. If the prolapse is large, it will have to be excised and the patient kept in bed during the closure of the wound, which is slow. The remote effects of an incarcerated iris are familiar to all, including iridocyclitis, secondary glaucoma, and sympathetic ophthalmia.

Prolapse of vitreous in advance of the lens is a signal for the cessation of all efforts to expel the lens. The trained assistant will always have a vectis or loupe at hand. The operator now immediately inserts the instrument well behind and below the lens, withdrawing it so as to include the lens in its grasp, at the same time being careful not to wound the ciliary processes. The assistant elevates the speculum so as to relieve the pressure of the lids from the eyeball. Should a tag of vitreous remain in the wound, it should be cut with scissors, and the eye closed; no time being taken to restore the iris to its proper place. Such an eye is kept closed constantly for forty-eight hours. The outer dressings may be removed to inspect the lids and to rid it of the saturated dressing. If there has not been too much vitreous lost and the eye does not become infected, the wound heals slowly, and the eye may recover with useful vision. Infection invariably means loss of the eye.

Iridocyclitis following cataract extraction is quite common. Aside from the mechanical causes, such as prolapse of iris, injury to the ciliary body, and the presence of foreign bodies in the globe, our knowledge is lacking. We must content ourselves to combat it as best we may. Atropine has little effect in dilating the pupil of such an eye; exudation usually takes place in the pupillary space, which ultimately becomes organized into a tough contracting membrane. Such eyes not infrequently give rise to sympathetic ophthalmia. More than one hundred cases are reported in the literature on the subject; needless to say, there have been many more. Two such cases have occurred at this hospital during the past four years. It does no good, nor is it the practice in this institution to remove the offending eye after inflammation has once become established in the sympathizing eye, so long as the first eye afflicted has any vision left; nor is the patient advised to have the offending eye removed previous to the onset of the sympathetic inflammation unless the inflammation is of such a nature as ultimately to destroy vision.

40 EAST FORTY-FIRST STREET.

THE QUANTITATIVE ESTIMATION OF URIC ACID, CHOLESTERIN, AND SUGAR IN THE BLOOD.

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Recently considerable importance has been attributed to the quantitative analysis of cholesterin, uric acid, and sugar in the blood, and particularly medical men who are interested in the study of infantile diseases have tried to work out accurate methods for the quantitative estimation of these substances. It is only quite recently that in the laboratory of the University of Freiburg Professor Autenrieth and his assistants discovered colorimetric methods which are easily carried out and which are, at the same time, absolutely accurate. I have further modified them in order to bring them within

reach of the general practitioner, and will describe them briefly here, so that they can now be carried out in the smaller hospital laboratories and are even within reach of the general practitioner, since they need no expensive instruments or complicated chemical procedures.

Cholesterin in blood. Two c. c. of serum or 0.1 to one c. c. of fresh or dried tissue is placed in a 100 c. c. beaker and twenty c. c. of a twenty-five per cent. aqueous solution of caustic potash are added. This mixture is boiled in the water bath for two to three hours, cooled, and without being diluted, is placed in a separating funnel and thoroughly shaken for a few minutes with two to three times its volume of ether (about forty c. c. of ether are required for each shaking operation). After a deposit has formed and the ether solution is separated, the remainder is again shaken up with the same quantity of ether. This is repeated about five times. The combined ether extracts are allowed to stand for a short time, the ether is filtered, and the filtrate distilled off. The residue, which consists of cholesterin, is dissolved in a definite amount of chloroform and used for the colorimetric determination.

Five c. c. of this chloroform solution are placed in a ten c. c. graduated cylinder, and two c. c. of glacial acetic acid, and 0.1 c. c. concentrated sulphuric acid are added. The cylinder is now shaken and placed in warm water at 30 to 35° C. and kept in a dark place for fifteen minutes. A small quantity of this solution, which is green colored, is then colorimetrically compared with a normal solution of cholesterin freshly prepared from pine cholesterin. The comparison is best performed in a colorimeter, for which purpose the instrument designed by Professor Autenrieth and Professor Koenigsberger will give the quickest and most accurate results, and with which a normal cholesterin wedge can be supplied.

The liquid to be examined is placed in a little trough which forms part of the instrument, and is compared with the standard wedge also fixed into the instrument. The observation is made through a small window, behind which a Helmholtz double plate is fixed. This plate is the essential part of the instrument, for by it the liquids, i. e., the standard and the specimen, are joined and seen together so closely that the slightest difference in the colors can be observed. The position of the trough is fixed, but by a mechanical device the standard solution, which is provided in a suitable wedge, can be moved up and down, thereby with the least movement comparing different quantities of the standard solution with, of course, varying intensities of color, before the eye of the observer. This shifting up and down is continued until the exact point is found at which the standard wedge shows identically the same color as the specimen liquid in the trough which, it must be remembered, is seen simultaneously with the standard liquid. At the same time as the wedge, a scale of figures is made to travel along a pointer, so that exactly at the point where both liquids show the same color, a certain figure can be read off the scale. This figure is applied to a comparison scale, which is provided with

the instrument, for any kind of clinical examinations which will give direct readings of the quantity contained in the specimen, thus obviating all calculations.

Uric acid in the blood. Two, five, or still better ten c. c. of blood are mixed with a few milligrams of ammonium oxalate to prevent coagulation, and the mixture is added to five times its volume of boiling water, ten per cent. acetic acid, and reheated to the boiling point. The mixture is filtered and the coagulum mixed again with 200 c. c. of boiling water to which one gram of sodium acetate has been added. After five minutes it is again filtered. The collected liquids are evaporated until the volume approximates three c. c. and washed twice with two c. c. of a 0.1 per cent. solution of a magnesia mixture and ten to fifteen drops of ammonium hydroxide are added, and the mixture is centrifugated. The clear liquid is then poured off, the residue mixed with five drops of sulphuretted hydrogen solution and one drop of concentrated hydrochloric acid. The sulphuretted hydrogen is driven off again by immersing the tube in boiling water until a 0.5 per cent. solution of lead subacetate does not produce a cloud. Water is now added and the mixture is again centrifugated. The clear liquid is poured into the separating cylinder, the residue twice washed again with hot water, the liquids being each time poured into the separating cylinder. Two c. c. of diluted sulphuric acid and five c. c. chloroform are added and finally one c. c. of ten per cent. hydriodic acid, the mixture being gently shaken. The iodine liberated and dissolved in the chloroform is estimated as outlined above by means of the colorimeter.

Sugar in blood. Twenty-five c. c. of blood are added to twenty-five c. c. of boiling one to 100 acetic acid, to which 0.5 grams sodium chloride had been added. The mixture is heated up again to the boiling point and filtered. The residue is washed with the one to 100 acetic acid twice and the liquids are collected and evaporated. If the dried residue should be slightly colored, it is washed with hot alcohol, and evaporated again. The residue, now quite colorless, is dissolved in about twenty c. c. of water. To this solution two grams of potassium cyanide, 2.5 grams potassium carbonate, and five c. c. Bunge solution are added, and the mixture is boiled over a wire net for three minutes. After cooling sufficient of a ten per cent. solution of potassium cyanide is added to make twenty-five c. c. in all. This solution is now compared with a normal solution as described above.

All three methods give absolutely correct results. I have been able to trace 1/1,000 milligram of uric acid, and found absolutely exact figures when comparing the results obtained by these methods with the best recognized standard methods of quantitative analysis.

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20 ALBERTSTRASSE.

PROTECTION OF THE PUBLIC BY THE LAW.

BY CARL E. WHITNEY,
New York.

It is undoubtedly true that today, more than ever before, the general public is taking an active interest in matters concerning the public welfare. This interest is manifested in the various State and Federal statutes dealing with those things with which the public comes closely in contact. I would not say that the *need* for such legislation is more pressing now than it has been—the need has always been pressing—but, be that as it may, the general desire to be protected, so far as possible, from all manner of harm, has found expression in laws relating, among other things, to child labor, old age pensions, peonage, white slavery, so called, and pure food and drugs. Some declare that our Government is becoming "paternalistic," but in reality, it is, that *now* the people are really beginning to take care of themselves.

This and other meetings of like nature which are being held throughout the country are simply manifestations of awakened interest, and they are sure to be productive of most beneficial results. As fast as we come to realize what dangers beset us, so fast do we seek to meet them. It would be hard to say which danger was greatest. There are numerous problems to be met and all are great. Any danger which threatens the health and morals of the people is a great one.

Some of us know in a general way that there are members of the human race who are so depraved that they do not hesitate to prey upon their fellows where they can do so at a profit, but few know the extent which has been reached by those engaged in the illegal traffic in harmful drugs. In some quarters of our city, drugs like cocaine, morphine, heroine, and opium are illegally sold in appalling quantities. All of these are drugs which should be handled only by duly licensed practitioners, and then only under proper regulations, yet they are in fact, *peddled* by harpies who think solely of the profit involved and not at all of the misery and crime occasioned by their unlawful acts.

For the past few days you have observed in the press of the city numerous articles dealing with this vice, and it is indeed interesting to see that persons of note and substance are seeking to render all possible assistance to the officials charged with the duty of enforcing our laws. The headlines on the articles which have recently appeared tell the whole story. Listen to these: Finds Scores of Children Are Users of Drugs; Dr. ——— Says in One District Alone There Are 1,000 Victims; Say Drug Habit Grips the Nation. United States Second Only to China in Abuse of Opium Products. Many Physicians Victims; Mrs. ——— Wars on Drugs. Gives Money to Wipe Out Use of Cocaine and Heroine; To Make It Harder to Get Habit Drugs. Bill at Albany Would Stop Loopholes in Present Prescription Law. Medical Habitues Hit. Revocation of Licenses of Doctors and Nurses Provided for. Bill for Federal Legislation Next. These headings in-

dicate, like straws, the direction of the present trend.

The local, State, and Federal officials are working as one, with every means at their command, to detect and punish every person unlawfully dealing in the drugs mentioned, but there is much that we can do to assist them as the implements now in their hands—the statutes—are in some degree defective. We must, in seeking further legislation, bear well in mind that these drugs play a most important part in the daily practice of medicine and that their proper sale and use must be safeguarded. Cocaine, morphine, and heroine can be sold only on a doctor's prescription under the present law. One would think this sufficient, but it is far from it.

You know how much cocaine the average doctor will use in a year. What would you say of a doctor who in one calendar month purchased "on prescription" upward of \$2,500 worth of this drug, and who purchased and dealt in opium in sixty pound lots? It is this sort of "sale on prescription" which must be prevented. In this case the druggist making the sales said and felt that he was amply protected, as for each sale he had a "prescription"—some of them calling for the delivery of as high as 250 ounces of cocaine at one time.

The facts in this case are typical of many others, and it may be of interest to cite them briefly. The doctor I mention gathered around him a few young men anxious to get money, no matter how. To these he gave "prescriptions" for various drugs in varying quantities. Cocaine, for example, was purchased for a price ranging from \$3.60 an ounce to \$4.25 an ounce. This drug was then sold by these young men at a profit of upward of one hundred per cent. The purchasers of it divided the contents of a bottle into small powders called "decks." One ounce of "coke" or "snow," as they call it, will make fifty "decks," which are sold to men, women, and children at a further profit—and, to be sure of such a profit, they frequently adulterate their merchandise with such a well known and useful article—in its place—as "gold dust." The cocaine user snuffs the fine powder from the back of his hand. Bad as the effect of the drug is when so used—can you imagine the effect when adulterated.

The public have been told of the fearful effects of these drugs, but even the doctors have failed to picture for the people the users of drugs mixed with washing soda. The purveyors carry their stock in their shoes, under the bands on their hats, sewed in the lining of their clothes, and one lady was recently detected in an endeavor to smuggle cocaine into the Tombs, by having it adroitly concealed beneath her arm. Some cigar and candy stores are but blinds to conceal the sale of drugs. I am informed that to-day there are upward of one hundred doctors and druggists in this city who are engaged in this traffic. In two years one doctor handled over 9,000 ounces of cocaine alone.

The Federal statute known as the Opium Act provides that opium for smoking may be manufactured if a prescribed bond is given. Such a bond has never been filed in this city and it is well known that persons are being constantly convicted under this law. Crude gum opium can be purchased at from \$6 to \$10 a pound. By an inexpensive pro-

cess a pound of crude gum can be manufactured into a quantity of smoking opium which will sell for from \$50 to \$60. Profit in cocaine! Profit in opium! It is this profit which, in the first instance, leads to the unlawful sale and the consequent harm.

We are undoubtedly face to face with a serious condition, and drastic measures must be adopted. It was thought that our present State prescription law would meet the situation, but it has sadly failed, as I have shown. When one doctor can, in two years, obtain on prescription 9,000 ounces of cocaine, we do not need any further illustration to know that there is a defect somewhere. There is now another bill before our legislature. So far as I can see, while it shows unusual care in its preparation, it will not completely cure the evil for which it is designed. The physician who drafted it said in advocating its passage:

In this State, and most other States of the Union at this time, we have very stringent laws regulating the sale of habit-forming drugs; but, notwithstanding all these laws, this dangerous traffic has continually increased, until it is now greater than it has ever been before. Of course, this can mean but one thing—that there are loopholes in the law.

The existing situation is a childish one. The laws with which we vainly aim to control the traffic in, and the consumption of these drugs are futile and foolish. Not one intelligent legislative move ever definitely has been made in the United States toward the creation of an accounting of the substances through their various courses of importation, manufacture, and distribution.

In the bill which I have drawn I think this has been done. In it, I believe, exists an opportunity for New York State once again to fulfil her claim to be the Union's Empire State. This law, once on our statute books, can and will be made a model for legislation in other States, thus establishing a precedent for statutes in every State, and paving the way for bigger things. Almost immediately I shall have proposed in Washington a bill which for the first time will create intelligent accounting for, and regulation of foreign and interstate traffic in these drugs.

From what I have learned, I conclude that the quantities of these drugs actually necessary for proper use by the proper persons, i. e., doctors, can be ascertained with approximate accuracy. The manufacture and importation of more than a necessary quantity should be absolutely prohibited. The manufacturers and importers know that they are supplying an unlawful market. The manufacturer who sold the druggist who supplied the doctor purchasing 9,000 ounces of cocaine in two years, knew he was catering to an illegal traffic. His profit and the fact that there was no law against it, were his excuses. If the drugs were not manufactured or imported, they could not be sold—that is self evident. We must strike, then, at the very root of the evil. It is not possible to allow the manufacture of vast quantities of a deadly poison and then to say no one shall use it. Laws may attempt to regulate such use, but they will all be failures.

My suggestion is, therefore, that, first, the manufacture and importation be regulated so that only a fixed and certain amount of the drugs mentioned can be, under any circumstance, offered for sale in the United States; second, that a system of registration, marking, recording, etc., be used so that it will be possible to trace a given container—a bottle—from the manufacturer to the dispenser. This can easily be done; third, that the dispenser be

required to account for every portion coming into his possession, that is, that he be compelled, under fixed penalties, to show when, where, to whom, and in what quantities he dispensed the article.

We must look to the law for protection. Let us then have a law which will protect. The drug habit is one which can, in fact, be cured by legislation. It does not need segregation and societies for social uplift. As a surgeon's knife can remove a malignant growth, so can statutes remove this curse from our nation. There is a fixed and definite source of supply. Go directly to it and cut from it the dangerous overproduction which profit has caused. You will meet opposition, because you will propose to lay hands on profit, but you need have no fear, for your cause is just. When the people—you—demand protection you will receive it. Do not waste your efforts in seeking to control the flood. The means are in your hands to prevent the flood and you can then easily regulate the actually necessary supply.

IS CONSTIPATION AN EVIL?

By WILLIAM F. WAUGH, M. D.,
Post Falls, Idaho.

Just as a belief becomes firmly planted in our mind somebody is sure to arise and say: "Tain't so!" This time it is Dr. Max Einhorn, who, in the *NEW YORK MEDICAL JOURNAL* for May 30th, asserts that autotoxemia has not been proved, constipation is nonexistent, does no harm if it does exist, and is rather a good thing than otherwise for its unhappy possessor.

Before venturing to measure swords with an adversary, it is well to inquire who he is and what are his qualifications. Doctor Einhorn is a star of magnitude, one of the group of American specialists in the study of digestion and its disorders who have commanded the attention of the profession in general. He has been a prolific writer for the medical journals and always has something to say that is worth hearing. His position as Professor of Medicine in the New York Post-Graduate Medical School and Hospital is an evidence of the esteem in which he is held in the metropolis. But Doctor Einhorn is subject to diagnosis as well as lesser men. An examination of his work shows that he always takes the other side. He is by nature an objector, and he takes the negative of every question. He it was who met the rising tide of Fletcherism by announcing that mastication was a bad habit, and that the thorough comminution and insalivation of food in the mouth impaired digestion by leaving the rest of the alimentary apparatus with nothing to do. While he didn't say so in so many words, he led us to the inference that the teeth should be abolished and the abdominal organs developed until the protuberant belly dreaded by middle age became desirable. The Apollo Belvidere might be improved by the addition of an anterior curve, and the taste of the Hottentots in considering such an equatorial expansion a thing of beauty, is vindicated. Miladi may order her chocolates in double boxes, and her husband may fortify his abdominal brain with that which made Milwaukee famous.

Doctor Einhorn does not find that autotoxemia has been proved. It would be well to ask the Herr Professor what he would consider adequate proof. The demonstration of indol and its congeners in the urine, with a well marked train of symptoms, both disappearing when the offensive masses are extruded from the bowel, are enough to lead ordinary nonspecialist every day doctors to suspect the etiological connection of the fecal retention with the symptoms. There is not a solitary experience in the practice of medicine so common as the relief following catharsis. When an individual has experienced the euphoria following the riddance of such accumulations, he must necessarily ask, "Why cannot I always feel as good as I do now?" That he can do so by taking the necessary pains to keep his bowels free, is a matter of too common experience to need argument. Why shouldn't he?

Doctor Einhorn objects to the habitual use of cathartics. Very good: so do we, and we have gone to the trouble of developing a remedy and a method of using it, which, when used with Trousseau's rule of habitual evacuation at the same hour daily, will work a cure of the habitual constipation in every case where there is not a mechanical obstacle requiring mechanical relief. That the medical profession uses over one hundred millions of these pills every year is possibly some proof of their efficacy. At least it is a phenomenon that would require some testimony to ascribe to any other cause.

The young may get along nicely with little or no attention to their digestion, but one of the phenomena of old age is a decline of the digestive powers and impairment of the sensibility of the intestines. This renders them less irritable in the presence of feces, and with the weakening of peristalsis, makes the aging person, naturally or physiologically, subject to constipation. There is no known provision by which decomposing retained feces are rendered less noxious to the elderly, and it is a question if some of the ills and infirmities of age are not really attributable to fecal autotoxemia. When we find that many of these ailments disappear when the alimentary canal has been cleared, we feel that, while this may not satisfy Doctor Einhorn, we are content to persevere in our practice until he has disproved the existence of autotoxemia.

Doctor Einhorn has stated some important truths for which he should receive credit. It is bad for any person to fix attention on the physiological functions; and the injunction to "forget your bowels" is as wise as in any other phase of hypochondria. But while we tell our patient to forget the bowels, we must not fall into the error of forgetting them ourselves. Let the patient contentedly assume that "the doctor will see to it" and rest contented. Moreover, incessant purging is a bad thing. Any system that has a person under fifty years continually dosing is bad. So valuable is this warning for its sake we forgive Doctor Einhorn his exaggerations.

One other point: He asserts that constipation is beneficial in that it allows time for more complete absorption of nutritive materials from the fecal mass—in the colon, for he acknowledges the delay is in traversing the intestinal tube below the ileocecal valve. We are Missourians here, and

await conclusive proof that nutritive elements are really absorbed from the colon; and that, as there is no barrier here against decomposition, toxins are not generated in retained feces. Why not? We have warmth and moisture, with the most dangerous toxic matter known in putrescent condition, as evidenced by the fetor of the stools, a fetor which is imparted to the patient's breath; and this is invariably accompanied by many discomforts and ailments and by melancholy, reaching the point of suicide sometimes, all of which disappear when the colon has been emptied and disinfected. If Doctor Einhorn likes that sort of thing and practises as he preaches, our heartfelt sympathies are extended to his patients.

As to his objections to Lane's operation, we can scarcely be accused of unduly favoring the resort to surgery—very far from it. But when there is really a mechanical obstacle to complete defecation, an intestinal kink, a spasmodic sphincter, etc., why not remove it? That there should have been one case in which an operation was advised, but in which the patient got along without, or perhaps really did not need it, means nothing beside the numerous cases in which the mechanical removal of a mechanical obstacle worked a cure impossible with drugs.

Correspondence.

LETTER FROM MEXICO.

VERA CRUZ, MEXICO, June 24, 1914.

Sick report for the army at Vera Cruz less than at army posts in the United States.—Measures taken by the Army Medical Department to prevent the spread of disease by flies.—Two types of dysentery endemic at Vera Cruz.—Bacillary spread by flies.—Amebic transmitted by water and fresh vegetables.—The serum treatment of bacillary dysentery ineffectual.—Emetine in amebic dysentery efficacious.—Only one death from disease in the army since arrival of troops two months ago.—Rainfall averages fifty inches annually at Vera Cruz, the month of September exhibiting the heaviest rainfall for the year.—Malaria most prevalent disease among the troops.—Excellent work of the health department.—Drainage of stagnant water; over twenty-five miles of ditching done.

Although we have now completed two months since the departure of the expeditionary forces from Galveston and have gone through the process of re-establishment of troops in camp in a tropical city where dysentery and malaria are endemic, where the sanitary conditions through sheer necessity, with an army of occupation, are neglected, nevertheless the sick report among the troops ashore is less than in the various garrisons in the United States; at this date it is two per cent., and for the marines only a little over two per cent.

The navy and marines held the city, living under extemporized conditions, from April 21st to 30th. The army and marines took over the military control of Vera Cruz on April 30th. At this time it was noticeable that the streets were full of vultures

(carrion crows), black headed, and different from our red headed turkey buzzards. They were so tame, so accustomed to patrolling the streets, that they paid very little attention to pedestrians. At night they occupied every available roost on the steel girders for the new reinforced concrete market—begun under the Diaz administration, but never completed. This skeleton of a building, never occupied as a market, overlooks the old market, where the food for the people of Vera Cruz is sold. Whereas the new market is a roost for the vultures, the old market was a refuge for the flies. The flies claimed the food in the markets as the vultures claimed the food of the streets. The native Mexican took no notice of either as long as he was not the object of their molestation. In this short time the change that has taken place is remarkable; the old market has been made flyproof by screening. On the new market many vacant roosts are in evidence, and it is rare to see a vulture in the streets.

When the army came ashore and took over the military control of Vera Cruz, no one knew how long this control was to be continued. But one thing they did know, and that was—from the economic standpoint—the cost of screening for an entire company kitchen and mess tent would be less expensive than the invaliding home (maybe a discharge for disability and pensioning for life) of one soldier.

The measures which have been adopted to prevent the spread of disease by flies are, first, sanitary measures in camp and in the city to prevent breeding of flies; second, fly traps placed outside of kitchen and mess tents; third, mess tents and kitchens screened with wire gauze; fourth, flies accidentally gaining entrance to mess tents and kitchens exterminated by swatters and fly paper; fifth, patients suffering from diseases communicated by flies are cared for in wards made flyproof by wire gauze.

With these measures of prevention of breeding of flies, combined with the measures for their destruction, and with the oncoming of the rainy season destructive to their breeding, a marked diminution in their number has resulted. Coincident with their reduction the number of cases of dysentery has likewise been reduced. Most of the cases of dysentery occurring amongst the troops have been of the bacillary type. Of the sixteen cases admitted to Field Hospital No. 3, thirteen cases were bacillary, and three of the amebic variety. At the Brigade Hospital for the marines there were admitted in all about thirty cases. Four cases were amebic, and the remainder of the bacillary type.

The bacillary dysentery occurring here has presented in some cases evidence of a severe type of infection, resembling and, no doubt, caused by the Shiga bacillus. In one case there were marked cerebral symptoms, active delirium of an acute maniacal type, marked convulsions, coma with complete loss of control of the sphincter muscles of bladder and rectum. Another case exhibited, with the dysenteric symptoms, hemiplegia, partial paralysis of tongue, and loss of power of speech, the mental condition remaining perfectly clear. Thus in one case the toxemia produced mental

symptoms, whereas in the other case the effects were on the motor area of the brain, apparently producing a capillary thrombosis. Both cases cleared up and will end in complete recovery. The third case, occurring in a young soldier of rather poor physique, produced symptoms not unlike Asiatic cholera, rapid and marked emaciation, profound exhaustion, eyes sunken deep into their sockets, abdomen hollowed out until boat shaped, fingers shriveled and cold. This patient continued to have numerous dysenteric movements, and finally died on about the sixth day of the disease from exhaustion. This case is the only death we have had from disease since the army has been in Vera Cruz.

As to treatment, in bacillary dysentery our experience with the antidysenteric serum has not been encouraging. No benefit has been observed in the cases in which the serum was used, and a severe attack of hives followed its use in two cases. In the amebic dysentery, emetine, grain one third, given hypodermically three times a day, has proved eminently successful, each case responding quickly to the use of this agent by the clearing up of dysenteric symptoms, and the disappearance of amebas from the stools. Emetine was used in a few cases of bacillary dysentery, but it had no effect on this type of the disease.

With the rainy season now advanced about one month, malaria is, as was to be expected, showing a gradual increase. At the present time we have had eighteen cases in the army hospital, and a few more than that number in the marine hospital. The types thus far seen are the tertian, quartan, and estivo-autumnal, the former type very largely predominating.

The rainy season continues until October. The record for rainfall for the last four years shows what we may expect this year, the average number of rainy days being eighty-seven and the average annual fall 49.96 inches. July and September are usually very wet. January, February, and March being the dry season, the rainfall, if any, is so slight that no record is made.

The measures now in effect to control malaria are, the draining of all stagnant water that might serve as breeding places for Anopheles. Where it is impracticable to drain stagnant pools, they are kept well oiled. Prophylactic doses of quinine are administered to all troops serving ashore, six grains daily. Any cases of malaria occurring among the troops are promptly transferred to the hospital, where they are cared for in screened wards until there is a complete subsidence of all symptoms, and plasmodia are no longer to be found in the blood. When the patient is returned for duty his case is still kept under observation by his regimental surgeon, who administers fifteen grains of liquid quinine twice a week for a period of two months in benign cases, and throughout the remainder of his service in Vera Cruz, if his is of the estivoautumnal type. And though it is to be expected (on account of the large number of natives who are infected), that a gradual increase will occur with the advance of the rainy season, with strict care and continued observation of the individual, it is expected that any large increase in the number of cases will be prevented.

The health department, under the administration of the Medical Department of the Army, is making excellent progress. Already 45,000 persons have been vaccinated against smallpox by Mexican physicians, working under the direction of the Health Department of Vera Cruz. At El Tejar, the pumping station, about nine miles south of the city, four cases of smallpox occurred among the native population. Mexican physicians were sent out, and all of the natives living there were vaccinated. No more cases have been reported. At the present time there are in all only three cases of smallpox in the pesthouse of the city.

A large amount of work is being done in the division of sanitation. Four hundred Mexican and Chinese laborers are working in this division, and in six weeks' time there have already been over twenty-five miles of ditches dug for the drainage of stagnant water in and around Vera Cruz. This work of draining and oiling stagnant water is having an effect upon the breeding of mosquitoes that is evident at this time. This work, with the expenditure of funds incident to its accomplishment, is giving ample returns in maintaining the health of the troops already here. In the event that it should be necessary to bring larger bodies of troops, the benefits from this labor would be great.

Therapeutic Notes.

Treatment of Chronic Proctosigmoiditis.—

R. Bensaude and D. Thibaut, in *Bulletins et mémoires de la société médicale des hôpitaux de Paris*, November 6, 1913, refer to the fact that although the lesions of proctosigmoiditis at first present the characteristics of specific infections—dysentery, tuberculosis, gonococcic infection, or syphilis—these special appearances are often lost, the condition becoming one of ordinary nonspecific inflammation. The treatment presents considerable difficulty, the local process often proving extremely rebellious. Of all procedures tried, the most satisfactory in the authors' hands has been the following: The rectum is first cleansed (without a previous enema) with cotton pledgets dipped in tepid oil. Topical medication is then conducted through the endoscope by bringing in contact with the entire affected mucous surface petrolatum containing bismuth subcarbonate or colloidal silver (15 per cent.), or a solution of silver nitrate to which a few drops of one in 1,000 epinephrine solution have been added. Immediately before or after the application, a few drops of laudanum are given to quiet peristalsis. Decided benefit was also obtained in ulcerative proctitis by the use of high frequency currents, and in hemorrhagic forms, radium treatment was tried with success. Where local treatment fails to improve the condition, it should, after a time, be temporarily or permanently discontinued, as irritation might eventually result. In any case, attention to the patient's general condition, almost always considerably impaired in the presence of disease, even benign, of the terminal segment of the intestine, is essential to success of the local measures. In the refractory cases, appendicostomy may be resorted to.

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RADIUM IN THE TREATMENT OF CANCER.

The reported abandonment of radium by several prominent German surgeons, including Professor Bier, in favor of the x rays in the treatment of cancer, is warranted by the fact that beside their efficiency as a remedial agent in at least a small proportion of cases, the x rays are available at a moderate cost. They are more effective than radium, and, penetrating the tissues far more deeply, their field of usefulness is correspondingly greater. Moreover, inoperable patients can avail themselves practically in any small city or hospital within easy reach, of what chances of cure they afford. Briefly, the x rays being more efficient and far less costly than radium, the latter agent becomes in the opinion of the German surgeons a luxury with which we can well dispense.

An important feature in connection herewith, is that the borderline between operable and inoperable cases of cancer is steadily becoming less marked. While an operation, in cancer of the breast for instance, insures permanent recovery in the majority of cases when the modern technic is resorted to early, an operation even in certain advanced cases not infrequently proves satisfactory. Thus, Judd in a

recent (1914) analysis of 603 operations for mammary cancer in the Mayo clinics, of which it was possible to trace the subsequent histories in 514 instances, found that delay in operating, though obviously greatly compromising the issue, did not necessarily always entail an unfavorable prognosis. Again, while edema of the tissues was usually regarded as a contraindication to operating, one patient in the foregoing series in whom the prognosis was bad because of edema, and in whom operation was resorted to as a palliative measure, was still alive without recurrence over five years later. Now, as shown by the comprehensive series studied, five years without recurrence means a very small probability of subsequent trouble. Indeed, Judd's conclusions include the statement that an extensive external involvement might give a fair prognosis, while a slight external lesion might soon terminate fatally from internal metastasis.

Our sheet anchor in all cancers within reach still remains by all odds surgical treatment, and the earlier and more radical the procedure the better; but where it cannot be resorted to, the x rays should be given preference over radium, the excessive cost of which seems to have been a potent factor in procuring for it a position in our therapeutic armamentarium out of all proportion to its relative value.

MODERN OPERATIONS FOR GLAUCOMA.

The conservatism that pervaded the discussion on the subject of glaucoma at the recent meeting of the American Medical Association must have seemed strange to those who have kept in touch with the American literature during the past year on the modern operations for this disease, of which Elliot's method of trephining is the most popular. The reports in this country have almost all been favorable, and it would seem as though glaucoma is no longer to be considered an incurable disease, that it is no longer necessary simply to hold it in abeyance and to gain as many years or months as possible of vision for the unfortunate patients, but that they may be definitely cured by a permanent fistula through the coats of the eyeball. The doubters have held their peace, knowing the innate tendency of human nature to report cases on which new procedures have been tried before sufficient time had elapsed to prove whether they had been successful, and not to report cases in which the outcome is unfavorable. One speaker pointed out that, although only one case of late infection had been published in this country, quite a number that had not been reported had come to his knowledge, so it is questionable whether late infection is much if any less

common here than in Europe, where a considerable number of cases have been reported.

The rationale of these operations, of which trephining of the sclera is the most distinctive type, is based on the supposition that an increase of the intraocular tension is the all important condition, and that if this was permanently reduced the disease would come to a standstill or cease to exist; and this without regard to theories as to the origin of the disease, occlusion of the outlet for the intraocular fluid, hypersecretion, or abnormal rigidity of the sclera, such that it cannot accommodate itself to the ordinary fluctuations of pressure within. A round perforation at the corneoscleral margin is the least likely to heal up, and the most likely to furnish permanent drainage to the fluid, but such a fistula would naturally be an open entrance for pyogenic germs into the interior of the eye, so it has to be made beneath a large flap of conjunctiva, which, when replaced, serves to prevent the access of organisms. Granted that increase of tension is the all important condition, and that the conjunctiva proves an efficient protection, not for a week or a month, but for the rest of the patient's life, the enthusiastic asseverations of the advocates of this operation do not sound unreasonable.

But, as was mentioned two or three times in Atlantic City, increase of tension is not the only thing in glaucoma, it is only one of the symptoms. The best results seem to have been attained when a complete iridectomy had been performed, and it may be said in passing that if the benefit is due to the iridectomy alone, the trephine opening is a rather clumsy way in which to reach the iris. Quiet iritis seems to be a pretty common sequel when the iris is not cut, or when it is buttonholed, or a partial iridectomy is performed, so the operation appears to incur a certain amount of unexpected danger which increases with the omission of the iridectomy. Why, we do not know; possibly because of the efforts Nature makes to close the wound. The protection afforded by the conjunctival flap for a long period may be looked at askance for theoretical reasons, but time must tell whether those reasons are well founded. It is self evident that the least solution in continuity made in the flap near the opening of the fistula would be a source of imminent danger, for a minute, unnoticed traumatism might furnish the microorganisms continually to be found on the conjunctiva, direct access to the interior of the eye. When the operative result of the procedure is ideal, this flap does not become adherent to the episcleral tissue, as it normally would, but at least a portion of it is constantly separated from the sclera by the fluid escaping through the fistula so as to form a cushion raised above the

level of the surrounding conjunctiva. Such an elevated bit of conjunctiva would seem theoretically to be more exposed to minor traumatisms and at the same time to be probably less well nourished than normal; if so, the protection might prove insufficient when most needed. The cases of late infection, several months after a successful operation, seem to indicate that this fear has some foundation. At all events it may be well for us to hesitate before we pronounce this a cure for any form of glaucoma, or advocate it as an operation devoid of danger.

THE PROBLEM OF FOOD DISTRIBUTION.

Not only is it true that the economic questions of food distribution are of supreme importance at the present time, but the sanitation of foods, particularly as they pass through the retail distributing agencies, is of special importance, and from the economic rather than from purely the health side. The average family with an income of \$1,200, spends twenty-eight per cent. on food, and the percentage increases as the incomes diminish, so that when all incomes are averaged the percentage rises to forty-one. Food expenditures are, therefore, an important item in the family budgets, especially as it is said that the retail cost of foods has increased sixty per cent. in the period from 1890 to 1913; the factor of food in the cost of living requires economies all along the line. The phase of food handling which affects the greatest number of people and which comes closest home, is the retail distribution in the small food shops. It is here that the greatest emphasis is being laid on cleanliness and sanitation, and it is important for workers in this field carefully to weigh the value of the sanitary measures proposed. Cleanliness in food shops is worth while and the possibility of disease transmission is not to be ignored. On the other hand, a campaign for the sanitary protection of food in order to prevent waste through deterioration, will not only point the way to the reduction of cost to the consumer, but will be based on principles economically and sanitarily sound and apt to elicit much more ready and effective cooperation from the butcher, the baker, the grocer, the candy man, the delicatessen man, and even the push cart man.

Most American cities are making some attempt to clean up the food shops, though unfortunately this usually stops with inspection, prosecution, fines, and food condemnation. New York city spends about \$50,000 a year on food inspection exclusive of milk, and in the last year the Bureau of Food Inspection of the Department of Health condemned twelve million pounds of food, most of

which might have been saved by preventive educational measures. In order to demonstrate the value of such measures in the field of food distribution, the Department of Social Welfare of the Association for Improving the Condition of the Poor, through its Bureau of Food Supply, under the direction of Dr. Donald B. Armstrong, has recently conducted a survey and campaign of education in the shops of a large upper East Side district. Efforts were made to sanitize the bakeries, groceries, delicatessen shops, butcher shops, etc., and to explain the value, from the standpoint of both health and economy, of protecting and screening food and preventing handling. Instruction and education replaced prosecution, and a remarkable degree of intelligent co-operation was elicited from the dealers with a consequent reduction in fines and in the amount of food condemned. Fortunately for the food supply of New York city, the department of health is realizing the value of educational measures.

The Bureau of Food Supply is also operating on the East Side a model food store, where retailers in the neighborhood can see applied the principles of economic sanitation. Through this centre it is planned further to educate the consumers in food values, economic, sanitary, and dietary. The cost of distribution is to be brought to a minimum by the prevention of deterioration, by purchasing in as large quantities as are reasonable, by the distribution of foods from the cheaper but equally good bulk packages, and by the zonal systematization and scientific regulation of deliveries. Might it not be that this experiment, if successful, will point the way to the ultimate municipalization of food distributing agencies? The community may finally conclude that its food supply is as much a matter of public interest as is its water supply. Certainly this is true of milk, and eventually food distribution in general may be looked upon and treated as a legitimate public function and a logical public duty.

THE LUCKLESS CIGARETTE.

A naughty trick of newspaper reporters is the interviewing of prominent men on subjects which are of universal interest, but which do not necessarily come within the mental scope of the gentlemen interviewed; the trap usually proves irresistible and the flattered victim genially yields up copy by the yard to the advantage of the reporter, but to the occasional promotion of confused thought among readers. Little real harm results as a rule from this practice, interviews being generally confined to such subjects as the tariff, business depression, the ending of war, etc., concerning which one man's opinion is worth as much as another's. When,

however, the interview bears on matters of physiology, pathology, and hygiene, there is a special addition of at least 150,000 medical experts to the popular audience, an addition which usually can only gnash its teeth in impotent fury while the delightfully worded misinformation is spread abroad.

The effects of alcohol and tobacco are frequently chosen for discussion by men who have "succeeded," but who forget the paths along which they have acquired exact knowledge and permit themselves to stray into fields where their opinions are valueless. The exact physiological and pathological consequences of drinking and smoking are among the most obscure problems of medical science. Particularly do the uninformed, however, enjoy an attack on the cigarette; it is cheap, it is small, and its patrons, numerous as they are, yet form an insignificant minority in our immense population. Therefore the cigarette and its users are fair game for cheap and silly sneers; sneers which are capable, however, of cowing an entire legislature, as in Georgia at this moment. Yet, beyond cavil, it has been proved scientifically that of all methods of using tobacco cigarette smoking is the least harmful. Some months ago the *Lancet* undertook a careful laboratory study of the various ways of consuming tobacco, with the result that it was found that the cigarette, Egyptian, Turkish, or American, yielded the least amount of nicotine to the smoke formed; the cigar came next in point of harmlessness; while the pipe overshadowed the cigar to the extent that from seventy to ninety per cent. of nicotine was said to exist in its smoke. As to the paper of cigarettes, the attacks are simply preposterous.

It is not without interest to recall that nearly ten years ago, the NEW YORK MEDICAL JOURNAL, arguing along entirely different lines, came to exactly the same conclusion; but it added that, to say nothing of other obvious drawbacks to his habit, the chewer of tobacco, being continuously saturated with a strong solution of tobacco, was in much worse case than any smoker could possibly be.

Readers of the admirable study of tobacco by Dr. A. D. Bush in our issue for March 14, 1914, will remember that student's conclusion that smoking in any form diminishes mental efficiency ten per cent. We have no quarrel with these conclusions, save that they take no account of the man who has smoked for many years, concerning whom experiment might possibly find that he was at least ten per cent. the worse when temporarily deprived of his soothing weed. Let us admit that smoking slows up the mental processes; we know that the cigarette, from its mildness and deficiency in nicotine, is least obnoxious from this viewpoint. Smokers of pipes and cigars, to say nothing of chewers, are unable to

appreciate the delicacy and fine flavor of a cigarette for the same reason that a man who dines habitually on steak drowned in Worcestershire sauce, is unable to savor the triumphs of the French chef with his ethereal and artistically combined relishes. The cigarette is not for boys, but for grown men of good taste. It occupies with regard to other forms of tobacco the same relation that a fine old claret or burgundy does to the heavy and noxious product of the still. Prohibitionists confound all the latter under the generic term of "rum"; they are consistent when compared with smokers of the heavy Havana tobacco, who fall in with its manufacturers in attacks upon the comparatively light and harmless Turkish and Virginia products. Men are well within their rights in forbidding cigarette smoking and other pleasures and distractions to their employees; it is another matter when they seize upon a nation wide opportunity to compound with vices they've a mind to, by damning one they're not inclined to, especially when the latter affords needed solace and recreation to millions perfectly capable of judging what is and what is not good for them. In Europe, where a good deal of logical thinking still prevails, there is probably not one smoker of distinction in any walk of life who does not include the cigarette in his nicotian armamentarium.

DIATHESIS.

Our older readers, or those who are the sons of practitioners, will recall the stress which was once laid upon diathesis, especially in the treatment of disorders of the very young. Of great importance was the so called scrofulous or strumous diathesis, a condition which is now considered to be a form of tuberculosis, although its characteristic phenomena often exist when the bacillus is not to be found. Dr. Hector Charles Cameron, of Guy's Hospital, London, in the *British Medical Journal* for July 11, 1914, makes a strong plea for a closer study of the strumous—or, as Czerny has called it, the exudative—diathesis. Doctor Cameron admits, what was once stated by Professor Emmett Holt, that the medical problems of infancy are, in Great Britain, left too much to nurses and the philanthropic laity; and he thinks that if the scientific study of the ailments of very young infants, so highly important to the State, was appreciated by the English physician, not only would he give more time and attention thereto, but he would soon recognize the importance of the diatheses, the neuropathic among others, as well as the exudative.

News Items.

Bonding Nurses Who Handle Radium.—It is reported that the new Milwaukee Radium Hospital will require every nurse employed to provide a bond of \$100,000. This step has been decided upon in view of the need for protecting the radium, of which the institution will have one eighth of the world's supply.

International Congress on School Hygiene.—The fifth international Congress of School Hygiene will be held in Brussels, 1915. The program contains the following points: 1. The school building and its equipment. 2. Medical inspection in urban and rural schools. 3. The prevention of contagious diseases in school. 4. Teaching of hygiene to teachers, scholars, and parents. 5. School hygiene in its relation to physical education, at the different ages of the children. 6. Teaching methods, syllabuses, and school equipment in relation to hygiene. 7. School hygiene in its relation to exceptional children. 8. School hygiene with regard to adolescents.

This congress is placed under the patronage of H. M. Albert, King of the Belgians and under the auspices of the Belgian National Institute of Pedology and of the Belgian Pedotechnical Society; the organizing committee is presided over by Mr. J. Corman, director general of the primary studies in the department of science and art, and by Dr. J. Demoor, rector of the Free University of Brussels.

All communications and inquiries may be sent to Dr. H. Rulot, secretary general, 66 rue des Rentiers, Brussels.

Amendment to Illinois Practice of Medicine Act.—The following notice of amendment to the rules and regulations relative to the administration of an act to regulate the practice of medicine in Illinois, in force on July 1, 1899, has been issued by Dr. C. St. Clair Drake, secretary of the Illinois State Board of Health:

Examination of candidates for State certificates authorizing the practice of medicine and surgery in Illinois will be held in Chicago, in January, May, June, and October, as far as practicable, each year.

All examinations will be in writing and will embrace the subjects hereinafter stated, these subjects being covered in ten papers, each paper being made up of ten questions, as in the following group: Paper 1, Chemistry, Etiology, and Hygiene; 2, Physiology and Neurology; 3, Anatomy; 4, Materia Medica and Therapeutics; 5, Pathology and Bacteriology; 6, Surgery; 7, Physical Diagnosis, Ophthalmology, and Otology, Pediatrics; 8, Obstetrics; 9, Gynecology, Laryngology, Rhinology, and Medical Jurisprudence; 10, Practice of Medicine.

A candidate to be entitled to a State certificate authorizing the practice of medicine and surgery in Illinois must obtain in his examination a general average of not less than 75 per cent., *with a rating of not less than 60 per cent. in any one paper*, as set forth in the preceding paragraph.

This amendment to take effect and become operative in all examinations given by the Illinois State Board of Health, after July 1, 1914.

Gifts and Bequests to Hospitals.—Bibb county, Ga., will have a \$150,000 hospital by vote of the State legislature.

Chester County (Pa.) Hospital has received \$6,000 from Mr. and Mrs. Jackson A. Watt, of Oxford, for the endowment of a ward.

The withdrawal of a caveat against the probating of the will of Mrs. Jane S. Echterbach has guaranteed the bequests of about \$150,000 to thirty-five hospitals and other institutions, mostly in Philadelphia. Among the beneficiaries under the will are: Women's Southern Homeopathic Hospital, \$19,000; St. Luke's Homeopathic Hospital, \$14,000; Women's Homeopathic Association of Pennsylvania for its medical, surgical, and maternity hospitals, \$5,600; Home for Incurables, \$5,000; Children's Seashore Home, Atlantic City, \$2,800; Children's Homeopathic Hospital, \$2,800; Sanitarium Association, \$2,800; Hahnemann College and Hospital, \$2,800; Epileptic Hospital and Colony Farm, Oakburne, Pa., \$2,800; Lying-in Charity and Nurses' Training School, \$2,800; Rush Hospital, \$2,800; Free Hospital for Poor Consumptives, \$2,800; Wills's Eye Hospital, \$2,800; Germantown Dispensary, \$2,800; Morton Street Day Nursery and Working People's Aid, \$2,800.

The German Hospital of Brooklyn has received \$10,000 from the estate of Karl Hutter.

Six hospitals—five of them in Newark, N. J., and one in New York—are remembered with substantial bequests in the will of Mrs. Margaretha Traitteuer, of Newark. The gifts are as follows: St. Michael's, St. Barnabas, the Private Eye and Ear Hospital, and the German Hospital, \$500 each; Hospital for Women and Children, Central avenue, \$300; St. Mark's Hospital, 177 Second avenue, New York, \$500.

Cattaraugus County, N. Y., Tuberculosis Hospital.—By a vote of 39 to 3, the county board of supervisors authorized, on July 12th, the erection of a tuberculosis sanatorium at Rock City, 2,400 feet above the sea.

American Röntgen Ray Society.—This society will meet in Cleveland at the Hotel Hollenden, September 9th to 12th inclusive. The program, which promises to be of unusual interest and value, includes a paper by Des-sauer, of Frankfort, on the Artificial Production of Gamma Rays; Coolidge, the inventor of the Coolidge tube, Shearer, and Duanne, will also read papers. The subject of deep therapy and the production of the hard rays will be fully presented and discussed. The rest of the program will be taken up by general subjects. The medical profession is cordially invited to attend. W. F. MANGES, M. D., Secretary.

Examination for Expert in Sanitation.—The United States Civil Service Commission announces an examination, for both men and women, to be held on August 10th, for the position of sanitation expert in the Children's Bureau, Department of Labor, at a salary of \$2,800 a year. The duties of the position will be to act as adviser of the bureau in matters requiring knowledge of hygiene and in cooperation with other experts to conduct investigations into dangerous and injurious occupations, the social factors responsible for high infant mortality, and other matters involving health. Graduation from a medical school of recognized standing, and at least three years' specialization in the hygiene and diseases of childhood, or three years' experience in sanitary inspection work, are prerequisites for consideration for this position. Applicants must have reached their twenty-fifth but not their fiftieth birthday on the date of the examination.

The State Civil Service Commission of Ohio has lifted the bars for applicants who desire lucrative positions under the government of that State. On August 4th a special examination is to be conducted to secure competent employees for the newly organized Bureau of Juvenile Research in Ohio. Hereafter, instead of committing delinquent children directly to an institution, the courts of Ohio will commit them to the board of administration. They will be detained in a special department, to be known as the Bureau of Juvenile Research, until their mental and physical condition is determined. Then they will be committed to proper institutions for treatment.

A call is therefore issued, open to any resident of the United States, to take part in the special examination on August 4th. Those desiring to take this examination should be experts in pathological and psychological work. Address the State Civil Service Commission, Columbus, Ohio, and the necessary blanks will be sent at once. On these blanks the examination will be conducted, and it will not be necessary for the applicant to leave his home to participate in them. Good salaries will be provided for the places by the State of Ohio. Among those wanted are a psychologist, a laboratory worker, diagnostician, field workers, and laboratory workers. Final papers must be in the hands of the State Civil Service Commission on or before August 4th at 5 p. m.

St. John's Guild Asks for Funds.—An appeal for financial assistance has been made by St. John's Guild. Unless money is obtained it is declared that the institution will be compelled to stop its work.

The guild operates the Seaside Hospital, on Staten Island, and the floating hospital ship *Juilliard*, in New York harbor. The hospital ship makes a daily trip down the bay during the summer with its cargo of sick babies.

Mothers receive instruction on the care of their children. The ship carries a physician, an officer of the department of health, and a corps of trained nurses. The patients are examined to exclude contagious cases, and individual care is taken of all ailing ones.

The Seaside Hospital is situated at New Dorp, Staten Island. It is devoted to the care of babies and children. There are no restrictions of any kind, except contagious diseases, which are not accepted. The hospital has accommodations for 360 patients, and is used during the winter months for convalescents. Service is free.

During the summer of 1913 57,887 babies, children, and women were treated on the floating hospital and 2,134 patients were cared for at the Seaside Hospital. Contributions may be sent to Isaac N. Seligman, treasurer, 105 Park Avenue.

Midland (Kentucky) Medical Association.—A well attended session of the Midland (Kentucky) Medical Association was held at Frankfort on July 9th. The association has been in existence seventy-four years and includes Franklin, Fayette, Anderson, Scott, Woodford, Shelby, and Bourbon counties. Dr. W. C. Parker, of Versailles, is president, and Dr. John D. Maguire, of Lexington, secretary.

Mortality in New York for Week Ending July 18, 1914.—There were 1,286 deaths and a rate of 12.91 reported per 1,000 of the population against 1,250 deaths and a rate of 12.14 during the corresponding week of 1913, an absolute increase of 36 deaths and a decrease of 0.13 of a point in the rate, which is equivalent to a relative decrease of 14 deaths. The most noteworthy features of the mortality during the week were the fewer deaths among children and the increased mortality among adults and the aged. The infectious diseases of infants, measles, whooping cough, bronchopneumonia, and the diarrheal disease all showed decreased mortality compared with the corresponding week of 1913. Undoubtedly the atmospheric conditions prevailing during the past week were responsible in some degree for the increased mortality from organic heart and kidney diseases, as well as pulmonary tuberculosis.

There were 41 more deaths among adults between twenty-five and forty-five years and 38 more deaths at ages over sixty-five years. It is gratifying to note that there was a decreased mortality of ten per cent. in diarrheal diseases among children under five years of age; there were only two deaths reported from typhoid fever during the week against 11 in the corresponding week of 1913; the deaths from violence increased from 98 to 110, owing entirely to an increase in the accidental deaths in the Boroughs of Brooklyn and Queens.

The death rate for the entire year so far has kept below that of 1913 by one third of one point, which if maintained throughout the year will mean a saving of approximately 1,800 lives.

Personal.—Dr. Karl F. Meyer has been promoted to the position of professor of bacteriology and protozoology at the University of California.

Dr. J. Howard Agnew, formerly assistant in the medical department of the University of Michigan, has accepted the full time professorship in medicine at the University of Alabama.

Dr. Margaret N. Sullivan, president of the Child Welfare Association of Jersey City, N. J., has been appointed assistant to Dr. J. J. Mooney, chief surgeon at the City Hospital.

Dr. Simon Flexner, of the Rockefeller Institute for Medical Research, has received the degree of LL. D. from Western Reserve University, Cleveland.

Dr. M. J. Rosenau, professor of preventive medicine at Harvard University, received the degree of M. S. from that institution at its annual commencement held recently. The degree of Sc. D. was also conferred upon Dr. W. C. Sabine, professor of physics and dean of the graduate school.

Dr. Joseph C. Doane has been appointed chief resident physician at the Philadelphia General Hospital, to succeed the late Dr. Henry Sykes.

Sir St. Clair Thompson, of London, has been elected an honorary fellow of the American Laryngological Association.

Dr. W. X. Taylor has been appointed attending physician at the Fresh Air Camp Baby Hospital at Youngstown, Ohio.

Dr. Charles W. Berry and Dr. Charles J. Denno have been appointed sanitary supervisors in New York State at a salary of \$4,000.

Dr. A. Hall Fortner, of St. Louis, Mo., will practise in Dallas, Tex.

Dr. William F. Parks, of Mena, Ark., has been appointed superintendent of the United States reservation at Hot Springs.

Dr. Clarence A. Potter has been appointed superintendent of the Gowanda (N. Y.) State Hospital.

Dr. James G. Matthews, of Spokane, Wash., was seriously injured in one eye by fireworks on July 4th.

Dr. C. C. Craft, of Columbia, has been elected city health officer of Florence, S. C.

Pith of Progressive Literature.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

June 18, 1914.

Intraperitoneal Application of Radium.—Hermann Freund's patient had a carcinomatous metastasis in the glands in the region of the upper portion of the duodenum, the primary growth in the uterus having been successfully removed some years before. The abdomen was opened by a small median incision above the umbilicus and the lesser omentum was torn through a nonvascular area so that a finger could be passed down to the mass. The rubber membrane of a Mikulicz drain was then passed down to the tumor and the abdominal wound closed except for an opening sufficient to admit two fingers. Through this aperture two brass enclosed capsules of radium were then placed in contact with the tumor. The walls of the brass filters were 0.3 mm. thick and one contained thirty, the other fifty mgm. of radium. Gauze was then packed in to keep the tubes in place and to prevent contraction. During the night after the operation the patient vomited frequently, her temperature was 37.1° C., and her pulse 110. Complaint was made of burning in the gastric region. After the radium had remained *in situ* for seventeen hours it was withdrawn and the drain cavity packed with gauze. The vomiting was relieved, but temperature and pulse were unchanged. After several hours the radium was replaced and allowed to remain for twenty-three hours, during which time burning pain and vomiting were troublesome. A few hours later the radium was introduced for a third time to remain for twenty-two hours, when it was removed permanently along with the drain and the wound permitted to close. During the third application there was almost no vomiting or pain. Twelve days after the removal of the radium the patient got up, and convalescence was rapid. Although the radiographic evidence showed no immediate alteration in the size of the tumor, the patient seemed much better and reported as being in good general health with greatly improved gastric condition three months later. So well pleased is the author with the results of this case that he says that he will never undertake an exploratory laparotomy for cancer again without being prepared to introduce up to eighty mgm. of radium, properly filtered, in the manner described.

Protective Ferments.—V. Kafka and O. Pfoerlinger carried out parallel observations on rabbits to determine certain of the factors entering into the production of anti-ferments. To one group extracts of various organs were given, another was treated with thorium x before the administration of the organ extracts until the leucocyte content of the blood had fallen to a minimum, and a third was treated like the first after a preliminary injection of sodium nucleinate to increase the leucocytes. The animals of the first group produced anti-ferments, those of second often failed entirely to produce such ferments, or produced them in very slight degree only, and those in the third group showed the most marked ferment production. From these findings the authors conclude that the white cells, especially

the polynuclears, play a part in the formation of anti-ferments.

Serodiagnosis of Malignant Tumors.—K. Hara examined thirty-four serums from tumor patients by the miostagmin and complement fixation methods and came to the conclusion that the two methods supplement each other. The miostagmin reaction was useful in diagnosis of malignant tumors, but the complement fixation test was more specific. When the serum was diluted with isotonic grape sugar solution the miostagmin reaction gave better results than when normal saline solution was employed.

Culture of Smallpox Virus.—G. Seiffert, employing both the same samples and the same methods of purification as Fornet, was unable to confirm the latter's results and failed to cultivate the virus. In a critical analysis, Seiffert points out the many possible sources of error and states that further researches along these lines must be abandoned.

Influence of Iodine on Fertilization.—Oswald Loeb and Bernhard Zoeppritz draw from their experiments the following conclusions: 1. Iodine salts and iodine derivatives of fatty acids which liberate the iodide ion regularly exert a selective action on the genital apparatus. 2. Both male and female animals were sterile, although their *libido* and *facultas coeundi* were retained. 3. The sterilizing action can be removed by stopping the iodides. 4. The sterilizing doses lie below those which are toxic or which otherwise produce marked effects, such as influencing the general health or the nutrition. 5. Gravid animals regularly aborted. 6. It remains undetermined whether we are dealing with a direct iodine action or with an indirect one through an action on the thyroid gland. The animals used were mice and rabbits.

Technic of Intralumbar Salvarsan Therapy.—S. Tuszewski prepares solutions of salvarsan in normal saline so that one c. c. contains either one, two, or three mgm. of the drug, as the case may require. With the patient seated, a lumbar puncture is made and the graduated cylinder of a Luer syringe is attached to the capillary manometer tube by rubber tubing. By lowering the cylinder twenty c. c. of spinal fluid is collected, and to this is added the one c. c. of saline containing the desired dose of salvarsan, so that the dilution of the drug is increased twentyfold. Then by raising the cylinder the mixture of spinal fluid and salvarsan is slowly injected into the subdural space. The method has been used satisfactorily on twelve patients, rather favorable results having been obtained in a few tabetics.

BERLINER KLINISCHE WOCHENSCHRIFT.

June 1, 1914.

Influence of Muscular Work on the Sugar and Lactic Acid in the Blood.—L. Lichtwitz finds that short, intensive work does not always reduce the blood sugar below normal at first, though it falls below within a few minutes thereafter in most normal persons. Two processes take place under these conditions; a glycogenolysis from the liver depot, and a glycogenesis from the blood sugar in the muscles. The prompt replacement of the consumed

muscle glycogen by blood sugar from the liver is a process of great significance for the capacity for work, and it is one which training can materially augment. There is an increase in the lactic acid content of the blood after work, but this may be absent in persons who are in training. These two observations lead to the conclusion that the capacity for severe muscular work rests upon a prompt sugar supply and a rapid removal of the lactic acid formed through oxidation or synthesis.

Influence of the Spleen on the Erythroplastic Activity of the Bone Marrow.—Both clinical and experimental observations lead Hans Hirschfeld and August Weinert to the conclusion that the removal of the spleen regularly causes the appearance in the blood of larger or smaller numbers of Jolly bodies in the red cells. This peculiar phenomenon occurs not only in the absence of an anemia, but also in the presence of a polycythemia, and is persistent, even for years. They suggest that the spleen has an influence on the process of the removal of the nuclei from the erythroblasts, in the sense that after the removal of this organ there is an accumulation of red cells containing Jolly bodies. This action of the spleen is to be regarded as regulatory over the activity of the bone marrow so far as the production of red cells is concerned.

Oxidation Processes in the Animal Organism.—Lina Stern reviews many of the prevailing ideas relating to these processes and describes two types of ferment involved. The first is the well known class of oxydases, the second the oxydones which were first described by Batelli and Stern. The most important differences between the oxydases and the oxydones are: 1. The former are soluble in water, the latter are not and remain in the tissues from which the former have been extracted. 2. The oxydones are destroyed by treatment of the tissues with alcohol or acetone, while the oxydases can be extracted in this manner. 3. Trypsin destroys the oxydones quickly, while it acts but slightly and slowly on the oxydases. 4. The oxydones are less resistant to high temperature than are the oxydases. The oxydones seem to be bound in some manner to the nucleoproteins of the tissues, for substances which precipitate or destroy these also exert the same effect on these ferments. The oxydones may be divided into two classes—the stable and the labile. The latter type are found in all tissues so far examined, and often in great abundance, whereas the oxydases are to be found only in a few tissues and frequently in insignificant quantities. Stern divides tissue respiration into primary and accessory respiration. The latter is apparently of minor importance and is brought about by the oxydases. Primary tissue respiration occurs in all tissues and is accomplished through the activity of the oxydones, for it is prevented by all the factors which destroy these ferments.

MUNCHENER MEDIZINISCHE WOCHENSCHRIFT.

June 29, 1914.

Caramel Cure in Diabetes.—E. Grafe uses a caramel preparation of grape sugar and gives from 100 to 300 grams daily. The sugar content of the urine is markedly diminished and the acidosis is greatly improved. It has a great caloric value and

adds from 600 to 800 calories daily to the patient's diet. The gastrointestinal disturbance which accompanies its administration, usually a moderate diarrhea, can be overcome by the administration of astringents such as opium and tannalbin. There are no special indications for its use. Every patient with diabetes can take it with benefit, but it appears to act best in the severe cases in which other carbohydrates are either not assimilated or only to a slight degree and in which acidosis exists. How long and in what dose it should be given must depend on the condition of the digestive organs. Caramel from grape sugar seems to be better than that from cane sugar. The only contraindication to its use is marked gastrointestinal disturbance. In cases of coma it has no effect on the acidosis.

Influence of Sodium Bicarbonate on the Pancreatic Secretion.—E. Wilbrand fed a dog in which he had made an artificial duodenal fistula with, 1, 100 grams meat; 2, 100 grams meat plus ten grams sodium bicarbonate in substance; 3, 100 grams meat plus ten grams sodium bicarbonate in five per cent. solution. These feedings were given at different times and the secretions collected after every test. The results showed that the secretion of the pancreas is decreased and the work of the gland spared when sodium bicarbonate is given, especially when it is given in solution. The gastric secretion is not influenced.

Pulmonary Tuberculosis Treated with Copper Preparations.—C. Moewes and K. Jauer injected a solution of lecutyl, a copper preparation, of the strength of 0.01 gram copper to each c. c., into a series of guineapigs previously injected with a culture of tubercle bacilli obtained from the human being. Control experiments were carried out at the same time. The experimenters were unable to verify the work of von Linden. The injected animals lived no longer than the control animals and a gain in weight could not be demonstrated. Clinically this preparation was used intramuscularly and intravenously. The intramuscular injections were very painful and the addition of novocaine diminished the pain for only a short time. Intravenous injections of 0.5 c. c. of lecutyl solution, diluted with five to ten c. c. salt solution, gave severe pain, infiltrates, rise of temperature, and occasionally vomiting with diarrhea. The cases treated were moderately advanced and advanced cases of tuberculosis. Of the former, some cases showed improvement; of the latter, none were improved. Autopsies performed in two of the cases belonging to the latter group, showed no changes in the lungs that could be attributed to the copper.

Vaccine Therapy of Chronic Furunculosis.—T. Messerschmidt employs an autogenous vaccine obtained by incising an abscess under the strictest aseptic precautions and making cultures of the pus on agar slants. These are incubated for twenty-four hours. Four to five c. c. of physiological salt solution are added to the agar tubes and the latter are thoroughly shaken. The solution of bacteria is then placed on a water bath at a temperature of 70° C. for one hour until the volume is down to 0.1 c. c. The sterility is always tested by making cultures and the bacteria are counted. After being

diluted with normal salt solution so that one c. c. contains 50 million bacteria, it is divided into doses of one c. c. and placed in sterile tubes. The primary injection is thirty million bacteria; the next, sixty million; the third, eighty million, and the fourth, which is given on the seventh day, an interval of two days being allowed between every injection, 100 million. If the reaction after the first injection is severe the interval may be increased to three to four days. Of a series of eighteen cases treated in this way sixteen were cured without any other treatment. The two cases that did not respond were probably due to an infection by a second organism.

Union of an Almost Completely Amputated Hand.—Schloessmann reports the case of a boy, ten years old, whose right hand was almost completely amputated by a machine, leaving a pedicle barely three cm. wide at the ulnar margin, containing the ulnar nerve and artery and the tendon of the flexor carpi ulnaris. The tendon of the extensor carpi ulnaris was cut only half way across. Under narcosis the periosteum and the divided tendons, twenty-two in all, were sutured, and the two ends of the median nerve united. The radial nerve remained divided. The radial artery did not have to be sewed, as on freeing its distal end blood was seen to come out with every heart beat, showing that the blood supply from the ulnar through the volar arch was sufficient. The skin was closed without drainage and the wound healed without reaction. On the eleventh day the splint was removed and motion begun. At the end of six months the boy was again admitted to the hospital, for removal of his appendix. The position of the hand was normal. The thumb and index finger were livid, owing to impaired circulation. Dorsal flexion was decreased one half, volar flexion one fourth. The hand could be used to eat, drink, and write and he could take up and hold large and small objects which were not too heavy. The muscles of the right arm and forearm showed lack of development.

WIENER KLINISCHE WOCHENSCHRIFT.

June 18, 1914.

Pneumothorax Therapy in Pulmonary Tuberculosis.—Oscar Frank and Nicolaus von Jagic caused an artificial pneumothorax of the right side in dogs, and after this condition had lasted for seven months, the dogs were killed and autopsies performed. No free fluid was found in the pleural cavity; the volume of the lung was reduced one third compared to the healthy side; the pleura was finely granulated and showed a thickening in the region of the apex; the upper right lobe was free from air; the lower lobe contained considerable air, but was of a firmer consistence than the left lower lobe. Introduction of a tube into the main bronchus and pumping air into the lung caused the lower lobe to expand fully while the upper lobe remained atelectatic. The histological picture corresponded to the macroscopical findings. The greater changes in the upper lobe can be accounted for by the fact that normally the lower lobes of the lung are aerated more than the upper. In view of these ex-

periments, it can no longer be considered dangerous to treat mild cases of one sided tuberculosis for a period of time in this way, as the lower lobe is not influenced in its functional capacity. The treatment should be carried out for about eight months. In regard to the effect on the heart, clinical experience has shown that although a moderate hypertrophy of the right ventricle may arise, it has no untoward influence on the circulation. No enlargement of the right ventricle was found in the animals subjected to this treatment.

Treatment of Gonorrheal Vulvovaginitis in Children.—Max Strasberg treated six cases with intramuscular injections of arthigon, a polyvalent gonococcic vaccine, and reports three cures. These three children had had other treatment for several weeks previously, the injections being the final step in the therapy. Locally, he has employed medicated bougies containing different percentages of powdered uranoblen, a combination of silver and uranin, containing forty per cent. of the former. They are of a gelatinous nature, and dissolve easily at body temperature. The children are allowed to urinate and the vagina is cleansed with warm water. A small bougie is then placed in the urethra until it disappears, and one into the vagina. When placing the bougies into the vagina, they should be so placed that they alternately lie in the anterior and posterior fornices. Cotton is then placed between the labia and a T bandage applied. The children lie in bed for an hour. As long as the secretion is profuse two treatments are given daily, using a two per cent. bougie for the vagina; later when the urine becomes clear, four per cent. bougies are inserted once daily. This procedure secured good results in most cases, even ambulatory cases responding to this form of treatment.

Pathogenesis of Ileus.—Robert Vogel describes a case of intestinal obstruction due to the presence of a lemon pip which caused a spasm of the intestine. The lemon seed could easily be pushed forward, so that it was not the cause of the obstruction. Atropine sometimes helps in cases of this sort, but it must be given in large doses to obtain results. Other causes are hysteria, neurasthenia, and intestinal worms. At times ileus follows operations, and may be of idiopathic origin. The author also reports a case of ileus following the Bassini operation for hernia, in which the obstruction was caused by an accumulation of blood resulting from the penetration of an intestinal vessel in placing the deep sutures. An important symptom in ileus is the slowing of the pulse, which is observed even before the abdominal symptoms are pronounced and is of special significance when the temperature is high. These cases after operation show a cardiac paralysis in the form of a rapid and thready pulse. No satisfactory explanation has been offered for this slowing of the pulse.

Presence of Prophylactic Ferments in Antibacterial Immune Serum.—Ferd. Schenck reviews the work of Fekete and Gal, who experimented in guineapigs treated with injections of dead typhoid and colon bacilli and staphylococci. The normal serum of a guineapig does not cause the breaking down of these organisms, but in the

serum of animals treated with injections of dead bacilli, ferments are formed which can be detected by the Abderhalden reaction. They found that the ferments produced by the staphylococcus could be differentiated from those produced by the colon bacillus, but those produced by the typhoid bacillus were identical with those produced by the colon bacillus.

LANCET.

July 4, 1914.

One Thousand Consecutive Abdominal Operations.—Arthur E. Giles presents interesting observations and figures based on his large experience. The improvement in asepsis, technic, etc., for example, has reduced the mortality from 5.2 per cent. in the first 500 cases to 3.4 per cent. in the last 500. The gynecological cases showed a lower mortality than the group of general surgical cases, and among the former the cases of tubal disease yielded the highest death rate—7.8 per cent.—while ovariectomy and hysterectomy for fibroids each had a mortality of a little over three per cent. Of all of the gynecological operations, Wertheim's required on the average about twenty-five minutes longer than any other. Total extirpation for inflammatory disease required an average of fifty-two minutes. With few exceptions the other types of operation range between a quarter and a half an hour.

Pathological Investigation of Pituitary Tumor.—W. Johnson describes four cases, one of which had careful measurements made of the visual fields during life. This patient showed a bitemporal hemianopsia and, post mortem, his optic tracts were subjected to careful histological examination. "A narrow band of fibres occupying the outer portion of the tract alone stain normally. Two other bands also stain, only less distinctly. The remainder of the tract is completely degenerated. The degenerated area can be described as occupying mainly the central and lower part of the tract." The uncrossed visual fibres, therefore, are shown to occupy the lower external portion of the optic tract. No degeneration was found farther back than the primary optic ganglia.

BRITISH MEDICAL JOURNAL

July 4, 1914.

Fracture in the Neighborhood of Joints.—One of G. H. Colt's patients had a T shaped fracture through the elbow, the second a compound fracture of both bones of the leg two inches above the ankle joint, and the third a compound, comminuted fracture of the tibia with a simple comminuted fracture of the fibula, both about 1.5 inch above the ankle joint. All three cases were treated by open operation and plating, and in each results were excellent. Colt thinks that there is no more danger of sepsis in such cases when plated than under ordinary methods of treatment, and by plating, "one obtains a rigid result from the start, and there is much less anxiety as regards displacement when the splints are changed or massage and movement employed." In one of the leg cases, contrary to general advice and practice, the plate was placed on a portion of bone covered only by skin, thus avoiding damage

to muscles and tendons and preventing adhesions between the skin and the tendon. In the case of the compound, comminuted fracture, plating was not indicated according to general acceptance, but the favorable result abundantly proved the wisdom of the procedure.

Hemostasis by Application of Living Tissue.—Victor Horsley states the factors which must be obtained in this method as, asepticity, adhesiveness, and thrombokinesis. Horsley thought that "probably the best material would be living vascular tissue—that from the (injured) surface of a cut fragment of muscle, in all probability, thrombotic processes would most readily start; not merely on account of the plasma and plasmatic corpuscles of the tissue, but also the thrombotic products in the effused blood and the development of so called blood platelets." A fragment of muscle was found to have all these advantages, and in addition possessed the necessary adhesiveness to a remarkable degree. "If the bleeding point—for example, from the cut surface of the brain, liver, or any soft tissue—is gently pressed with gauze, and this instantly replaced by a piece of living muscle, and pressure again applied from fifteen to twenty seconds, it will be found that the muscle fragment closely adheres to the tissue. Such adhesion is necessarily limited by the pressure at which the blood is escaping from the bleeding point. By a direct experiment on divided arteries (including the aorta) in the cat and dog, I found that a muscle hemostasis would resist as much as sixty to eighty mm. Hg. blood pressure. Further histological investigation of the exceedingly thin viscous layer occupying the plane of contact of the two masses of tissue shows that it contains blood platelets, fibrin fibrils, etc., in a considerable degree, and within a short space of time (five to ten minutes) of commencing the preparation." Boiled muscle proved unsatisfactory, lacking adhesiveness. Fascia is also poor in adhesiveness, but it can be employed where muscle is not conveniently obtainable. Later examination of muscle used for hemostasis showed it to be firmly attached and organized.

Economical Radium Therapy by Emanation Needles.—Walter C. Stevenson reports several cases successfully treated by the use of needles containing radium emanation. The needles are ordinary steel serum needles having an external diameter of 1.4 mm., a thickness of 0.3 mm., and a calibre of 0.8 mm. Into these needles glass capillary tubes are passed. The glass capillaries have an internal diameter of about 0.46 mm. One cm. of such a capillary tube theoretically is capable of containing the emanation equivalent to about three grams of radium at atmospheric pressure. The advantages of using such needles are: 1. They are an economical method of using the therapeutic properties of radium. 2. Clinically, they are easily and safely employed, without an anesthetic or the use of an operating theatre. 3. They admit of very accurate doses. 4. They permit a tumor to be subdivided into areas which can be efficiently treated by small quantities of emanation." The accuracy of adjustment of dose depends upon five factors: "1. The amount of emanation in each capillary. 2.

The length of the capillary. 3. The number of capillaries used. 4. The distance between the needles. 5. The time they are left in." A further advantage lies in the cross fire which can be obtained by placing the needles first parallel to the skin surface and later perpendicular. Excellent results have been obtained, although the author has never used more than thirty millicuries of emanation, while it is frequently stated that there is very little hope of doing much good in malignant disease with less than fifty mg. of radium. The method therefore materially increases the therapeutic value of a given quantity of radium.

The X Ray Treatment of Tuberculous Glands.

—Harold Mowat says that the great advantage of the x ray treatment of tuberculous glands is that it saves the patient in many instances a severe operation. The results are satisfactory whether the glands are large or small, numerous or scanty, superficial or deep, because by means of filters the penetrating power of the rays can be controlled, and by using hard tubes deeply situated glands can be reached. Even when the glands have broken down and are fungating great improvement results. It is advisable to use a hard x ray tube and necessary to filter the rays through aluminum or felt; Mowat generally filters through 1.5 mm. of aluminum. The current should range from two to three milliamperes; and the rays applied directly to the affected parts, a suitable lead glass screen being used. The exposure should be at any rate one full Sabouraud dose, but in some cases it is advisable to exceed this by about a quarter.

Clinical Estimation of the Percentage of Glucose.

—G. C. Parnell has found that within certain limits the colors produced with Moore's test (boiling equal parts of the urine and liquor potassæ) vary in direct proportion to the amount of glucose present. This was confirmed by experiments in which known amounts of sugar were added to normal urine, and also by control tests by Pavy's method. It was found that samples of the boiled sugar solution would not keep, so that colored glasses have been prepared for each color from half of one per cent. to four per cent. Each glass is marked with the percentage of sugar, the number of grains to the ounce, and the number of grains per 1,000 to which it corresponds. For accurate results exactly equal parts of the urine and the liquor potassæ must be taken and they must be thoroughly boiled in a tube of from five eighths to six eighths of an inch in calibre. For urine containing more than four per cent. of glucose the sample must be diluted with one or two parts of water before testing, as the colors above that for four per cent. cannot be distinguished with accuracy.

Naphthalene for Destruction of Mosquitoes.

—A. W. Bacot finds that very small amounts of this substance sprinkled on the surface of water or suspended above the surface kill adult and young mosquitoes. So little as one part of naphthalene to 2,310 surface area (0.2 gram to 462 square cm. of surface) killed nearly all the insects in seventy-two hours at room temperature. The method is suggested as applicable for use in covered cisterns and wells.

BOSTON MEDICAL AND SURGICAL JOURNAL

June 18, 1914.

Production of Edema.—Frederick C. Shattuck observes that the Bertillon system shows by a sufficient number of accurate measurements that one person can be distinguished from every other; it may be possible that analogous variations exist in the texture of tissues, which may be a factor in the distribution of edema.

Sterility in the Male.—J. Dellinger Barney says that sterility in man is due to venereal disease, generally gonorrhea, in the vast majority of cases. Oligospermia or azoospermia may occur without obvious cause. The production or ejaculation of spermatozoa may be intermittent for reasons as yet unknown. A single examination of the semen is insufficient. At least two, perhaps three or four, each taken after a considerable period of sexual continence, must be seen, before a prognosis can safely be given. Marriage may continue to be sterile even with the finding of active spermatozoa in the husband, and a normal genital tract in the wife. Experience has shown that for some reason best known to herself, Nature delays procreation often for years. It is noteworthy that in no case of male sterility, regardless of the cause, is masculinity in the least impaired. This is to be explained by the fact that even though the spermatogenic function of the testicles is inhibited, the internal secretion continues in full force.

Wassermann Tests for Syphilis in the Harvard Neuropathological Laboratory, 1913.

—E. E. Southard gives a number of interesting findings from 5,000 tests, a few of which are: General doubts are often raised as to the reliability of Wassermann's test on account of the great number of doubtful reactions; this great number resolves itself into four per cent. of the blood serums and two per cent. of the cerebrospinal fluids. The doubtful reactions resolve much more frequently into negative than positive. Twenty-three per cent. of all serums examined were positive, and since the cases were in many instances picked as likely to be positive, this percentage is doubtless much higher than the total percentage. Thirty-three per cent. of all cerebrospinal fluids examined were positive. The principle of selection was such that the result is of practical value. The chances of a syphilitic origin for a case of organic looking nervous or mental disease are not more than one in three. The Massachusetts Reformatory for Women yields forty-four per cent., a partial index of the infected nature, though not necessarily of the infectivity of prostitutes. The Danvers State Hospital for the insane yields between nineteen and twenty-two per cent. positive serums in its routine cases. The Worcester Asylum, to which are transferred chiefly nonparetic cases, yields less than three per cent. positive. If this percentage should be maintained in the future, one might infer that from the group of persons in the community with insane tendencies and infected with syphilis, cases are drained off into the frankly parietic group, in such a way that a population of asylum transfers will be likely to show a low syphilis index, but this conclusion can only be

tentative on account of many other issues. The Psychopathic Hospital index, fifteen per cent., is perhaps closer to the general community index than the others, on account of the large numbers of cases not insane that are tested, but it is evident that fifteen per cent. would be too high an index to assign the syphilis of the general population.

Extrapulmonary and Other Sounds: Errors in the Diagnosis of Pulmonary Tuberculosis.—John B. Hawes 2d, from an analysis of 250 cases, finds that muscle sounds were a potential source of error in 9.2 per cent. Such sounds occur, particularly in muscular persons of nervous temperament. They can be lessened by quieting and calming the patient, and by seeing that the examining room is sufficiently warm. Errors due to these sounds can be avoided only by great care and concentration on the part of the physician. Joint sounds, resembling rales, and a potential source of error, occurred in twenty-two per cent. Errors due to this cause may be avoided by making the patient go through the motions of breathing without taking a breath. Tendon or bursal sounds, atelectatic rales, or marginal sounds, ought not to cause confusion, or be sources of any mistakes in diagnosis.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

July 11, 1914.

The Future of Dermatology in America, by R. L. Sutton.—This paper was abstracted in our issue for July 4th, page 51.

The Treatment of Albuminuria in Pregnancy, by E. J. Ill.—This paper was abstracted in our issue for June 27th, page 1309.

Treatment of the Toxemias of Pregnancy, by A. J. Rongy.—This paper was abstracted in our issue for June 27th, page 1309.

Influence of Diet on the Toxicity of Substances which Produce Lesions of the Liver or the Kidney.—E. L. Opie and L. B. Alford conclude: The toxicity of phosphorus, which causes fatty degeneration of the liver, is greater in animals which have received a diet of meat than in those which have received diets consisting in large part of carbohydrates or of fat. Animals on a diet rich in carbohydrates are much less susceptible to nephritis produced by potassium chromate and uranium nitrate than animals on a diet consisting of meat or of fat. A diet of meat increases the toxicity of potassium chromate, which produces necrosis of the convoluted tubules of the kidney. A diet consisting of fat increases the toxicity of uranium nitrate, which alters the loops of Henle and produces nephritis.

Technic of Intradural Injections of Neosalvarsan in Syphilis.—U. J. Wile outlines the method of procedure as follows: The solution used consists of a six per cent. solution of neosalvarsan in distilled water. This solution is hypertonic, and made of such concentration that each minim must contain three mg. of the drug. The dose injected is from three to twelve mg., that is, from one to four drops. The solution is made as follows: An ampoule containing 0.3 gm. of neosalvarsan is dissolved in five c. c. of freshly distilled water. If the ampoule contains 0.6 gm., ten c. c. of water are used. In both solutions each drop will contain

three mg. of the drug. The syringe employed is accurately graduated in drops. The patient is placed in a position for lumbar puncture, either sitting or lying, according to the choice of the operator. The puncture is then made with a needle, the end of which fits the syringe. After a few drops of spinal fluid have flowed out of the cannula, or a greater quantity, if a diagnostic puncture is desired at this time, the syringe is fitted into the needle, and the fluid allowed to run back into the syringe barrel and mix with the amount of drug in the barrel. The mixed spinal fluid and drug are next gently forced into the canal, and slight suction is made on the syringe, to withdraw a second amount of fluid, which washes out the needle. This is then reintroduced, the needle is quickly withdrawn, and the patient placed in the Trendelenburg position, in which position he is allowed to remain for at least one hour. Reports are given of fifteen selected cases, in which twenty-five injections were given. Seven were of tabes, three of general paresis, three of cerebrospinal syphilis, and two of tabetoparesis. It is apparent to the author that, in general, cases with cerebrospinal syphilis other than tabes or paresis have done decidedly better. It is noteworthy that tabes patients, in whom no bladder nor rectal symptoms were present, have done especially well.

Cholesterin Content of the Blood in the Diagnosis of Cholelithiasis.—Edwin Henes, Jr., reports twenty-one cases. 1. Almost all gallstones are formed largely, if not entirely, of cholesterin. 2. A hypercholesterinemia seems to be the fundamental and primary etiological factor in the formation of gallstones, and this hypercholesterinemia is easily determined. 3. In cases of cholelithiasis without fever, a hypercholesterinemia is invariably found. 4. Conditions simulating cholelithiasis can be differentiated by a cholesterin serum determination. Particularly does this apply in differentiating ulcer duodeni from cholelithiasis. 5. The hypercholesterinemia of cholelithiasis persists for a considerable length of time after the operative removal of the stones. 6. Operation without removal of the bladder does not necessarily free the patient from subsequent stone formation.

Dystrophia adiposogenitalis (of Froelich).—S. W. Boorstein describes this condition as follows: The disease is characterized by a peculiar adiposity, with a feminine type of distribution when occurring in males; the fat over the hips, pubis, and pectoralis is markedly increased. There is aplasia of the genitals. The male genital organs are markedly diminished. Hypotrichosis is marked; there is no beard, nor pubic, nor axillary hair. The hair on the scalp is abundant. The voice remains juvenile. In women there is amenorrhea, while in men there is anaphrodisia. There is a marked tolerance for carbohydrate, with polyuria. The patients have a feminine type of skeleton, with broad pelvis and a certain degree of genu valgum. The fingers and toes are tapering. The first of the cases reported showed all the signs and symptoms of hypopituitarism dating from birth (infantilism of the Lorain type). The second case is regarded as probably one of pituitary sexual gland syndrome, the deficiency being mainly in the anterior lobe of the pituitary.

MEDICAL RECORD.

July 11, 1914.

Deep Muscular Injections of Mercury.—B. L. Wright prefers for injections mercuric succinimide, and he reports results in the following diseases: Tuberculosis, thirty-five cases; lobar pneumonia, nine cases; lobular pneumonia, six cases; typhoid fever, five cases; cerebrospinal meningitis, one case; erysipelas, two cases; infectious arthritis, thirty-nine cases; acute rheumatic fever, eight cases; chronic articular rheumatism, seven cases; gonorrheal arthritis, twenty-four cases. He comments on the value of mercury in the treatment of rheumatism.

Some Radium Therapeutics.—J. B. Bissell, after remarks on the properties and action of radium, cites nine cases (six of arthritic affections and three of arteriosclerosis) in which it was employed, and states that from a study of these patients the following facts concerning radium therapy may be assumed: Radium injected into the veins relieves pain; it improves the blood picture in anemic and cachectic patients; it causes absorption of deposits around chronically infected joints; it reduces high blood pressure, lessens the coagulation time, and has a certain definite effect as a hypnotic. For injection, radium bromide is dissolved in saline solution. In cases where radium is prescribed by mouth, the dose is one microgram of radium bromide in solution.

Cow's Milk, Raw and Heated.—E. W. Titus states that no less an authority than Theobald Smith expressed the opinion years ago that pasteurization was the inevitable outcome of the future. The heating must be done intelligently, and be properly supervised. After heating, the milk is just as liable to serious contamination as before, if not more so; and therefore must be carefully guarded and kept cool. When all is said, it will be found that the objections to the proper heating of milk seem to be either theoretical or such as may be readily overcome. The author says that the only way of obtaining milk in its least objectionable state at the present time, appears to be proper heating. Theoretically, it should not be necessary; practically, we find it forced upon us.

Pharyngeal Tonsil in the Adult.—L. G. Kaemper offers the following conclusions: 1. The pharyngeal tonsil persists in adult life, sometimes entirely unchanged anatomically. 2. It acts in those cases as the causative, or at least as an important contributory factor in some of the stubborn chronic conditions of the nose, pharynx, and ears in early adult life. 3. It should be the duty of the rhinologist to determine, as part of his routine examination, whether or not a diseased tonsil of this kind is present, and whether its removal will not save the patient from more radical operative interference, or obviate a long course of more or less painful treatment.

Modified and Conservative Radical Mastoid Operations.—W. S. Bryant states that the intention in these operations is twofold: First, the hearing apparatus is to be preserved in as good condition as before operation; second, the middle ear and accessory cavities are to be cleaned so that the middle ear will heal in a smooth, readily epider-

matized, clean cavity, and will consequently tolerate a prosthesis. The technic is adapted, of course, to the condition. In an illustrative case the ordinary radical mastoid operation was followed, as far as management of the membranous and osseous meatus was concerned. Nothing in the tympanic cavity was removed, and great care was exercised not to disturb the remnants of the malleus and stapes, which were all that remained of the ossicles. In another case it was thought best to remove the remnant of the major ossicles, and therefore a conservative radical mastoid operation was done. In this instance the operation included the removal of the remnants of the malleus and incus and part of the head and crura of the stapes. The results were quickly obtained, and were as satisfactory as in the first case.

REVUE DE MÉDECINE.

May, 1914.

Mineral Waters in Cholelithiasis.—A. Therre discusses the indications and advantages of treatment at Vichy. The waters of Vichy antagonize stasis in the gallbladder by stimulating the biliary function of the liver, and in attacks of hepatic colic brought on by these waters, calculi are far more likely to be discharged than after any other measure. Considerable care is required in deciding the proper amount of Vichy water for each patient to take. In uncomplicated hepatic colic, a complete cure is to be the end sought and expected. At first but small amounts of the water should be given, but later, to secure the best results, the dose should be gradually increased to four or five glassfuls a day. The method should in the average case be continued for twenty-five to twenty-eight days. In young subjects especially, the aim should be to secure evacuation of the stones by the use of the strongest of the Vichy waters (Grande Grille). In cases with a tendency to congestion of the viscera, however, a preliminary course of the Hôpital Vichy, which practically never excites hepatic colic, should precede the use of the stronger spring. Where unpleasant symptoms appear, tolerance is generally regained upon stopping the ingestion of the water for a short period. The stronger spring should rarely be used where there is marked local tenderness. In cholelithiasis with fibrous atrophy of the gallbladder, with continuous symptoms, the waters should be given only in minute doses and after the local sensitiveness has subsided under rest, a milk diet, and sedative local applications. In these cases there is, of course, no question of effecting a complete cure, but nearly always the Vichy treatment will remove the need for operation. In cholecystitis with hydrops of the gallbladder careful use of the waters, in cases where the mucous membrane is not itself seriously diseased, nearly always brings about a marked reduction or disappearance of the gallbladder distention. In cases with complicating cardiac disease, extreme caution is required in advising or applying the treatment. In a series of 211 cases of all varieties that took the cure, recurrence took place within a year only in thirty-eight. Among sixty-eight cases further traced, thirty had had no recurrence two years after the treatment.

Landouzy's Typhobacillosis.—A. Korkiewicz discusses the condition termed by Landouzy typhobacillosis, an acute form of tuberculosis with clinical course similar to that of typhoid fever, and without tubercle formation. The less regular type of fever, with wider fluctuations, the absence of rose spots, and the almost complete lack of gastrointestinal symptoms differentiate typhobacillosis from typhoid fever. Only occasionally, upon very careful examination, are a few tubercles found in the lung apices or in other organs. Korkiewicz reports a case clinically diagnosed as tuberculous basilar meningitis, with pulmonary and renal tuberculosis, in which, although acidfast bacilli had been found during life in the blood and cerebrospinal fluid, the autopsy revealed no tubercles in any part of the body, the findings being those typical of acute infections in general. The clinical course had closely resembled typhoid fever, and the author reports the case as an example of Landouzy's typhobacillosis, which is presumed to be a tubercle bacillus septicemia so intense as to cause death before tubercles can develop. Inoculation of fresh cerebrospinal fluid from this case in six guineapigs gave no results, but Yersin and Gougerot have produced typhobacillosis in rabbits by injecting tubercle bacilli.

JOURNAL OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

May, 1914.

Blindness Following Injuries to the Back of the Head.—L. Newmark describes three patients who were blind for longer or shorter periods after blows on the back of the head that did not fracture the skull. He ascribes the blindness to a traumatic affection of the occipital lobes, shock or hemorrhage, or both.

The Tonsil as an Etiological Factor.—C. R. Harken is inclined to ascribe a remarkable list of diseases to infections of the tonsil with pneumococci, streptococci, and staphylococci, including adenitis, lymphangitis, cellulitis, septicemia, polyarthritis, endocarditis, myocarditis, acute chorea, meningitis, poliomyelitis, nephritis, pyelitis, cystitis, urethritis, orchitis, pleurisy, bronchitis, pneumonia, bullous erythema, and many eye lesions.

ANNALS OF SURGERY.

May, 1914.

Vaccine and Serum Therapy in Septicemia.—A. C. Burnham, after a study of one hundred and eleven consecutive cases of severe infection, draws the following conclusions regarding vaccine and serum therapy: 1. Vaccines are of benefit in many of the cases not overwhelmed at the onset by the severity of the infection, and, clinically, seem to benefit the majority of the cases. 2. Antistreptococcal serum is of great value, especially during the earlier stage, when its bactericidal powers are most pronounced, and if given in sufficient doses during the period of invasion will often change a systemic bacteremia into a localized infection. 3. The combination of antistreptococcal serum, used in the early stage of septicemia, together with autogenous vaccines, used as soon as they can be prepared from blood cultures, seems to be particularly beneficial. If the blood cultures are sterile, vaccines may be prepared from the local lesion. Stock vaccines are

still less desirable, and are of uncertain value. 4. Neither serums nor vaccines, although they do little harm, are free from danger, and the doses and intervals need to be carefully worked out. 5. Open air treatment in cases in which cultures are sterile, and as an adjunct to vaccine and serum therapy, seems to be the best method of increasing the resistance of the patient.

Ileocecal Tuberculosis.—J. Wiener states that ileocecal tuberculosis is usually a primary lesion. The infection takes place either from tubercle bacilli that have been swallowed, milk, or sputum, or through the mesenteric glands. Pathologically we distinguish two forms, the ulcerative or enteroperitoneal, and the hypertrophic ileocecal tumor. The diagnosis is very difficult owing to the similarity to appendicitis, with which diagnosis most cases come to operation. The two operations to be considered are lateral anastomosis with or without exclusion, and resection. In the majority of cases the writer suggests lateral anastomosis first, and there will then often be no secondary operation required, or, if required, it will be done under much more favorable conditions.

SURGERY, GYNECOLOGY AND OBSTETRICS.

May, 1914.

Bone Transplantation.—E. J. Lewis submits the following conclusions based upon experimental work on dogs: 1. Cortical bone, free from its periosteum, endosteum, and marrow, will retain its vitality and proliferative powers when subdivided into small fragments and replaced in the tissues. Contact with living bone is unnecessary for the growth of these transplants. 2. Larger pieces of bone may be transplanted and remain alive—not being merely grown into by the bone in which they come in contact. 3. Bones may unite after fracture or a space may fill in after resection without the aid of any periosteal or bony bridge, and transplanted fascia may be made to take up the nourishing and limiting functions of the periosteum.

Congenital Pyloric Stenosis.—Roland Hill states that all patients submitted for operation should be fed upon mother's milk. They should have the care of a nurse thoroughly trained in pediatrics, and a pediatricist should have charge of the feeding. The writer believes that these are absolutely necessary if the best results are to be obtained. In regard to the application of surgery to these cases, he says that operation is justifiable if it can be shown that a tumor is present; the operative treatment is attended with a mortality as low as the medical by lavage and diet. It is justifiable also if it can be shown that surgery gives immediate results and saves parents a prolonged suspense. In regard to the mortality in these cases, it was high in the early series in the hands of different operators. With an increased experience it has come down until it is lower than medical treatment in the most skillful hands. In the doubtful cases treated by lavage, the outcome is in doubt for several weeks at least, the treatment is nerve wrecking, and the outcome uncertain. Surgery, on the other hand, yields results almost instantaneous, and a child that today is crying, vomiting all nourishment, and the picture of marasmus, may in a week's time

present a condition of rapid convalescence and contentment.

Exposure of the Pelvic Portion of the Ureter.—J. M. Birnie describes the following method: With the patient in the Trendelenburg position a median incision is made beginning close to the pubic bone and extending upward, exposing the space of Retzius in the usual manner. No muscle fibres are cut, but the recti are retracted to either side. The point where the parietal peritoneum is reflected on to the bladder is noted and care taken not to open the peritoneal cavity. Starting at the bladder, the peritoneum is wiped away toward the median line separating it from the bladder and pelvic wall, thus exposing the ureter. With retraction one gets a complete exposure of the ureter and any necessary procedures may be carried out under the guidance of the eye. Drainage, if necessary, may be instituted through the original incision or through a separate stab wound.

INTERSTATE MEDICAL JOURNAL.

June, 1914.

Hyperacute Cerebrospinal Meningitis.—H. H. Scott, of Kingston, Jamaica, states that during the past year he has seen several cases of fulminating cerebrospinal meningitis. In the hyperacute, or, as it may well be termed, the fulminating or malignant type, of cerebrospinal meningitis the patient, usually a child, goes to bed apparently in normal health, but during the night becomes restless, wakes up feeling ill and vomits one or more times; after which it drops off to sleep again. After three or four hours, or perhaps a little longer, the child suddenly sits up and vomits again. So long as the stomach contains food the vomiting is apparently effortless, but if it is empty, there is troublesome retching. More alarming symptoms now supervene, and in a short time, it may be only a few minutes, there ensue convulsions, during which the limbs are rigid and the head is drawn back; then, usually, a state of coma rapidly succeeds and terminates in death. In cases not terminating fatally the condition of coma is rarely arrived at. The cerebrospinal fluid is clear or very faintly opalescent; by transmitted light a sort of iridescent effect is sometimes noted if the fluid is drawn toward the termination of the attack, after the twelfth hour. The organism found agrees morphologically with the usual book descriptions of the meningococcus. In fifty-two cases only eleven patients recovered, a mortality of 78.84 per cent.

Benzol in Leucemia.—L. A. Levison concludes: 1. Benzol is a symptomatic remedy of great value in leucemia. 2. Its action is not restricted to certain types of leucemia. 3. The dose should be from three to five grams daily. It should be given mixed with olive oil or milk, to lessen the irritation of the stomach, and, when possible, after meals. 4. Benzol may produce symptoms of gastrointestinal irritation, such as burning, flatulence, nausea, and vomiting. Dizziness, albuminuria, bronchial irritation, and mucous membrane hemorrhages may occur. 5. When it is not tolerated by mouth, it may be tried subcutaneously or per rectum. 6. It first causes an increase in the white blood cells, and then a marked fall. The drop may go below nor-

mal, and even to a complete absence of white cells, if its administration is unduly prolonged. 7. Its administration should always be stopped before the white cells reach a normal figure. 8. In moderate doses benzol has a favorable effect on the red cells and hemoglobin. 9. It is better, when possible, to combine its use with that of the x ray. 10. Benzol has a favorable action, to a limited degree, on some types of pseudoleucemia.

Psychic Hardening.—R. S. Carroll states that the modern neurologist links the physical, mental, and moral. He conceives of and treats his patient as a unit. The author relates cases of nervousness of different types, hypersensitiveness, and undue suggestibility, and concludes by saying: The histories are but illustrative of numerous cases which will remain unaided by our profession until we are able and willing to treat the whole man. The neurotic will retain his miserable habits in the face of chemical medication, receiving at best but a temporary relief from the most wisely written prescriptions for drugs. We can, however, promise lasting help to discontented lives, to useless invalidism, and to the thralldom of nervous suffering, through judicious psychic hardening.

Proceedings of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-ninth Annual Meeting, Held at Boston, May 19, 20, and 21, 1914.

The President, Dr. J. WHITRIDGE WILLIAMS, of Baltimore, in the Chair.

(Continued from page 154.)

Spinal Anesthesia in Gynecology.—Dr. GEORGE GELLHORN, of St. Louis, pointed out that the severity of an operation stood in direct proportion to the amount of ether inhaled. The popular ether drop method was not as safe a procedure as would appear from existing statistics. The latter were incomplete in regard to the number of fatalities and did not take into consideration late complications which might either lead to death or seriously interfere with convalescence. There should not be any one routine method, but the needs of the individual case must govern the choice of the mode of anesthesia. In gynecological work, spinal anesthesia offered particular advantages and showed most impressive results. The mortality rate from spinal anesthesia could not be determined by statistics. These were unreliable. The majority of deaths occurred during the experimental stages of the method. The anesthetic itself seemed to have nothing to do with the mortality. Stovaine, tropacocaine, and novocaine were more or less equivalent. His experience was limited to the last named drug. The safety of spinal anesthesia depended upon first its accurate technic, and the strictest observance of even the minutest detail was of paramount importance. Reports of deaths, therefore, must contain all details of the technic employed before they could be admitted to serious consideration. It had been proved in thousands of cases that by painstaking technic, not only death, but collapse and other alarming compli-

cations of earlier days could successfully be avoided. Contrary to popular prejudice, there was no psychic trauma connected with spinal anesthesia. Nausea and vomiting during operation were reduced to a minimum or were altogether absent. The abdominal walls were fully relaxed, and the intestines remained quietly within the peritoneal cavity. Therefore, all operative manipulations were rendered easier, and the brusque handling of the viscera was obviated. All this tended to lessen the operative shock, and as nerve impulses did not touch the brain, spinal anesthesia was the ideal measure of anoci association. In a certain small percentage analgesia was incomplete, then a few whiffs of ether sufficed to render the operation painless.

In a list of 127 abdominal and forty-two vaginal operations he showed that every kind of gynecological operation, not including those on the kidney, could be performed under spinal anesthesia. There had been no death from this method. In all, four patients died, two of these from sepsis after radical operations for cancer of the cervix. The postoperative care of spinal cases was strikingly easy. The usual postoperative symptoms appeared in greatly mitigated form or were altogether absent. Patients who had had personal experience with ether and spinal anesthesia declared themselves in favor of the latter. An annoying and comparatively frequent by effect was headache, which, however, yielded spontaneously or to bromides, and constituted no danger to the patient. Other by effects, such as backache, paresthesias, and temporary paralysis, seemed to have become less frequent with improvements in technic, and it was the consensus of all observers that lasting ill effects were conspicuously absent. Spinal anesthesia markedly lessened the blood pressure and should therefore be used with caution in cases of pronounced hypotension. Acetonuria occurred after spinal anesthesia, as well as after inhalation narcosis, but exerted no deleterious effect upon the patient; it disappeared spontaneously about five days after operation.

Spinal anesthesia enabled them to operate with safety on patients for whom ether would be contraindicated. It was thus chiefly applicable in cases where the seriousness of the affection, the magnitude of the operation, or coexisting complications (cardiac and pulmonary lesions, nephritis, diabetes, hyperthyroidism, advanced age, debility) constituted a particular risk. Minor operations should be reserved for ether narcosis. Spinal anesthesia was contraindicated in cyphoscoliosis and other marked anomalies of the spinal column, diseases of the central nervous system, profound shock, or marked hypotension from other causes; sepsis, and fevers of unknown origin; furthermore, in neuropathic individuals and where there was a strong prejudice against the method. Suppurations and eruptions near the desired site of infection forbade the use of spinal anesthesia until aseptic conditions could be established.

Dr. FREEMAN ALLEN, of Boston, while not an ardent advocate of spinal anesthesia in certain cases, yet as a professional anesthetist, felt called upon to defend ether. He felt that a great deal of the condemnation that ether had been receiving lately was due to the fact that surgeons and patients had been

the victims of unskillful administration of ether. He thought that surgeons were much too apt to put up with administrations of ether by persons who were comparatively unskillful and then to blame ether anesthesia in general. If he was a surgeon and lived in a community where the services of a really skilled anesthetist were not obtainable, he should certainly use spinal anesthesia very largely, if not exclusively. He agreed with Doctor Gellhorn that there was no psychic shock whatever when a patient had been properly prepared for spinal anesthesia and was properly handled during the same.

Dr. JOHN O. POLAK, of Brooklyn, New York, had had two cases of very prompt and aggravated shock coming on from the immediate use of the Fowler position after abdominal operations for general peritonitis where a stab wound incision was made and drainage instituted. It had been his custom to have these patients placed in a horizontal position or moderate Trendelenburg position for the first few hours. He got those two patients in the Fowler position and in coming out of the anesthesia both were in the most severe shock as the result of it, and only by change of posture was the shock relieved. In regard to spinal anesthesia, during the last two years they had used it in a number of cardiac cases, cases of tuberculosis, diabetes, and in those in which they had to do obstetrical or gynecological operations. In those extremely severe cardiac cases that complicated pregnancy the use of spinal anesthesia had brought to them a new era of obstetric surgery.

Dr. SETH C. GORDON, of Portland, Maine, had given ether and chloroform for over fifty years, and had seen but one death from chloroform. He had seen but one death which in his opinion was traceable to ether. He believed that the main trouble had been in the administration of those two anesthetics, and that the more experience they had and the more they adopted modern methods, for instance, the drop method of ether, the more they had something that was certain in any case where they were obliged to resort to a surgical operation.

Dr. M. L. HARRIS, of Chicago, found under nerve blocking there had been no deaths, so it was perfectly safe from that standpoint. He had had occasion to operate on a number of patients who had undergone previous operations under general anesthesia, and without a single exception the patients had expressed themselves as infinitely preferring nerve blocking and would never think of taking a general anesthetic again. Until they found some way of limiting spinal anesthesia to a distinct level or to a certain part of the cord, he thought peripheral anesthesia or nerve blocking might have certain advantages over intraspinal anesthesia.

Dr. GEORGE GELLHORN, of St. Louis, had never done anything but gynecological operations under spinal anesthesia, but was certain that in operations upon the extremities nerve blocking would be the method of anesthesia of the future.

Ultimate Results in Simple Cholelithiasis: Cases in Which Gallstones Were Found during Operation.—Dr. JOHN G. CLARK, of Philadelphia, in his review of 160 cases of cholelithiasis, emphasized the fact that modern surgery had entirely recast the clinical history of cases of cholelithiasis.

and that in the newer interpretation symptoms which were formerly considered as essential for the establishment of a diagnosis of cholelithiasis were now looked upon as terminal rather than initial indications of biliary defects. In one group he had included cases in which there was an operation for cholelithiasis without any associated gynecological conditions. In the second group were found all of the cases in which gallstones were discovered in association with gynecological or other abdominal operations. In only fourteen per cent. of his series of 160 cases had he failed to secure accurate notes as to the outcome. In this list, no case had been included which had been operated in under nine months. It was to the ultimate recovery that he had particularly directed his attention in this study of cases. In all cases where there was nausea after twenty-four hours, he attached a saline reservoir to the drainage tube and under one foot of hydraulic pressure permitted the fluid to drop slowly into the gallbladder. Great care was observed to avoid the slightest excess of pressure which might induce a rupture about the point of insertion of the tube in the gallbladder. The drainage in this series had usually been maintained for ten days. This rule was an arbitrary one, and in some cases the length of the drainage period might be extended. Within the last two years he had turned toward cholecystectomy in a greater proportion of cases, for experience had shown that if the wall of the gallbladder was thick and indurated, or if it was dilated and very thin, or if, on inspection of the interior of the organ, the mucosa was eroded or showed a strawberry mottling, he performed cholecystectomy.

Occasionally he had closed the gallbladder without drainage after the removal of uncomplicated gallstones, but he preferred to use a simple drain for fear of the rupture of the gallbladder and escape of bile into the peritoneal cavity was thus avoided. From this series of cases he concluded that, 1, simple drainage was sufficient in all cases of cholelithiasis where there was no symptom attributable to their presence; 2, when the gallbladder was thickened, greatly dilated, or was the seat of the so called strawberry change as described by Moynihan, cholecystectomy was preferable. So called gastralgia, indigestion, and dyspepsia he would place in heavy type and let it stand out so boldly that it would serve as a target to be immediately demolished. In gynecological cases with coincident symptoms in the upper abdomen, the gallbladder was far more frequently the seat of disease than any other organ. In a vastly larger series of gynecological cases, gastric or duodenal ulcers, or cancer of the stomach, had been so infrequently found as to be almost negligible. In estimating the immediate and remote results of these combined operations, he had arranged his cases under three separate headings: First, simple gallbladder cases, in which the surgical treatment was directed to the relief of cholelithiasis; second, the cases in which some pelvic operation was performed and gallstones, not producing symptoms, were discovered, and, third, gynecological cases in which there were unmistakable symptoms of asso-

ciated gallbladder disturbance. So far as immediate mortality was concerned, the first group consisting of fifty-one cases was attended by 6.1 per cent. immediate mortality, the second by 4.3 per cent., and in the third there was no fatality. Of six fatalities in his series of cases, four of the patients died from destructive results of advanced cholelithiasis. In only two could death be attributed to any defect in operative technic. In one there was a leakage with the formation of a subphrenic abscess; in the other, a peritonitis. These two deaths might have been avoidable. In none of the combined operations where there were no symptoms attributable to gallstones, was there a fatality.

Dr. REUBEN PETERSON, of Ann Arbor, found in about one thousand abdominal sections that there were gallstones present in about twelve or fourteen per cent. This included his own private cases as well as the University Hospital cases. He had adopted the one operation of simply removing the gallstones and draining. He had not removed the gallbladder in any case. He had found quite a percentage of cases where he did not think it was advisable to perform any operation upon the gallbladder. He had found an unusually large proportion of cases of cancer that had gallstones. In the pus cases he had refrained from operating on the gallbladder.

Dr. PHILANDER A. HARRIS, of Paterson, N. J., had not often removed gallstones from patients when operating upon them for gynecological troubles. He did not think he had removed the gallstones in more than half a dozen cases. He did not believe he had found gallstones in more than four or five per cent. of the cases he had palpated through the abdominal incision, so that his experience did not correspond with that of Doctor Peterson. He had removed the gallbladder in at least seventy per cent. of the cases in which he had operated, something less than 200.

The New Efficiency Systems and Their Bearing on Gynecological Diagnosis.—Dr. ROBERT L. DICKINSON, of Brooklyn, New York, said that many of the methods of Taylor's "scientific management" of factories were adaptable to office, dispensaries, and hospital diagnosis. He gave an outline suggesting how responsibilities might be recast and grouped by function; how all processes might be standardized, then reduced to writing, instruction carried on, and then constant inspection to check up every one's results, while studies of time and waste motion in the operating room and ward were undertaken. Attention was drawn to the need of systematic study of fatigue among nurses, as had been done in other occupations. Reference was made to cooperative methods, as instanced in the Associated Outpatient Clinics of New York; of the Hospital Efficiency Committee of the Philadelphia County Medical Society, representing fifty-five hospitals; of the great new Mayo building just opened, and in associations of groups in cities. Some examples of printed forms were submitted, such as a full preliminary history to be made out by the patient herself, and also printed directions to gynecological and pregnant patients.

(To be continued.)

Letters to the Editors.

IPECAC IN DYSENTERY.

SALEM, OREGON, July 10, 1914.

To the Editors:

At various times I have noticed in your valuable journal articles on the treatment of amebic dysentery with emetine, and upon reading in the JOURNAL for July 4th an article on this subject by Dr. Julius Friedenwald, of nine cases so treated, I thought that a brief history might be given of my personal experience during an epidemic in 1854 with the same disease treated with ipecac in Galena, a small town in Delaware county, in central Ohio, and the surrounding country, might be of interest. Now as this was a long time ago I am obliged to trust to my memory, no notes of cases being kept. But as the whole course of my life was so influenced by the events, I shall always retain a vivid memory of what was the result of the use of ipecac and ask you to indulge an old physician in relating a little of his personal history.

I graduated in medicine from the Miami Medical College of Cincinnati in the spring of 1854, and settled for practice in Galena, which is in the midst of a thickly settled community in Delaware county. I arrived in Galena about the first of July of that year and found the whole neighborhood in a panic by an epidemic of amebic dysentery which was of almost universal prevalence and of extreme fatality. Many large families were entirely wiped out and almost none escaped a visitation. I was very young at the time, just past twenty-three years of age, and for a time, as may be surmised, did not have many calls, but had a chance to see what was being done by the older physicians. I will never forget the symptoms of the disease and the course of treatment which in all severe cases availed nothing, for the patients died. The symptoms were extreme prostration, frequent and profuse bloody and slimy discharges with little or no fecal matter from the bowels, scanty and highly colored secretions from the kidneys, great pain, severe tenesmus with high fever, and no ability to digest food as the stomach rejected almost all kinds of nutritious food; abdomen tympanitic and exceedingly painful upon pressure; the temperature rose often as high as 105° F., pulse rapid and almost obliterated; inside of the mouth and tongue dry and covered with sordes as in patients in the last stage of typhoid fever, and the patients, I need hardly say, in a large proportion died miserably.

The course of treatment followed by the doctors was of apparently no avail. Sordes on the inside of the mouth and on the tongue and teeth, in their estimation, was a sign of bilious disorder and of course meant calomel in not less than ten grain doses, frequently repeated and often combined with tartar emetic, to favor fecal operation of the bowels. A favorite prescription was an equal mixture of castor oil, balsam of copaiba, and laudanum. Locally physicians used injections into the bowels of thin starch water with sugar of lead and laudanum, also warm fomentations and sometimes cantharides blisters upon the outside of the abdomen. If the patient survived the treatment, the doctors and the friends of the patient thought they had done their full duty. During the few weeks after my arrival in the town, I made a careful study of the few cases which, although not under my care, came under my notice, and made up my mind that if one came to me I would try to see what ipecac would do. By accident a young man stumbled into my office very sick with dysentery and wanted me to prescribe for him. I told him I had had no personal and previous experience of the disease and maybe he had better, as he was pretty badly off, try one of the old physicians. He answered that they were losing almost every case they treated and that he could do no worse with me and might as well die under my treatment as any other, so I took him under treatment. To the best of my recollection I did not give him any medicine internally except ipecac, beginning with doses of not more than two or three grains every two hours, increasing the dose about two grains each time as his stomach would bear without nausea. The largest dose I gave at the end was about ten grains, for which the stomach had full tolerance without nausea. This dose was continued until the end of the

disease. Warm fomentations were used upon the abdomen to relieve pain and a cold pack between blankets to reduce fever; but no anodynes. After following this course for about ten or twelve hours, the pain and the frequency of the bowel movement and the fever diminished in a marked degree, the skin became moist, the dryness of the mouth diminished, secretion from the kidneys became more abundant and lost its high color, and the patient began to be hungry and call for food; but more significantly, tenesmus gradually became lessened and healthy fecal matter became more and more abundant with gradual disappearance of blood and slime. The stools became normal and the patient convalescent. The report of my success spread far and wide and soon I was called all over the country, and do not recollect that a single patient was lost that came under this treatment in the early stages of the disease. I think that at least three or four hundred cases were treated by myself and other physicians who followed the ipecac treatment as I suggested. My idea in using the ipecac in this manner was to procure its relaxing effect upon the system at large, and so I gave small doses at first so as not to upset the stomach or cause nausea, and it was wonderful how tolerant the system became to its use. I think that to begin with such large doses as ten or twenty grains is a serious mistake and likely to defeat the end in view, as it is very important to preserve and improve the action of the stomach.

I entered the army as assistant surgeon of the Thirteenth Regiment Ohio Volunteer Infantry August 26, 1861, served with the regiment about one year, and in consequence of severe duty and hardships in Western Virginia, my health broke down. I was transferred to Nashville, Tenn., and placed in charge of General Hospital No. 8, Masonic Hall, which I organized, and had under my charge a large number of sick soldiers, with various disorders incident to camp life and of course many sporadic cases of dysentery. I remembered my old experience with ipecac and used it with success in all cases. Ipecac did the business every time and saved every case. I remained in Nashville about six months and was then ordered to Washington for examination and promotion, and was made Assistant Surgeon, United States Volunteers, ordered for duty to the Pacific Coast, and stationed at Fort Vancouver, Washington Territory, and in a short time was promoted to full surgeon of United States Volunteers with rank of Major. I was on the Pacific Coast about three years at different posts in Oregon and Washington Territory. I was ordered to Washington City for assignment and sent to Fort Dakota, now Sioux Falls, where I was mustered out of service, May 10, 1866, as Brevet Lieutenant Colonel, United States Volunteers. Again I was sent under contract to the Pacific Coast, stationed again at Fort Vancouver, W. T., and at other department posts, where I remained until late in the fall of 1869, when I resigned and settled at Salem, Oregon, where I still live and practise my profession. I was professor of the medical department of Willamette University for two years and expect to stay in Salem till I die, which cannot be many more years hence, for I am in my eighty-fourth year of age and have better health than most men of same age and am still able to attend to the few patients that see fit to call.

I have of late years learned for my own pleasure how to bind books and have thirty splendid volumes of your JOURNAL, all of my own work. They are much admired by my medical friends and I will continue to increase the number as long as I live and have strength, and when I retire to the great beyond, I think some good member of the profession will be glad to possess them in memory of the old doctor.

E. Y. CHASE, M. D.

GLYCERIN AND SALTS.*

An Open Letter to Dr. Beverley Robinson.

JAMESTOWN, N. D., July 7, 1914.

Dear Doctor:

I received a letter yesterday from Dr. J. F. Baldwin, of Grant Hospital, Columbus, Ohio. He says: "We have all been interested in reading Beverley Robinson's commendation of your treatment of acute infections. I suppose you must feel very much puffed up. His com-

*See this JOURNAL for February 14 and June 27, 1914.

munication will direct some further attention to it, and I suppose after a while its true merit will be determined."

I wish to thank you for crediting me with a contribution to medicine and I sincerely hope that further trial will be even more convincing. I had occasion to use it in a severe case just recently, that of a patient aged thirty-five years, housewife, who was seized with pain in the middle phalanx of the index finger of the left hand. First noticed the pain at 4 p. m. All that night she suffered and came to town at 9 a. m. She presented a finger tensely swollen throughout; temperature 101° F. The finger was opened and a small amount of pus evacuated. She insisted on leaving that morning for Flandreau, S. D. She was given a bottle of glycerin and salts. About ten days later, she came into the office with a hand that appeared to be half way between gangrene and a ripe tomato that a wide tired wagon wheel had run over. She was taken to the hospital and the finger was opened front and back and put in glycerin and salts. Two days later, she had a violent chill and her temperature rose to 104.6° F. I almost gave up, but stuck to glycerin and salts and saw no further trouble. She is now on the high way to recovery, but will no doubt have a stiff finger and may desire its removal later.

Her treatment during her absence had been very unsatisfactory. She had not applied the glycerin and salts continuously, but had used some other remedies, and I am sure that I should have opened the finger fully several days before had I been in attendance all the time. I doubt if a second opening would have been necessary had she applied the glycerin and salts religiously.

I can see no harm in an application extending over two weeks, or more if necessary. The very next case I have I am going to alternate with your borax and I shall be pleased to let you know my result. I am trusting that you and others may continue to find good results from glycerin and salts; it won out for me in this last case when I thought that the hand was almost a menace to the patient's life.

E. M. FREESE, M. D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Tropical Medicine and Hygiene. By C. W. DANIELS, M. B. Cantab., F. R. C. P. London, Lecturer on Tropical Diseases, London School of Tropical Medicine; London Hospital; London (Royal Free) School of Medicine for Women; Physician, Albert Dock Hospital, Seaman's Hospital Society; formerly Director London School of Tropical Medicine, etc. With a Chapter on Snakes, by A. ALCOCK, C. I. E., M. B., F. R. S., Lt.-Col. I. M. S. (ret'd.). In Three Parts, With Colored and Other Illustrations. Part II, Diseases Due to the Metazoa. Second Edition. New York: William Wood & Co., 1914. Pp. viii-278. (Price, \$3.)

Although many of the metazoan diseases may be primarily tropical, they are not at all uncommon in other parts of the world. Consequently any publication that deals in a thorough and up to date manner with this subject is of great value. This present volume fulfills all demands. The greater part, that dealing with the parasitic metazoa, is by Daniels, a chapter on snakes representing the work of Alcock. The various organisms are carefully described, the course of the disease and its symptoms given, and the methods employed in treatment are presented. The chapter on filaria is particularly good, and that on ankylostomiasis is also well done. The illustrations are good and the book in every way can be highly recommended.

Scrofulosis. By Prof. Dr. G. CORNET, Berlin and Reichenhall. Translated from the Second German Edition by J. E. BULLOCK, M. D., Assistant Medical Officer, The Eversfield Chest Hospital, St. Leonards-on-Sea. New York: William Wood & Co., 1914. Pp. xi-515. (Price, \$5.)

In this volume Cornet distinguishes specifically two forms of scrofulosis: 1. The tuberculous form, that due to the tubercle bacillus, and, 2, a nontuberculous form caused by other bacteria, mostly the staphylococci and the streptococci. There may also be a mixture of the two. After a

discussion of the conception and classification of this disease, the causative agents are reviewed. Other chapters deal with its infectiousness, symptoms, duration, prognosis and diagnosis, this latter being divided into that of the pyogenic and tuberculous types. An important chapter is one on prophylaxis, the last one hundred pages being devoted to a full presentation of the matter of treatment, open air, medicinal, and local. The entire subject is thoroughly reviewed and the book is one that can be recommended highly. There are probably few conditions that are more persistent and resistant than these lymphatic enlargements, and all information concerning them should be welcomed gladly.

Interclinical Notes.

Mr. Arthur B. Reeve, the well known writer of "scientific" detective stories, has *The Soldier of Fortune* in the July *Red Book*, which treats entertainingly of poisoning by mescal—the plant not the beverage. As a substitute for cocaine and heroine, if we may believe Mr. Reeve, it might be advisable to import large quantities of mescal, and appeal to narcomaniacs to replace their dangerous doses with this apparently harmless but fascinating drug.

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Where do the editors of the low priced magazines find such a word as overly? They would not permit one of their writers to speak of a character as being underly sized, for example. On page 513 of the July *Red Book* this superadverbial adverb appears. Another horrible word, used we believe by Bulwer Lytton, is *illy*. Writers who use *illy*, do not do well. Another grammatical point that interests us is the superfluous hyphen between ill and a participle, which is to be found almost without exception in the books of modern publishers. Ill is as good an adverb as well. In *Genesis*, xli, 2, one finds "well favoured kine"; no hyphen there. Why, then, should one write ill-advised, well-educated, or the like?

* * *

The beautiful pictures which show to such advantage on the large page of the *Metropolitan* again adorn the July number. There is an amusing, apparently true story of the history of a certain doctor's alleged discovery of the north pole. There is also a story by Madge Jenison, entitled *Head On*, which contains a woman physician of the following admirable kind: "Ardent, beautiful, sweet as a nut, with her nut brown eyes under lids like pointed white flames, with her rippling wing of hair in the same sweet, hot tones, with her tall grace and brave glance and white, expert sensitive hands—the scientist's hands which take account of a hair—. Why is she here, this woman," inquires Miss Jenison, "bending over her tubes and flasks and microscope instead of in a drawing room, with bowls of white hyacinths at her elbow?" Ah, why indeed?

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending July 15, 1914:

Akin, C. V., Passed Assistant Surgeon. Relieved from duty at the Marine Hospital, New Orleans, La., and directed to report to the medical officer in charge of the work for duty in the eradication of plague infection. **Bahrenburg, L. P. H.**, Surgeon. Directed to proceed to San Angelo, Texas, for the purpose of investigating suspected case of bubonic plague. **Clark, T.**, Surgeon. Detailed to attend the Second Biennial Conference of Health Officers of the State of Wisconsin, at Madison, July 16 to 17, 1914, for the purpose of presenting a paper on the prevention and treatment of trachoma. **Frost, W. H.**, Passed Assistant Surgeon. Authorized to instruct Sanitary Engineer H. W. Street-er to proceed to such places on the Ohio River Watershed as may be necessary to make investigations and collect data. **Hasseltine, H. E.**, Passed Assistant Surgeon. Directed to proceed to Richmond, Va., on request of State Commissioner of Health, to investigate suspected case of typhus fever. **Kerr, J. W.**, Assistant Surgeon General. Detailed to make an inspection of

the service operations for the prevention of trachoma in the mountains of Kentucky, with regard to present status of the work and with recommendations as to continuance or extension; also to inspect service operations in connection with investigations of tuberculosis in relation to industries in Cincinnati, Ohio, and the investigations of the pollution of the Ohio River. **Mullan**, E. H., Passed Assistant Surgeon. Granted two weeks' leave of absence from August 3, 1914. **Williams**, L. W., Surgeon. Directed to make an inspection of the medical examination of arriving aliens along the Canadian border from Buffalo, N. Y., to Victoria, B. C., in order to establish uniformity in the medical examination and use of instruments of precision in the diagnosis of diseases.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending July 18, 1914:

Barber, J. R., Captain. Ordered from Fort Huachuca, Ariz., to Yuma, Ariz., to relieve Lieutenant H. D. R. Phelan, Medical Corps. **Bispham**, William N., Major. Granted leave of absence for one month, effective when his services can be spared by his commanding officer. **Bliss**, R. W., Lieutenant. Ordered to Fort Huachuca, Ariz. **Boyer**, P. L., Major. Granted leave of absence for three months, effective about July 15th. **Bradley**, A. E., Lieutenant Colonel. Detailed to inspect conditions at coast defenses of Portland, Portsmouth, Ft. Ethan Allen, and Plattsburg Barracks, N. Y. Granted leave of absence for fifteen days effective July 20th. **Bratton**, T. S., Major. Leave of absence for one month heretofore granted is extended one month. **Connelly**, Philip B., First Lieutenant, Medical Corps. Is relieved from temporary duty in the Southern Department and from further duty at Ft. McPherson, Ga., to take effect at such time as will enable him to comply with this order and will proceed at the proper time to San Francisco, Cal., and take the transport to sail from that place on or about October 5, 1914, for the Philippine Islands for duty. **Doole**, Thomas P., First Lieutenant, Medical Reserve Corps. Is relieved from active duty in the Medical Reserve Corps, effective August 1st. **Dunbar**, L. R., Captain. Detailed for duty with Sanitary Detachment and First Field Hospital, Camp Douglas, Wis., July 18th to 25th. **Fielden**, J. S., First Lieutenant. Will proceed to Ft. Howard, Md., to arrive in time to relieve Major Paul C. Hutton, Medical Corps, for temporary duty. **Gibner**, H. C., Captain. Detailed for camp near Salt Lake City, Utah, August 2d to 16th. **Haverkamp**, C. W., Captain. Is granted two months and twenty days leave on arrival in the United States. **Hillman**, C. C., First Lieutenant. Upon arrival of Major D. F. Duval, Medical Corps, at Ft. Myer, Va., will proceed to the Field Artillery Camp of Instruction, relieving Major John H. Allen, who, on being thus relieved will proceed to Ft. Myer. **Phelan**, H. D. R., Lieutenant, Medical Corps. Ordered to Negales to relieve Lieutenant R. W. Bliss. **Rand**, Irving W., Detailed to camp at Sea Girt, N. J., July 18th to August 8th. **Raymond**, Thomas U., Colonel. Granted leave for one month, effective on or about September 1, 1914. **Seaver**, Edwin P., Jr., First Lieutenant, Medical Reserve Corps. Ordered to active duty and will proceed to Ft. Rodman, Mass., for duty during absence of Lieutenant Thomas C. Walker, Medical Reserve Corps. On return of Lieutenant Walker to duty Lieutenant Seaver will return to his home and will stand relieved from active duty in the Medical Reserve Corps. **Tarleton**, L. O., Lieutenant. Is relieved from temporary duty with the Eighth Brigade and will return to his proper station, Vancouver Barracks, Wash.; at the proper time will comply with the order to proceed to Manila.

Each of the following named officers of the Medical Corps will proceed at the proper time to West Point, N. Y., for temporary duty as an instructor in the department of military hygiene from August 28 to October 10, 1914, inclusive, and on completion thereof will return to his proper station: Captain Will L. Pyles, Captain Philip W. Huntington, Captain Arthur N. Tasker, and Captain Mark D. Weed.

Each of the following named officers is relieved from duty at the station specified after his name, to take effect

at such time as will enable him to comply with this order, and will proceed to San Francisco, Cal., and take the transport to sail from that place on or about October 5, 1914, for the Philippine Islands, and on arrival at Manila will report in person to the commanding general, Philippine Department, for assignment to duty: Major Jay R. Shook, Medical Corps, Ft. Logan, Cal.; First Lieutenant Thomas E. Scott, Medical Corps, General Hospital, Ft. Bayard, N. M.; First Lieutenant Thomas E. Harwood, Jr., Medical Corps, Army Transport Service, Galveston, Texas; First Lieutenant Samuel J. Turnbull, Medical Corps, Fort H. G. Wright, N. Y.; First Lieutenant Michael A. Dailey, Medical Corps, Fort Bliss, Tex.; First Lieutenant Oswald F. Henning, Medical Reserve Corps, Presidio of Monterey, Cal.; First Lieutenant Henry F. Philips, Medical Reserve Corps, Fort Bliss, Tex.

The following named officers are relieved from duty in the Philippine Department, to take effect on or about November 15, 1914, and will then proceed to the United States, and on arrival report by telegraph to the Adjutant General of the Army for further orders: Major James W. Van Dusen, Medical Corps; Captain Leonard S. Hughes, Medical Corps; Captain Albert S. Bowen, Medical Corps; Captain John A. Burket, Medical Corps; Captain Felix R. Hill, Medical Corps; Captain Ernest R. Genry, Medical Corps; First Lieutenant Albert H. Eber, Medical Reserve Corps; First Lieutenant Thomas S. Lowe, Medical Reserve Corps.

The following assignments of officers of the Medical Corps, effective on their arrival in the United States in compliance with orders heretofore issued, are ordered: Arthur, William H., Colonel, Medical Supply Depot, Ft. Mason, Cal.; Stark, A. N. Lieutenant Colonel, Ft. Logan, Col.; Wolfe, Edwin P., Major, Presidio of Monterey, Cal.; Field, P. C., Major, Vancouver Barracks, Wash.; Cooper, W. E., Captain, Ft. Sam Houston, Texas; Austin, T. C., Captain, Ft. Caswell, N. C.

Births, Marriages, and Deaths.

Married.

Buchanan—Warrick.—In Prescott, Ark., on Thursday, July 2d, Dr. Gilbert A. Buchanan and Miss Florence Warrick. **O'Neill—Bentley.**—In New London, Conn., on Saturday, July 11th, Dr. Owen O'Neill and Miss Ruth Bentley. **Margolies—Price.**—In Brooklyn, N. Y., on Sunday, July 12th, Dr. Michael Margolies and Miss Martha Price.

Died.

Bollinger.—In Lancaster, Pa., on Saturday, July 11th, Dr. William D. Bollinger. **Braman.**—In Clifton Springs, N. Y., on Saturday, July 11th, Dr. Charles B. Braman, aged fifty-three years. **Brown.**—In Skaneateles, N. Y., on Thursday, July 9th, Dr. John W. Brown, aged sixty-two years. **Claggett.**—In Baltimore, Md., on Thursday, July 9th, Dr. Samuel Claggett, of Petersburg, Md., aged forty-one years. **Eno.**—In New York, on Thursday, July 16th, Dr. Henry C. Eno, aged seventy-four years. **Grinnell.**—In Granville, N. Y., on Tuesday, July 7th, Dr. Mary V. Grinnell, aged fifty-nine years. **Houston.**—In Greenfield, Mass., on Friday, July 10th, Dr. Joseph H. Houston, aged fifty years. **Magruder.**—In Sandy Spring, Md., on Monday, July 13th, Dr. W. E. Magruder, Sr., aged eighty years. **Mitchell.**—In East Boston, Mass., on Friday, July 10th, Dr. John J. Mitchell, aged forty years. **Quimby.**—In Gloucester, Mass., on Friday, July 10th, Dr. Sumner F. Quimby, aged sixty-two years. **Redding.**—In Waycross, Ga., on Tuesday, July 7th, Dr. John H. Redding, aged sixty-five years. **Scholl.**—In Baltimore, Md., on Thursday, July 9th, Dr. George B. Scholl, aged twenty-nine years. **Steere.**—In Chicago, Ill., on Monday, July 13th, Dr. Harold H. Steere, aged forty years. **Stevens.**—In Scranton, Pa., on Saturday, July 11th, Dr. A. B. Stevens, aged fifty-seven years. **Sutphin.**—In Cave City, Tenn., on Tuesday, July 7th, Dr. P. C. Sutphin, aged eighty-nine years. **Webb.**—In New Orleans, La., on Sunday, July 5th, Dr. R. C. Webb, of Rayne, La., aged fifty-two years. **Wilkins.**—In Oakland, Cal., on Sunday, July 5th, Dr. J. N. Wilkins, aged eighty-three years.

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Original Communications.

TYPHOID FEVER IN EARLY LIFE.*

By J. P. CROZER GRIFFITH, M. D.,
Philadelphia,

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Although long admitted as a disease of frequency in later childhood, and to a less extent in early childhood, time was when the occurrence of typhoid fever in infancy was considered of the greatest rarity, or even denied. The passing of years changed all this; it seems no longer necessary to advance proof, as I have often done in the past. Series of cases in the very young have been reported by different authors, and a short time ago I published one,¹ perhaps the longest on record, of seventy-five cases occurring in children of two and one half years or less, seen in my own practice, or under the care of my colleagues and myself in the Children's Hospital of Philadelphia. Of course, no one has ever thought of asserting that typhoid fever is as frequent in infants as in adults.

With the existence of danger through infection to individuals of any age, it is evident that we cannot look too early into the possible means by which the germs may be transmitted. Numerous epidemics of typhoid fever spread by milk are on record; and since this article is such a prominent part of the diet of children, the care of the milk supply is of the utmost importance. A great danger, too, although less frequent, is that of house infection. The close association with other members of the family, the frequent handling necessary, and the like, make typhoid fever in subjects under one year of age often dependent upon the existence of house epidemics. The particular etiological influence of this, so far as infancy is concerned, is, however, overrated. My own experience, based upon the seventy-five cases referred to, indicates that there is no special tendency for infants more than older children or adults to manifest the disease in this way.

In one instance, of a child of nine months, it appeared likely that some member of the family was a typhoid carrier with a chronic infection. Another case illustrates well how careful we must be in every detail to insure that typhoid fever germs shall not be disseminated. This, too, was in an infant of nine months with a very typical attack of typhoid fever. She was bottle fed with unusually good certified milk from one of the best inspected dairies of Phila-

delphia. Not content with this, the mother used distilled water in preparing the food, and pasteurized the mixture. No one in the house had been a recent subject of the disease or had been in conscious contact with it. The only weak link was the habit of the mother of washing the child's mouth with the river water from the tap, and in this way, I believe, the disease was contracted. In another instance where every other possible precaution appeared to have been taken, the mother allowed the rubber nipples, previously boiled, to lie in a glass of unboiled river water. I may say that this occurred some years ago, before the present system of filtration of the water supply was established in Philadelphia and when infection from contaminated water was occurring constantly. In still another case in a child of eighteen months, living in a suburb of Philadelphia, the physician in charge could at first hardly credit the diagnosis, since there was, as far as he knew, no other case of the disease in the entire neighborhood, and the infant had not been away from home.

This is all that need be said in this connection about etiology. It may be summed up in a few words. However young the children, and however impossible it seems that typhoid fever could have been contracted, it is to be remembered that the chance often exists without our knowledge, and that no one thing is too small to be considered in the search for the method of infection.

For convenience of study we may divide the disease into three classes: 1. Typhoid fever in the infant; 2, typhoid fever in early childhood (two to six years of age); and, 3, typhoid fever in later childhood. The division is of importance because the symptoms, course, and prognosis vary with the three different periods of life. This remark applies, of course, to average cases only. Numerous exceptions are naturally to be found.

1. *Typhoid fever in infancy.* Taken as a rule, the onset at this period of life is decidedly shorter than later. It may be roughly stated as lasting from three to four days before the fully developed attack is reached, this being marked by the appearance of roseola or by the fever reaching its height. Indeed in about one third of the cases the onset may be called sudden. The temperature rises rapidly and is often at its height when medical aid is first invoked. There is rarely seen the steplike rise of the adult type. Vomiting is a frequent early symptom and in some cases is very troublesome; while diarrhea is oftener observed than at later periods of life, and is probably more frequent than constipation. Cough is not a very common early symptom nor is abdominal distention. Loss of appetite is

*Address delivered before the Pediatric Section of the Academy of Medicine of Northern New Jersey, January 7, 1914.
¹*Archives of Pediatrics*, August, 1912.

frequent; nose bleed is uncommon; there is not much prostration. Convulsions are rare, and an onset simulating meningitis is very unusual.

As regards the symptoms present after the attack has reached its height, it is to be noted that vomiting is comparatively frequent; diarrhea continues to be oftener seen than constipation; coating of the tongue is common, but dryness and fissuring are very exceptional; there is not much loss of appetite, this depending perhaps upon the presence of thirst; abdominal distention is frequent but not troublesome. Of respiratory symptoms, cough dependent upon a bronchitis is perhaps that oftener seen, but is seldom a matter of moment, and certainly less common than in adults. Epistaxis does not often occur now or at any time in infants with typhoid fever. The pulse maintains its strength except in the severer cases. Nervous symptoms of the nature of depression are not at all a prominent feature in infancy. It is noteworthy, for instance, how comparatively uncommon are such nervous manifestations as decided dullness, apathy, or unconsciousness; and it is only in the severer cases that there is marked prostration. On the other hand, the manifestations of nervous excitation are oftener seen at this time than later, these being irritability, fretfulness, and crying. They are, however, seldom sufficiently severe to be a matter of importance; convulsions, for instance, being observed only infrequently.

Roseola is perhaps as frequently seen in infancy as later, and, as far as this can be determined accurately, tends to appear earlier in the attack, oftenest somewhere from the fourth to the sixth day; and the same is true of splenic enlargement; all this being in accord with the shortness of the onset to which I have referred. The condition of the blood is interesting at this time of life, not forgetting that the number of leucocytes per c. mm. is naturally higher in infancy than later. Allowing for this difference, we find an absence of leucocytosis as characteristic a symptom of typhoid fever at this time as in adult life. The Widal agglutinative reaction is as common and characteristic now as later.

The temperature curve and the duration of the disease in infancy are interesting. The temperature is not characteristic and many variations are witnessed. After the rapid rise seen in the onset, it may continue elevated from 103 to 105° F., little influenced by bathing, for a week or more; then becoming more prone to be irregular. In other very numerous cases the temperature is very irregular throughout. The final fall of temperature is often rapid, almost by crisis in many instances; while in others it is slower. The fall is always, however, more rapid than in adult patients, lasting only three to four days and being without the evening rise and morning fall seen in later years. The total duration of the attack is three weeks or less. In a large number it does not exceed two weeks; this being true in one third of the seventy-five cases in my report already referred to.

2. *Typhoid fever in early childhood.* I have dwelt at some length upon the symptoms of typhoid fever in infancy because they are more important and often less understood. The disease occurring in early childhood, that is from the end of infancy up

to the age of six years, needs less detailed description. It is now that one expects the attack to run its mildest course. The onset is not so sudden as in very many cases in infancy, but nevertheless is often short and abrupt. The attack may occasionally be ushered in by convulsions, or may exhibit in some instances for a few days meningitic symptoms which are very confusing in diagnosis. In more cases, however, the onset is remarkably insidious, with symptoms so little marked that nothing of importance is suspected until, perhaps, the roseola and enlarged spleen are found. It is thus frequently difficult to determine when the attack commenced.

In the eruptive stage there is generally an absence of the evidences of the typhoid state so common in adults. Nervous symptoms are little marked; there being at most, as a rule, only a certain degree of apathy, with, perhaps, slight nocturnal delirium. Diarrhea is less frequent than in either infancy or later childhood. Dryness of the tongue is rare. Vomiting is more common than in adults. Abdominal distention is seldom troublesome. The temperature is more suggestive of typhoid fever than in infancy; but the third stage is always short and without any remittent character. The total duration of the disease may be put at two to three weeks. Complications are not frequent. To all this there are, of course, numerous exceptions; and I have known typhoid fever at this time of life to be very severe.

3. *Typhoid fever in later childhood.* In later childhood, after the age of six years, the disease gradually approaches the adult type more and more as puberty is approached. This is especially true after the age of ten years. Diarrhea is now often troublesome, the result of the greater degree of intestinal ulceration present at this time of life. Hemorrhage and perforation are more liable to occur than earlier. The symptoms of the typhoid state are more likely to develop, yet not to the extent seen in adult life, and only in severe cases. The course is longer than before; frequently equalling the ordinary four weeks of the adult; and the temperature of the third stage has often more of the remittent type.

Complications. A few words more in detail regarding some of the complications of typhoid fever in early life: Bronchitis is so common that it may be called a symptom of the disease. I have seldom, however, found it severe. Pneumonia is, perhaps, less frequent than in adults. I have seen severe laryngitis make a child aphonic for weeks; and rarely perichondritis of the larynx or ulceration occurs, with stenosis. The circulatory apparatus usually shows few complications. A hemorrhagic tendency, with purpura and the like, is very uncommon in infancy and childhood. I have seen epistaxis so severe that it could, with reason, be called the cause of death; but this is certainly very rare; and epistaxis either in the onset or later is not as frequent as in adults. Noma, although uncommon, is more likely to occur after typhoid fever than after any other affection except measles. I have come across a number of cases of this shocking condition. Severe diarrhea is not infrequent in later childhood; and may be troublesome in infancy. Intestinal hemorrhage is certainly much less often seen than in adult life. Cortinesca reports

it twenty-two times in 762 cases of typhoid fever in children. My own experience, however, would make it more frequent in later childhood than these figures show. I have even observed severe hemorrhage in an infant of five months. Intestinal perforation is usually considered very uncommon, and is indeed so, compared with the frequency seen in adults. Thus Hensch observed it but once in 381 cases. I have been unfortunate in having had ten cases, the youngest in a girl of four years. Generally, however, it occurs, if at all, only in later childhood. Nephritis is less often witnessed than in adult life and a true meningitis is very unusual, although meningitic symptoms are not infrequent, especially in the early stages of the disease in subjects past the age of infancy. The possibility of the occurrence of other infectious diseases as complications is not to be forgotten. I have observed, among other diseases, scarlet fever, measles, diphtheria, and cerebrospinal fever respectively, associated with an attack of typhoid fever.

Relapse is certainly as frequent as, and perhaps even more so than in adult life. I have the records of one child of three and one half years with three relapses. Youth does not militate against the occurrence, and I recall one instance in a girl infant of nine months.

Regarding the question of prognosis it may be stated that on the whole the prognosis in early life is good. The statistics published vary considerably, with a death rate even as low as one per cent. Of 432 patients in the Children's Hospital of Philadelphia during fourteen years, twenty-three died, i. e., a mortality of 5.32 per cent. In Morse's 284 collected cases in children, the mortality was six per cent, against 13.5 per cent. in 3,396 adult cases. The age of the child has a distinct bearing on the mortality. In the first two and one half years of life the death rate is comparatively high. Thus in 278 published cases collected by Ostheimer and myself,² the mortality was fifty-one per cent. This is not a representative figure in all respects, since doubtless many milder cases of the disease were unrecognized, or, if recognized, were not considered worthy of publication. In the seventy-five cases of my own report the mortality was sixteen per cent. The mortality is at its lowest in early childhood, probably not exceeding two to four per cent. It increases as puberty is approached.

Diagnosis. The diagnosis presents many difficulties, especially in infancy. It rests upon the presence of a continued fever without other discoverable cause; the absence of leucocytosis; the presence of rose spots and enlarged spleen, and of the agglutinative reaction; and sometimes the occurrence in family outbreaks. With this association an error in diagnosis is hardly possible. In more obscure cases the diagnosis should rest especially upon the obtaining of a positive agglutinative reaction, although the absence of this by no means excludes the presence of typhoid fever. A low leucocyte count is a diagnostic symptom of great importance; but a high count does not exclude typhoid fever, since there may be some complicating inflammation present.

Most difficult in infancy is the diagnosis from ileocolitis. The presumption is always in favor of the latter disease, since it is so many times the more common; but presumptive evidence is no evidence at all for the individual case. Both diseases show diarrhea, often tympanites, some fever, and perhaps enlargement of the spleen. There is generally a leucocytosis in ileocolitis and the disturbance of the bowels is more severe; but only watching the course of the case and especially the discovery of rose spots and a positive agglutinative serum reaction can make the diagnosis of typhoid fever certain.

Another disease causing great diagnostic difficulty at any period of childhood is acute miliary tuberculosis. I have repeatedly been unable for a considerable time to come to a conclusion. This disease exhibits a low leucocyte count; enlargement of the spleen; continued fever; and no discoverable lesion to account for the symptoms. The cutaneous tuberculin reaction cannot be depended upon in this condition. As the disease advances all doubt is removed by the continued absence of rose spots and agglutinative reaction; the persistence of fever over too long a period; and, finally, the development of distinct localizing symptoms of tuberculosis in some part of the body, often the meninges.

Still another diagnostic difficulty is the existence of continued fever depending upon influenza or some influenzalike condition, or upon an intestinal autointoxication. Apart from the development of rose spots and the positive Widal reaction, there is nothing but time which will permit of reaching a conclusion probably correct.

Treatment. Our first treatment of typhoid fever is prophylactic and the nature of this follows from the nature of the causes as described. Attention to the small details is the keynote. The source of the milk supply should be known and watched. Pasteurizing or sterilizing is certainly to be employed when typhoid fever is prevalent or when the conditions of the dairy from which the milk comes are unknown. Equally important is the use of water which is above suspicion; and when such cannot be obtained, all water used for drinking, bathing, washing of vegetables, and the like should be boiled; and this also applies in infancy to the washing of bottles and rubber nipples. At any age one must remember the uselessness of care in this direction if unboiled water is used for washing the mouth either with a cloth or a toothbrush. In older subjects the ingestion of uncooked vegetables, such as celery, lettuce, turnips, radishes, and the like, which have been fertilized with human manure, is certainly a not infrequent cause of typhoid fever; while infection by raw oysters is a well known source of the disease. When typhoid fever is prevalent, the employment of preventive inoculation, as recommended by Wright and others, is worthy of serious consideration. It has proved undoubtedly useful in army practice, and has been successfully employed to some extent in civil life.

If there is a case of typhoid fever in the house, the greatest precautions should be taken to prevent the extension of the disease. This is to be accomplished by strict disinfection of the bed clothing, body clothing, urine, and feces of the patient, and of the hands of the attendants.

²American Journal of the Medical Sciences, November, 1902.

For the treatment of the attack at any age, the therapy is to be purely expectant. Few of us have any faith nowadays in the value of efforts to disinfect the intestinal tract in the hope of preventing resorption of germs. In all cases, but especially in children, where the degree of mortality is less, the great principle of treatment should be *non nocere*. If you cannot do good, at least do no harm. Over-treatment is a widespread evil, and drugs are given to combat every individual symptom. This is entirely wrong. Rest in bed is imperative even in the mildest cases. The diet should be light and digestible, and above all sufficient. The wasting and weakness seen after recovery from typhoid fever are often purely the result of starvation. Four ounces of milk every three hours is not sufficient for any child in a disease as long continued as typhoid fever. Much has been said of the danger of milk through the production of tympanites and an increase in the severity of the general symptoms. I may fairly claim a large experience in typhoid fever in children, and I may say that I have found no ground whatever for this belief. Milk may sometimes produce tympanites, but so may the carbohydrates or any other food. This does not in any way mean that milk should of necessity be the only article of diet, although it is often the best. Frequently more concentrated nourishment is required, such as cereal porridges of different sorts, except oatmeal if there is diarrhea; junket; rice pudding; milk toast, and broth. As regards broth, it is important to bear in mind that a clear broth has practically no nutritive value. As I often tell parents, the value of a broth as food depends upon what you *put into it*, not on the broth itself. Rice, barley, or other starchy substance in considerable amount should be added before use; and the broth should be prepared in such a way that the meat fibre is left in it in a finely divided state. Drinking water should be given freely in all cases except where a child is willing to take water but nothing else. Here the refusal of water will often force the patient to take milk for the sake of quenching his thirst. Rest of mind is as important as that of the body; and the opportunity for plenty of sleep should be given. Here comes into consideration the advisability of waking a child for the sake of giving food or medicine. Every case is a rule to itself; but undoubtedly in many instances the allowing of a certain irregularity in the administration of nourishment or of medicine or treatment of any kind is advisable in order not to disturb a refreshing sleep. This applies, of course, less to the very severe cases, where the greatest regularity may be necessary.

As regards the treatment of fever, it is well known that high temperature of short duration is generally well borne by children. In typhoid fever, however, the course is longer and the fever in itself exhausting, and often accompanied by nervous symptoms. Efforts should consequently be made to keep the temperature within reasonable bounds. Sponging with cold water may be employed for this purpose; but to do any good it must be continued for at least fifteen minutes. This is often disagreeable to the child, and is productive of crying with consequent excitement and fatigue. In most cases, therefore, the warm tub bath at a temperature of

98° to 100° F. is much to be preferred. Friction of the body should be given while the child is in the bath as in the ordinary Brandt method, and the head kept cool by an ice bag or cold wet cloths; but early in life the true cold or cool bath is usually not at all well borne. Indeed, even the warm tub bath not infrequently is followed by increased rapidity and weakness of the pulse with imperfect reaction and cyanosis. In such cases it is best to abandon it altogether. Always to be remembered is that it is not so much the reduction of the temperature which is sought for by the use of the bath, as the allaying of nervous symptoms and the improvement of the general condition. If this improvement is not obtained, hydrotherapy is of little value. It should never be employed as a routine measure.

Sometimes in place of the bath the cold pack is efficient and disturbs the child but little. In other cases, the continued application of an ice bag to the abdomen is useful, the skin being protected by one or more layers of toweling. In exceptional cases, where hydrotherapy is not well tolerated, good effects, both on the temperature and the nervous symptoms, follow the repeated administration of small doses of the coal-tar antipyretics. I have no such fear of these as possesses many physicians; but I seldom find them necessary.

The milder and even the average cases require practically no internal medication. Spiritus ætheris nitrosi or some such febrifuge may be prescribed in private practice to relieve the mind of the mother, inasmuch as it is harmless to the child; but it has little other effect. In the severe cases, or in any patient who is beginning to show the debilitating effect of the disease, moderate doses of alcoholic stimulants are, in my opinion, of great benefit as a conservator of energy. The indication for these consists in prostration, weakness of the pulse, nervous exhaustion, and impairment of the first sound of the heart. It is not always well, however, to wait for these, since it is far easier to maintain a fair condition of the circulation by moderate stimulation than it is to revive it if it has commenced to fail. While, therefore, being far from recommending alcohol in every case, I feel that the opposition to it in certain quarters is worse than not well founded; it actually militates against the patient's recovery. Severe cases of cardiac weakness are best treated with digitalis; and, in emergency, camphor and caffeine hypodermically. Of strychnine I make little use in typhoid fever in children. It has often seemed to me to produce symptoms of excitation, and I believe it to be much overrated in cardiac weakness in this or other debilitating diseases.

Vomiting seldom requires treatment. The replacement of other food by weak broths, cereal decoctions and albumin water may be employed for a short period; while at the same time any drug capable of producing the symptom, such as digitalis, is withdrawn and any medication necessary given hypodermically. Although tympanites is not infrequent in infancy and in later childhood, it is not often sufficiently distressing to demand relief. Turpentine stupes, the rectal injection of asafetida or the employment of the rectal tube is frequently of benefit. Diarrhea, if of moderate degree, say four to five stools in twenty-four hours, hardly needs

treatment. If the stools are more numerous, or are large and watery, they may usually be checked by the administration of some astringent or of a small amount of opium. One must not, however, lose sight of the tendency of the latter drug to produce tympanitic distention. Constipation is often present and is then better treated by local measures than by purgatives. Of course, all injections must be given with great gentleness.

Nervous symptoms at times require treatment, but not as often as later in life. Delirium, stupor, great restlessness, headache and the like, as seen at times in later childhood, if associated with high temperature are often benefited by hydrotherapy. In other cases small repeated doses of the bromides or of antipyrin are serviceable. A warm evening bath may give a quiet night.

As to the therapy of complications and sequels, I need not speak in detail. They require the treatment appropriate to them. Regarding convalescence, apart from the frequent need of iron and other tonics and of change of air, there is one matter to be emphasized pertaining to that final stage of typhoid fever, in which, in reality, convalescence may be said to have begun. It not infrequently happens that after typhoid fever has run its course, and all other symptoms have disappeared, there still continues an irregular febrile temperature of moderate degree, perhaps about 100° or sometimes a little over this, even reaching at times, it may be, 101° F. After careful search has excluded all complications, such patients are frequently benefited by getting them out of bed. I have repeatedly seen this course followed by cessation of all febrile reaction; and conversely I have known children to be kept in bed on account of this slight febrile curve, long after rest in bed was doing them only harm. The same is true of the slow irregular pulse not infrequently observed in the early part of convalescence, after the temperature has reached normal. Children are sometimes confined to bed indefinitely on the ground that this condition is a sign of myocardial change or other affection of the heart. As a rule, this is not so, and getting the children out of bed cautiously will generally cause the irregularity to disappear. None of this, of course, means that a child should be taken from bed immediately on the cessation of fever. Such a procedure, or the submitting the patient to any other excitement or exertion, may at this stage produce an exacerbation of fever.

1810 SPRUCE STREET.

The Adrenals and the Pulse Rate.—The assertion that the adrenals slow the pulse rate is disputed by Dr. R. G. Hoskins and Dr. C. R. Lovellette, of Chicago (*Journal A. M. A.*, July 25, 1914). Normal epinephrine discharge, they say, can be closely simulated by injecting the drug slowly into a femoral vein. They have experimented in this manner on dogs and give a tabulation of their results, which are summed up as follows: "Intravenous injections of epinephrine under conditions closely simulating adrenal discharge cause not only increased blood pressure, but, generally, also accelerated pulse. Acceleration of the pulse, therefore, is one of the adaptive functions of the adrenal glands."

CARDIAC HEADACHE.*

Description and Treatment.

BY LOUIS KOLIPINSKI, M. D.,
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When we record the anamnesis of a patient with chronic headache, we describe one of several types, distinct and vivid enough, but whose primary cause is often not perceived and not apparent to the sufferer even of a lifelong malady. Thus we observe some subjects who are seized with a headache in daily, weekly, or monthly paroxysms. The pain is in the forehead or occiput, a local spot or the whole cranium. It is dull and diffused or very acute. It may be boring, blinding, splitting, or bursting. There may be nausea and vomiting. No exciting cause may precede, or mental excitement, bodily exertion, or errors in diet are obvious. In some cases there is habitual or acute constipation. In each attack the room or bed is guarded. The ever recurring headache may last a lifetime. Beside subjects in seeming normal health who are its victims, in others will be found a nervous constitution, the neurasthenic and dyspeptic for example. In still others there is obstructive disease of the nose or refractive error of the eye.

This headache whose treatment is difficult and the result unrequiting to one's labor is the *habitual* or *nervous headache*. In a second class there is a pain in the head of a very severe degree. In typical instances it is always one sided. The scalp is hyperesthetic. There is acute nausea and persistent mucous, bilious, or acid vomiting. There is much muscular prostration. Before the pain in the head is felt, an aura, usually of vision, is perceived, scotoma, hemianopsia, flashes of light or colors, diminution of objects in size. The patient prostrated in bed, is intolerant of motion, light, and sounds.

The headache beginning in childhood is commoner in females. In many cases there is direct parental transmission, oftener through the mother. Among exciting causes may be found fatigue of brain or body; anger, apprehension, and grief; fasting or foods which are for the subject indigestible. Its essential cause is undiscovered. An autointoxication is held by many to be a primary agent. Others hold it to be a cerebral congestion from temporary closure of the foramen of Monro; others again that there is a hereditary disproportion between capacity of the skull and volume of the brain. There are those who believe that in this headache there is a vasomotor disturbance of the sympathetic nerve of a spastic form (Du Bois Reymond) or of a paralytic stage (Moellendorf). Thus from spasm the skin of the face is cool and pale. The arteries of the head are contracted as seen in the temporal. The pupils are dilated and the salivary secretion is lessened. From paralysis the face is hot and red, the pupil contracted, the arteries are pulsating strongly, the skin on the painful side is perspiring. This headache lasts from half a day to two weeks, and occurs about once a month, in females at the time of the menstrual flow.

First described by Aretæus in the second century,

*Read by title at the Fifteenth Annual Meeting of the American Therapeutic Society, held in Albany, N. Y., May 29 and 30, 1914.

it is hemicrania, migraine, or sick headache. Obscure in origin like the first, it persists a lifetime, from childhood to old age, and baffles or defies the ordinary treatments of the past or present. Flatau, in his monograph *Die Migraine*, describes this chronic headache in six forms: Common migraine, ophthalmic, epileptic, psychic, ophthalmoplegic and prosopoplegic. Its pathogenesis is considered theoretically by him as reflex, sympathetic (vasomotor), central or cerebral, and toxic or toxemic. He thus concludes his work: "From all of these reasons we may believe that migraine is neither clinically nor pathologically an autonomic disease, but only a syndrome which may be held to be a form of expression of a congenital predisposition to pathological neurometabolic processes that is a congenital neurotoxic diathesis. The ductless glands play perhaps an important role."

The migraine paroxysm depends on pathological brain mechanism not localized or confined to one pathological process. Moreover, it must be assumed on the one hand to be multilocular, that is, affecting different brain areas, on the other hand, passing through different morbid processes, especially that of increased pressure of the cerebrospinal fluid like that in Quincke's angioneurotic hydrocephalus. Further, migraine must be considered a disease in which, from analogy of predisposition, other similar diseases and morbid processes may appear in other brain areas and parts of the body leading to other special neurometabolic syndromes. Thus the kaleidoscopic picture of migraine, the polymorphism of the accompanying and interparoxysmal symptoms, and finally the conjunction of migraine with other diseases become clearer. Flatau's treatment of migraine concludes: "To future therapy is reserved the discovery of the true basis of the disposition to migraine and the deeper knowledge of the pathological processes."

Habitual headache may be held to be distinct from migraine in that the second is one sided, with vomiting of bitter or acid fluid with preliminary visual disturbance. Migraine is of marked hereditary transmission and more common in women and children. Hemicrania or migraine is the most frequent of all the chronic headaches; moreover, by rigid adherence to the differential symptoms, migraine becomes more common, habitual headache less and less. Of other chronic headaches the neurasthenic may be a third variety unless classed with the habitual. In it there is no acute pain in the head, but a feeling of oppression and constriction. There is no gastric disturbance. It is an integral part of cerebral neurasthenia.

Another protracted headache is that which has been called the nodular, rheumatic, or induration headache.¹ The majority of such headaches are in middle aged females with no hereditary predisposition. Freedom from pain is rare, and intervals of ease are not felt. The pain is in the whole head, beginning in the occiput and radiating to the shoulders. The suffering is worse at night, and in changeable weather, like neuralgic or rheumatic pain. There is no impairment of the vision, no vomiting. The internal organs are healthy. What

marks this headache as unique is the finding by palpation of certain very tender nodules of infiltration (myositis), from the size of a millet seed to that of a bean, in the subcutaneous tissue and fascia of the occiput, the neck to the shoulders, and the upper part of the back. These nodes are less common in the frontal and temporal regions. Furthermore infiltrations like callosities are found in the course of the superior nuchal line of the occipital bone and in the mastoid process where the occipitofrontalis and larger cervical muscles are inserted. Both sides are equally involved. The infiltrations attain the size of a hazel nut or almond and are very tender. The muscles affected are the trapezius, sternocleidomastoid, splenius, scalenus posticus, occipitofrontalis, and temporal.

Those who identify the nodular headache as special, differentiate it from migraine and the other varieties of this chronic malady, in that it is not inherited, not found in childhood, the pain is pre-eminently occipital and continuous, always bilateral, never with aura or gastric irritation; finally, by the detection of the nodules in the scalp and local muscles, and the curing of the headache by massage.

The last chronic headache to consider is that from eyestrain. It may arise from over use of the normal eye or from exhaustion of the internal recti and of the muscles of accommodation. The pain of the eye and forehead may become diffused over the head. The muscle spasm of over use may engender the luminous scotoma and disturbed vision of migraine. Hyperopia, presbyopia, astigmatism, and anisometropia are also causes of headache from direct ocular defects.

By far the most frequent and best known of the chronic headaches is migraine. The habitual comes next, but where neurasthenia and hysteria are recognized, it is but rarely seen. The nodular or rheumatic is very rare, with its entity not so clearly fixed as to convince the doubter of its reality, the more so where massage as a cure is not too highly prized. Since migraine may appear in incomplete form, the visual aura absent in one case, vomiting in another, since in migraine the pain may be in the occiput and not at all in the forehead, since finally in this same migraine the scalp is tender and sometimes painful nodules can be felt in the scalp and neck, strong doubts arise as to the absolute distinctness of the habitual and rheumatic forms. The headache of eyestrain is likewise rare because the use of glasses for visual defects is so general that unrecognized instances are rarely found except in the very young. It will moreover be observed that the subjects of chronic headache are provided early in their affliction with lenses for correcting errors of refraction.

The different features of the varieties of chronic headache, the obscurity of their origin, their vague and different causes, their obstinacy in recurring, their perennial duration, their baffling and discouraging treatments, all combine to make them a field for further labor. For even migraine, than which no malady is more sudden and acute barring its next of kin, an epileptic convulsion, has no fixed or determined history, and observation must make it plain that this headache is not a particular disease

¹Sigmund Auerbach, *Headache*, translated from the German by Ernest Playfair, London, 1913.

but can be artificially produced by the toxic actions of several drugs, e. g., tobacco and digitalis. The toxic actions of these poisons may be acute or chronic and from the chronic detrimental effects of tobacco are found headaches, habitual or nervous and migrainous, and neuralgias of both face and head. With tobacco headache there is always a tobacco heart, a mild myocardial depression or degeneration, which evinces itself later on with the other heart symptoms of nicotine poisoning. That the vertigo, headache, scotoma, disturbed vision, nausea, and vomiting of digitalis poisoning as well as the slowed, rapid, or irregular pulse are all secondary to its action on the heart, stands beyond question.

When we make a careful and deliberate physical examination of the chest of a subject of chronic headache we find the sounds of heart weakness. As a strong or normal heart is here never found, this statement is without exception. The heart is weak from birth or weakened by antecedent disease. The heart may be congenitally small, may be enfeebled by strain or labor, may be lessened in tone and vigor by disease or degeneration. There may be perceived organic valve defects, anemic murmurs, irregular, too rapid, or intermittent heart contractions, faint or absent sounds or apex impulse. In short, chronic headache means myocardial disease, weakness, or poisoning which has not advanced to inadequate compensation, to cardiac insufficiency, to the asystolic stage. Chronic headache is the most marked and persistent of the symptoms of weakness of the left ventricle of the heart, and the causes of this failing cardiac adequacy are the ultimate causes of chronic headache. A weakened heart before much dilatation causes headache, neuralgia of the face and head, nervous dyspepsia, vertigo, mild dyspnea on walking up hill, general exhaustion, muscular fatigue, muscular rheumatic pains, and eyestrain.

In bronchial asthma there is mild dilatation of the ventricles, more of the right one with mild and transient emphysema. Conversely, the ventricles, slightly dilated, produce a cardiac asthma difficult to distinguish from the spasmodic. In lesser degrees of severity and duration and of greater clinical importance, these weak ventricles result in bronchitis, not chronic but of lengthened duration. Finally from heart weakness result hemorrhoidal disease, eczema of the lower limbs, varicose ulcer of the same, local cutaneous edemas, and chronic urticaria.

In the grave stage of heart disease, headache is not felt; in the obscure early stage it is both important and significant. From this it appears that habitual or nervous headache, neurasthenic, hysterical, nodular or rheumatic, hemispheric or migraine, and the headache from over use of the eyes or from visual defects, are in most instances, practically in all instances, caused by a weak heart. The view offered by this pathology discloses a number of facts pertaining to headache otherwise of obscure origin, as it makes the generic term cardiac headache correct and appropriate. The main facts and reflections hence are these:

The lifelong duration of chronic headache depends on the lifelong weakness of the heart. We

read of chronic headache with the dissatisfying treatments and gloomy prognosis, where nothing will help, but the victim finds spontaneous relief or cure with beginning old age. This is a statement of a sardonic kind. For many malcephalics do not reach that time for various reasons, and those who escape the natural period of chronic headache enter the narrow domain of cardiac incompetency or sudden death.

Cardiac headache is a headache with fatigue as its chief exciting cause; the weak heart and weak muscular system when exercised tire out. There are feelings of lassitude, weariness, and exhaustion. Often the muscles ache with dull or acute rheumatoid pains. The subject retires to rest and awakens in the morning or shortly after midnight with an attack of headache, occipital, nervous, nodular, or a migraine with one, two, or three phases of a paroxysm, disturbed vision, headache, vomiting.

If headache is held to be an irritation of the fifth cranial nerve and branches, is cardiac headache due to anemia or hyperemia? It is a medical fact that nicotine, a heart sedative and depressant, can produce a similar paroxysm. It is also well known that anemia of the fifth nerve is the most frequent cause of facial neuralgia. Now headache and this neuralgia from the same or a similar cause are sometimes found alternating or succeeding in the one case, and are curable by identical treatment. Therefore cardiac headache is due to an anemia of the brain or cranial nerve.

Since fatigue or muscle tire is the great exciting cause, there follows a variety of intrinsic acts and motions that bring on headache by enfeebling the languid heart muscle, the abuse of tobacco, of alcohol, of anilin derivatives in "headache powders," or close rooms and summer heat, long walks, dancing, late hours, prolonged exercise, work, sleeplessness, anxiety, grief, anger, loud speaking, shock, alarming news, fasting, the eating of food indigestible to the patient, constipation; in fine, all the voluntary and involuntary acts of life requiring muscle and heart effort.

Eye fatigue in a normal eye from over use or eyestrain, from effort at accommodation, from refraction defects, must often be considered analogous to general muscular fatigue, and it can be observed that almost every patient with chronic headache wears glasses.

Chronic headache as illustrated in migraine is hereditary, as is the weak heart. It is much more frequent in females, who are naturally less robust than males, the heart and whole muscular system less strong and resisting than in the other sex. The exciting causes are obviously the many acts and states, mental and physical, which comprise life, its diseases and intoxications. The female is prone to headache at the menstrual period, an exhausting phenomenon. Sexual congress may likewise produce it in either sex. The woman in pregnancy with normal heart hypertrophy becomes for the time immune.

Migraine begins after midnight or in the morning on awakening from sleep, after the exciting cause of depression has acted sufficiently long the day before. The nausea and vomiting of migraine and the overacute state of smell, sight, hearing, and

taste are obviously due to cerebral irritation or exhaustion. The patient feels it necessary to lie quietly in a dark and silent room. Cardiac headache may be accompanied or replaced by the *tic douloureux* and introduced or followed by severe vertigo. In these cases the heart lesions are always manifest and heart insufficiency comes on later.

As further symptoms directly caused by altered cerebral vascular circulation in cardiac headache, we can identify these accessory manifestations in old and complete migraines: Amblyopia and scotoma, transitory tingling and numbness in face and hand, transient monoplegia and facial paralysis, tics and aphasias, Jacksonian epilepsy, and epileptiform convulsion and unconsciousness.

Migraine,² followed by epilepsy, has been much discussed and disputed. Many observers admit the fact, but do not explain the mystery. Migraine, as chronic headache, may be followed by the epileptiform convulsions of elderly or aged persons, but not preceded or associated with true idiopathic epilepsy. The epileptiform convulsions are obviously due to a graver heart lesion, as are other associated and subsequent manifestations of the same defect; asthma cardiacum, angina pectoris of dilatation or sclerosis, retinal hemorrhage or thrombus, and finally apoplexy, that is, cerebral cardiac embolus with convulsions, transitory monoplegia or paraplegia, Jacksonian epilepsy, aphasias, and ataxias.

From this description of chronic or cardiac headache it is plain that the treatment must be recast. Some things may be relegated to disuse, others avoided as dangerous. The prime indication in the treatment of a headache or its analogue, a facial neuralgia from a weak or weakened heart, is to strengthen, support, or, if possible, to restore it to normal. This can alone be done where the many acts in life which overtax this heart and weaken it still more, are persistently and intelligently avoided. Where eyestrain is found glasses must be used. If obesity is present the weight must be brought to normal. If tobacco is used it must be given up. This applies in every case of cigarette smoking and to this petty and enfeebling vice when practised by females. The weakened heart of chronic nicotine poisoning is a counterpart or double of organic myocardial weakness, and it is impossible to separate or distinguish one morbid state from the other until the tobacco poisoning is eliminated.

Rest of the body must be practised as a daily system. One who works must retire at nine or ten o'clock and arise at seven. For one incapable of work or who lives retired, the afternoon rest must never be omitted. The afternoon rest in heart weakness is taken from two or three to five p. m. A bed or couch must be occupied, a reading table may be at hand. If the brain is active or vigorous, the time is spent in reading, study, or writing. If muscle fatigue is present, the patient may doze or sleep. Afternoon sleep indicates accurately and absolutely a marked degree of exhaustion. Sleep or drowsiness in the afternoon does not occur when the subject possesses more muscle tone and strength, i. e., a stronger heart. Where the after-

noon rest is not taken, where the patient is engaged in business or work, the daily hours of lying down should still be as long as possible. Twelve continuous hours of rest are not as helpful as the same number of hours of the afternoon and night. The afternoon rest, which is an adaptation of the tropical siesta, a physiological habit, is of great benefit in the treatment of all heart diseases not in an acute or grave condition.

Medicinal treatment is essential to cure a chronic headache. There are two remedies of similar action which will accomplish this. Digitalis is the first. It should be given in a single dose, repeated in one or two days, and continued for months and years. The powder of the leaf, its tincture, fluid extract, or infusion may be prescribed. Far better than these is digitalic acid, the acid resin of digitalis described by the writer. A single daily dose of one thirty-second or one sixteenth grain of it or of its sodium salt may be given for an indefinite time.

Rest and digitalis cure cardiac headache. Even improvement or occasional cure results, but the obstinacy of this afflicting malady is so inveterate that the patient does not receive fair and full attention where they are not combined. Now and again digitalis fails or must be given with sodium iodide to regulate the pulmonic circulation. Where digitalis does not help, the substitute for the time is strophanthus; with arterial sclerosis, aortic valve defects, pulmonary engorgements, strophanthus and sodium iodide. Strophanthus in a few instances replaces digitalis. Sometimes digitalis must be suspended and strophanthus given instead until the heart again becomes susceptible to digitalis. Strophanthus acts best with laxative or purgative drugs. In fact, the strophanthus action, with free movements of the bowels and vomiting, is no disadvantage when it is given for cardiac asthma, lung edema, or similar states of other viscera. The treatment of a paroxysm of cardiac headache becomes an ignoble task where massage is practised, where chloroform or morphine is given, or the anilin compounds under commercial names. In fact, the headache powders of the coal-tar derivatives are without much doubt or question dangerous and deadly.

The special treatment of an attack of cardiac headache is of secondary importance, as such attacks cease altogether or become mild and endurable under the treatment described. However, an efficient remedy for a severe paroxysm will be found in two grains of caffeine citrate in a teaspoonful of aromatic elixir every fifteen or thirty minutes till relief is felt.

Since every town or neighborhood has its chronic headache or migraine in woman, child or man, since it crops up for the asking in every medical practice, on all sides can subjects of this complaint be found for analysis and study. No loss of time or opportunity is ever felt in observing a malady, chronic, persistent, and the most frequent of all the minor states of ill health. From this universal supply are selected varied and typical cases to illustrate the foregoing essay. These patients were either cured or relieved by the treatment described.

631 I STREET, N. W.

²Möbius, P. J., *Die Migraine*, Féré, *Belgique médicale*, xiii, 1906. Cornu, *Contribution à l'étude de la migraine*, *Thèse de Paris*, 1902.

CONSTITUTIONAL STATES IN RELATION TO GYNECOLOGICAL CONDITIONS.*

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The surgical treatment of gynecological conditions is in many instances so brilliantly successful, the perfection of technic and increased safety of operations in the last twenty years, together with the general tendency to specialize, have caused a loss of interest in, and a lack of attention to the relation of systemic states to gynecological conditions. If I may judge from the statements of many patients who give a history of having been to a number of prominent gynecologists, they have been asked for no history of their family or general personal health, and have received only a local examination. No attempt has been made to correlate the various constitutional conditions which interact with the gynecological disturbance which has led the patient to seek relief, and which may be the underlying cause of the local symptom. As a result, the patients have received little benefit.

The period of overspecialization through which we are passing, has led to an exaggeration of each specialty, and is happily giving place to a more cordial spirit of cooperation and team work which will result in a careful diagnostic study of different lines of approach to a complete diagnosis, which will be a boon to patients in producing or restoring physical efficiency, in place of the partial improvement which, unfortunately, is at present far too common. The elusiveness and subtlety of many chemical and perhaps electrical reactions in tissue growth and repair, fascinate us as students and lead physicians and surgeons to all laboratory work, as well as to close clinical observation of both mental and physical conditions in helping to establish an intimate and efficient knowledge of the human cosmos. All the constitutional states in women may have gynecological significance, and, broadly speaking, depend upon nutrition and elimination. They may be divided into disturbances of the circulatory, respiratory, nervous, digestive, and renal systems, improper formation or adjustment of the bony framework, improper functioning of the ductless glands and the skin. A determination of the extent to which any or all of these affect the generative organs, or are affected by them, is the most important medical and sociological consideration of our day.

The effect of the changed and multiplied (although we perhaps cannot say the increased) activities of women today, in their effect upon the health of the individual and the race, cannot be decided for several generations; but many deductions can be made in the light of thoughtful observations and reliable data for the last thirty or forty years. The correlation of physical, mental, social, and economic factors must be considered, and opens a limitless field. The great inspiration in earnest study is that each detail carefully weighed, leads to a wider comprehension of vital facts, on the understanding of which depends the interrelation of each factor to the whole.

The scope of the present paper is such that it

could be adequately presented only by subdivision under the nine heads indicated, and with condensation of the most essential points nine evenings would be necessary for its intelligent consideration. I will, therefore, limit myself to the most frequent systemic conditions presenting themselves as complications in office practice. They all are so closely related that none can be classed as primary. Each is deleterious mainly through its association with allied conditions; for instance, *the bony framework must be normal in form and adjustment*; the forward carriage of the head in affecting cerebral circulation, interferes with nutrition of nerve centres and fibres and is a contributory factor toward lowered tone and depression; the dulling of mental alertness leads to brooding on symptoms and nervous instability. Round shoulders, by decreasing lung expansion and blood aeration, lead to anemia, malnutrition, pelvic neuralgia, and amenorrhea. The marked depression under the breast so noticeable in round shouldered girls indicates an inward pressure of the ribs at this point, which interferes with the action of the heart shown by the change in fullness of the pulse which follows even the temporary assumption of erect posture and deep breathing. Encroachment of the thoracic upon the abdominal cavity, by lowering the costal attachment of the abdominal muscles, allows these to sag and thereby interferes with intra-abdominal tension and, by pressure on the liver, encourages hepatic, portal, and pelvic congestion, by pressure upon the stomach, interferes with its blood supply and glandular activity, thereby assisting in the production of malassimilation and malnutrition, as well as by gaseous distention, mechanically affecting the heart by downward pressure or promoting intestinal ptosis and stasis which have direct gynecological bearing. Lordosis in its effect upon the tilt of the pelvis and by allowing a sagging of the intestines, markedly affects the pelvic contents. Hypersensitiveness of the coccyx is of gynecological importance, as are also the effects of rhachitis and of Pott's disease. Incorrect standing encourages deformities of the pelvis. Many cases of flattened arch lead to pain in the leg and sacroiliac articulation which is frequently confounded with pain originating in the ovarian region.

Education of patients regarding cause and effect is all that is necessary in many instances to counteract postural deformities and lead to orthopedic care of the more serious cases. Gynecologists should definitely discourage the present unhealthy pose characterized as the "débutante slouch."

Reflex disturbances of the digestion are often attributed to pathological conditions of the genitalia, but Max Walthard, of Frankfurt, states that lessened or suppressed menses are caused only by chronic hemorrhage of the digestive organs. If these lead to anemia or atony of the uterus, as a result of general innutrition, they may produce prolonged or excessive menstruation. He notes that it is immaterial whether malnutrition is caused by absolute insufficiency of calories or by relative insufficiency of calories compared to energy expended, or is due to the inability of diseased digestive organs to extract the nutritive value from food. He further states that diseases of the reproductive organs do not exert a reflex influence on the secretory or

*Read before the New York Academy of Medicine, Section in Gynecology and Obstetrics, May 26, 1914.

motile power of the digestive organs, but that women of psychoneurotic temperament exaggerate slight gynecological ailments, and as a result of their nervous condition functional disturbances occur in the stomach or other distant organs and disappear as soon as the patient is convinced that her genital disease is not serious or as soon as mental equilibrium is restored through cure.

On the other hand, *the effect of pathological conditions of the gastrointestinal tract on the pelvic contents* is coextensive with the tract, from mild forms of sepsis due to caries of the teeth, and indigestion due to insufficient mastication of food; to the effect on the pelvic contents of constipation, rectal distention, and hemorrhoids. Passing over the more obvious points, I should like to emphasize the frequency with which lesions of the gallbladder and appendix complicate or obscure the diagnosis of ovarian disturbance; also the pelvic pressure, due to colonic angulation at the hepatic flexure produced by gallbladder adhesions, which cause dilatation and prolapse of the cecum, and not only leads to acute congestion of the right ovary, but interferes with the emptying of the rectum to a degree which induces chronic constipation, toxemia, and neuritis, as well as uterine congestion. This was demonstrated in the case of a patient who has, off and on, been under the gynecological care of various physicians for thirty years and who recently, in connection with an attack of neuritis, had a series of x ray pictures taken which clearly show the foregoing sequence, the treatment of which is not only curing the neuritis but also clearing up the pelvic condition. Adhesions of the sigmoid to the left annexa may produce Fallopian and ovarian pain by pressure of retained feces or gas or by interference with the circulation. The combination of the effects of this complication with pathological conditions of the pelvic organs has been clear in three patients upon whom I have operated in the last month for the relief of this easily overlooked condition.

The relation to pelvic congestion of intestinal ptosis and stasis, is so self evident it is only necessary to have it in mind to take steps toward its correction and the consequent relief of the gynecological symptoms. The importance of considering these conditions together has impressed me so forcibly that I have devised an abdominal speculum by means of which the entire abdominal cavity may be inspected through the small incision used in the average gynecological operation. This permits an even lifting of the abdominal wall, with the assistant's hand well out of the way of the observer, and by gradually turning the speculum the cecum, ascending colon, hepatic flexure, gallbladder, transverse colon, stomach, splenic flexure, descending colon, sigmoid, and various portions of the ileum may be inspected easily and without handling. Any lesions of the gallbladder or constricting bands may be corrected under the anesthesia present, ptosis may be noted for correction by raising the foot of the bed or other postural treatment during convalescence, thus avoiding complications which often have more effect on efficiency than the gynecological conditions themselves, as the latter may, in many instances, be considered secondary.

Rheumatism and malaria are systemic conditions

giving gynecological symptoms; the dysmenorrhea due to these yields only to constitutional treatment.

The gynecological effects of alterations in circulation are manifold. The muscular tone of the heart, composition of the blood, the valvular integrity, the insufficiency due to infections, etc., are all of great interest.

Although many authors call attention to the change in pulse and temperature at the menstrual period, I have not observed it in normal cases, and the change in blood pressure occurring at or near the period, Dr. Clelia Duel Mosher, of California, states, cannot be said to have a menstrual rhythm. Her opinion I accept as authoritative, because it is based on a study of 400 women and extends over 3,350 menstrual periods. Following this she made a comparative study of nine women and five men, the women selected representing normal conditions of menstrual health. The men were healthy adults and four were athletic. The records covered two periods of change in pressure and were made with the sphygmomanometer of Mosso. Tracings were taken daily at the same hour and under uniform conditions, perfect relaxation being secured and all variable factors excluded as far as possible. The rhythmical fall of blood pressure, at definite intervals, occurred in both men and women. The daily records on men and women gave curves which were indistinguishable in character.

A curve constructed on the subjective observation of the sense of well being shows ups and downs corresponding to the marked variations in pressure; the maximum efficiency of the individual corresponding to the time when the pressure was high, lessened efficiency to the periods of low pressure. In no case was the change sufficient to incapacitate the individual, but the time of low pressure was concomitant with increased susceptibility. For example, if a man or woman had a tendency to digestive disturbances, the symptoms were likely to occur at the period of low blood pressure; or when a slight chronic catarrh existed, there was marked increase of symptoms from the respiratory tract.

Circulation. Walthard has pointed out that diseases of the female genital organs do not influence the organs of circulation through reflex action, and he holds that, as in the gastric disturbances, individuals who are in a psychoneurotic condition from any cause, knowing that they are ill, are so worried over their symptoms that through the reaction of fear, etc., normal function is interfered with. He also points out that pallor and flushes have had too much stress laid upon them as being due to pathological conditions of the genital organs, as they are frequent in women whose local condition is physiologically and anatomically normal. Loss of blood resulting from diseases of the genital organs may obviously produce anatomical changes in the heart wall, due to anemia, such as would result from pulmonary or other hemorrhages. As a result of continued anemia in cases of chlorosis, adipose tissue invades the protoplasm of the heart muscle and weakens it, thereby leading to protracted disturbances of nutrition and respiration and, as a result of the accompanying marasmus, brown atrophy of the heart muscle occurs.

Hemoglobin tests and corpuscle counts as a rou-

tine practice are of great diagnostic value, and the patient, appreciating careful study of her case, is willing to have them made.

Anemia may lead to dilatation of the heart cavities which disappears after the removal of hemorrhagic, uterine, or ovarian tumors; if hemorrhage and cachexia are absent, with the exception of a slight displacement of the heart through large tumors, no influence on its functions and anatomical condition can be proved. Walthard states that in 180 well observed cases after total hysterectomy of myomatous uteri, there were no clinically demonstrable changes of cardiac condition. Excitability, tremors, flushes, attacks of perspiration, vertigo, moodiness, and insomnia, in some cases, continued after the operation, and the same symptoms exist in individuals with normal genitalia. This at once opens a field of discussion regarding the role played by the ovaries and thyroid secretion and the interrelation of these with the secretions of other ductless glands.

Anemia is a frequent cause of painful menstruation through leading to neuralgia which expresses itself in dysmenorrhea, if the uterine and ovarian tissue is lacking in tone as it usually is in such cases because of lessened nutrition, directly due to the anemia, and to its effect on the blood supply to the pelvic, spinal, and sympathetic nerves.

Uterine prolapse, version, and flexion are so commonly associated with poor tissue tone in anemic girls and in those who, according to the customary phraseology, "outgrow their strength," that systematic outdoor exercise from little girlhood is a valuable preventive measure.

Dr. Marion Craig Potter (3), of Rochester, N. Y., has called attention to the frequent association in the nontuberculous of slightly clubbed finger nails due to malnutrition, with an undeveloped anteverted uterus due to malnutrition or to interference with the circulation from various causes, as heart lesions, anemia, and chronic diseases, especially in severe illnesses which can be traced back to childhood. "Congenital smallness of the arterial system associated with narrow arch of the aorta may be associated with sexual infantilism" (4).

Severe primary anemias or pernicious leucemia lead usually to amenorrhea. Secondary anemia from chronic or acute hemorrhages, if outside the genitals, gives the same picture as chlorosis. If the uterus is the seat of hemorrhage owing to atony of the uterine muscle which encourages a continuance of the bleeding, treatment of the anemia and improvement of the general health lessen the tendency to metrorrhagia more successfully than local treatment. If this fails, however, hysterectomy may be necessary, as girls under twenty years of age have died as a result of uncontrollable menorrhagia and metrorrhagia. The uterus in such cases is small, with thin, flabby walls. "If the bleeding is due to polypi, submucous or intramural fibroids, or malignant degeneration, the treatment is purely surgical, care being taken to have the patient as rested and free from apprehension as possible at the time of the operation. If this can be accomplished, the tendency to shock is markedly decreased, and unless a case presents emergency features, it is well to explain to the patient the advantage of building up before an oper-

ation, advising strict attention to systemic health for two weeks or a month before going to the hospital. The convalescence is then shorter and the return to efficiency more prompt.

Abdominal surgery may so successfully prevent hemorrhage at the time of operation, that anemia is no longer a contraindication, as Mikulicz contended it should always be, in patients with hemoglobin below thirty per cent., but in vaginal operations observation and control of hemorrhage are so much more difficult that they are, by many surgeons, considered more dangerous than operations through the abdominal route.

After hemorrhages the volume of blood may be restored by salines, etc., to its normal volume of one eighteenth the weight of the body. The restoration of the normal number of corpuscles, however, is much slower, but more rapid than the restoration of the normal hemoglobin content. The viscosity of the blood after an acute hemorrhage is increased, the coagulability increasing in rapidity as the hemorrhage increases in extent. If the hemorrhage has been severe, nucleated cells appear. In all hemorrhages there is an increase in leucocytosis, which persists for several days. There is an absolute and relative gain in the number of neutrophile, polymorphonuclear leucocytes, and blood plates, with a consequent decrease in mononuclear forms.

In chronic anemia there is a decrease of white blood corpuscles and poikilocytosis may be present.

In the absorption of blood extravasations from tubal gestation or other causes, there is a marked increase in leucocytes; the number rising to 25,000 per c. mm. even in the absence of suppuration, so it is not possible to diagnose on blood count alone between pelvic hemorrhages and pelvic suppuration, unless a decrease in hemoglobin and red blood corpuscles points to the former; but it is of great value in connection with other symptoms.

Lymphocytes and eosinophiles have no characteristic method of action in hemorrhage, but in acute inflammation and primary pelvic infections the eosinophiles usually decrease or disappear and as the neutrophiles increase there is a corresponding decrease in lymphocytes. Chronic infections usually show no changes in the condition of the blood, except those characteristic of slight anemia. Old hematoceles with dense fibrous covering have, even when large, no influence on the blood picture unless bacteria enter through the tubes or blood current and cause pus to form. Then hyperleucocytosis appears until the fibrous capsule becomes so thickened that it prevents absorption of the products of inflammation or until the hematocele is artificially emptied. At beginning of infection there is a further increase of white blood corpuscles, the number of neutrophiles show an increase parallel to the increase of the total number, and the lymphocytes show a slight decrease, as do also the eosinophiles. Later the variation of the proportional number of individual kinds of leucocytes shows the same method of acting as in advanced bacterial inflammation.

Acute exacerbations of pus tubes or other chronic infections give an absolute and relative increase of polymorphonuclear neutrophiles, but not so great an increase as in acute appendicitis. In recurrent

pus tubes there would be approximately 10,000, 12,000, or 14,000 white blood corpuscles to the c. mm. and the polymorphonuclear leucocyte proportion would be about sixty to seventy-five per cent., with a relative decrease in the number of small and large lymphocytes. In acute suppurative appendicitis there would be from 14,000 to 30,000 white blood corpuscles to the c. mm. and eighty to ninety per cent. of polymorphonuclear leucocytes; in both cases eosinophiles are decreased or absent.

Otten (1), in his study of 448 cases of chlorosis in the Hamburg State Hospital, found that in 186 cases of women and girls with hemoglobin reduced below fifty per cent., there was no disturbance of genital function. In the remaining 262 cases, menses were delayed, lessened, or absent. In very few cases was there menorrhagia, and leucorrhea in only forty cases. Dysmenorrhea in cases of chlorosis he attributes principally to nerve disturbances caused by lack of nutrition, overwork, worry, or sorrow. He thinks too much stress has been laid upon hyperplasia of the genitals associated with chlorosis, as it occurs similarly when chlorosis is absent.

In a consideration of the genitourinary system, the differential diagnosis of prolapse of kidney, pyelitis, stones in ureters or bladder, are of great gynecological importance, and as tubercle bacilli are found in the sediment of urine and may easily find their way into the vagina, tuberculous infection of the vagina and uterus is not an uncommon condition. Indeed, Howard Kelly says a great deal of endometritis is due to this cause.

Patients often seek the advice of a gynecologist for what Goodwin calls the intangible, imponderable, invisible pelvic pains of neurotic women, and, in my opinion, these are frequently due to an undiagnosed nephritis which may show itself with only a trace of albumin in the urine, but which may so lower the nerve tone of the patient that she has no resistance with which to meet slight intercurrent systemic disturbances, and she is affected by the periodical, physiological, pelvic congestion which makes no tax upon the normal woman.

Dr. Elizabeth Thelberg, of Vassar, has commented on the frequency with which she has found spinal curvature on examining the college students for gymnasium. The albumin due to lordosis has been described by Bugge, a Norwegian scientist, as common in children between the ages of ten and fourteen years, the higher percentage being in girls. It is not present in the morning, but recurs daily when the child has been up for several hours and is attributed by him to interference with the circulation in the kidneys. Dr. Matilda Wallin called attention to this in a paper read recently before the Women's Medical Association of New York State, and said that in a young girl under her care two months' treatment for curvature had reduced the albumin from two per cent. to a trace.

Proper elimination by skin and kidneys is of such importance, I invariably ask a patient how much water she drinks and often find daily neutral baths and six glasses of water between meals will relieve a dysmenorrhea of the so called neurasthenic type.

Pyelitis and cystitis as symptoms of gonorrhea frequently lead to gynecological examination, which may discover nothing abnormal in the genitalia, but

which is the means of leading to a diagnosis of a grave systemic condition. The effect of gonorrheal infection on every portion of the genital tract and its constitutional bearing are too familiar to admit of discussion, as is also the result of syphilitic infection. The general employment of blood tests for suspected cases has led to accurate diagnosis and treatment of symptoms heretofore described as "intangible."

The relation of the nervous system to gynecology has proved a profitable field for much valuable work and also for speculation. Failure in accurate diagnosis has caused many women to be branded as neurasthenic. Recently I asked Dr. William Mabon, who has made a detailed study of many hundreds of patients on Ward's Island, whether he considered pathological pelvic conditions an especially active factor in insanity. He said, on the contrary, the number of gynecological patients among the inmates was not greater than the average found in hospitals for mentally normal persons and could roughly be calculated at about thirty per cent. Approximately one fifth of these had operative conditions which, on being relieved, improved their general physical condition without markedly altering their mental state; also the changes in menstruation, notably amenorrhea, occurred as a result rather than as a cause of a deranged nervous system, the normal menses recurring, as improvement became evident in other bodily functions, with the subsidence of the acute exacerbation of mental derangement.

The relation of fatigue incident to the modern industry of women, as it affects them gynecologically, caused me, in connection with a paper read in 1912 before the International Congress on Hygiene and Demography, to study the use made by department store employees of the hospitals in many stores. I found that the average temporary illnesses, in three New York department stores, show that the number of employees who seek relief is divided between men and women in about equal ratio. Of the women patients approximately one third suffer from headache, one third from indigestion and miscellaneous ailments, and only one third have menstrual disorders, which makes a very small proportion out of the total number of employees. For instance, in a store which employs 3,000 women there will average not more than ten a day who come to the rest room or hospital for a few hours on account of dysmenorrhea. In one of the stores, which employs approximately 3,500 women, the nurse who had been in attendance for eight years said that she knew of only fifteen cases of permanent pelvic trouble which were thought to have been brought on by work in the store. It was interesting to note that in one store, which is situated at the junction of several surface and elevated street car lines, the daily attendance in the store hospital is double that of a store in a more quiet place. The ventilation of the former store is also poorer than in the latter. The proportion of those who suffer from dysmenorrhea is larger in the store which is not so well ventilated and which is noisier.

In connection with the physical efficiency of the physically well trained woman, a study of women athletes was made in 1884 by Dr. Sarah E. Post, and her conclusions were similar to those in a very in-

teresting paper read a year and a half ago before this section by Dr. Angenette Pary, on the normal menstruation and child bearing of circus bareback riders, trapeze performers, and acrobats. The physical endurance of Indian and other women who lead an outdoor life, of washerwomen, scrubwomen, and professional swimmers, like the young woman who in 1912 swam across San Francisco Harbor, a distance of eight miles, and on arrival was not fatigued, a feat which has been accomplished but twice before, and Annette Kellerman, who swims long distances, demonstrating her endurance by swimming an eleven mile race with two men, and winning it, with no discomfort during her menstrual period, show, that with perfect circulation, pelvic congestion does not take place, and with gradual systematic training begun in childhood, the ligaments supporting the uterus are well developed along with the general bodily upbuilding, and the physically perfect woman has no pelvic complications.

Indeed, a study of telephone operators, clerks, factory employees, etc., showed that the causes leading to physical inefficiency were not related to sex but rather to excessive hours of labor, that is, over eight hours, to poor wages necessitating poor food, to lack of sleep due to noise, or arduous industry at home before or after the working day, to poor light, poor ventilation, etc.

Overwork of school girls is often cited as interfering with their development. This is true, but not so much because of the tax on the nerves made by application of the mind, as the suffering of the whole system for lack of exercise, which would apply equally to school boys. However, in their case, games of all sorts are urged upon them, whereas girls are rarely encouraged to take anything but indoor exercise and are generally conceded to be more conscientious in applying themselves to their studies.

Dr. Maude Glasgow has called attention to the fact that Miss Fawcett, daughter of the third postmaster general of England, who won the senior wranglership by 400 points over the best man in Cambridge University, was not injured by her hard study, but she spent two to three hours every day in outdoor exercise.

It would be interesting to separate the true neurosis incident in some cases to the establishment and the cessation of menstruation, from those produced at the beginning of puberty by ignorance and apprehension, and those due to a general lowering of nerve tone by the wear and tear of life and the widespread fear of cancer or insanity, at the menopause. Many girls are frightened by the first menstrual flow, and not understanding its significance take cold baths, or otherwise endeavor to prevent or delay its reappearance. Many women have had intercurrent illnesses, family and personal losses, which greatly lower their vitality, and unless they have impersonal interests to keep their mental outlook constructive, the readjustment of circulation and enervation of the uterus and ovaries at the climacteric produces nerve disturbances which do not supervene in physically and mentally well balanced women. The normal changes to and from the childbearing years are almost imperceptible in a perfectly healthy girl and woman.

The influence on the genital organs of nontoxic

doses of poisons is of interest in connection with certain industries and also with prolonged treatment or habits. Arsenic, for instance, can be used for years without effect on the genital organs, although its systemic effects are exceedingly deleterious, and the effect of these, combined with alcohol, is interestingly set forth in Reynolds's article on beer poisoning in England (6).

Phosphorus and lead cause metrorrhagia as well as hemorrhage from other mucous membranes. Alcohol does not have a permanent effect on the genital organs as it has on the liver, stomach, kidneys, and heart, but it may cause by its effect on the other organs an alteration in metabolism and blood supply so that uterine hemorrhage and hypersecretion are to be considered secondary.

Opium, morphine, codeine, heroine, are shown by the experiments of Faust to produce amenorrhea in those habituated to their use. There is a presenile atrophy of the external genitals and breast as part of the general atrophy of all subcutaneous tissues. Sanger attributes to these drugs atrophy of the uterus, and points out that the function of menstruation and conception are reestablished with discontinuance of morphinism.

Acute infectious diseases frequently present complications due to their effect on the genitalia. Beside bacterial metastases which occur during the course of acute infectious diseases, as the typhus bacilli in suppurating ovarian cysts and pyosalpinx, there is in cholera, typhus, dysentery, croupous pneumonia, relapsing fever, variola, measles, scarlatina, influenza, and other acute infectious diseases, an inflammatory hyperemia of the uterus, ovaries, tubes, and vaginal mucous membrane with desquamation of the epithelium, edema of the stroma, with small ecchymoses which are followed by infiltration. Clinically this hyperemia manifests itself by menorrhagia and often a purulent inflammation of the vagina develops with ulceration of the vaginal mucous membrane and of the vulva; atresia follows some cases of abdominal typhus.

Bacteriological examination of the uterine or vaginal secretion does not always show the original bacteria of the infectious disease, but a mixture of staphylococci, streptococci, and anaerobic saprogenic bacteria, due to the ascent of the vulvar bacteria into the vagina, whose natural resistance is lowered by the infectious disease. Purulent vaginitis with ulceration of the mucous membrane is not unusual after the menopause, owing to bacterial invasion and lowered tissue tone; if cured, the adhesions of the vault and walls due to this may exert a beneficial influence in spontaneously preventing prolapse. I have found a constricting band around the upper part of the vagina is not uncommon in old women who have borne children; this, however, may be due to submucous tears in childbirth.

Some authorities attribute to acute infectious diseases amenorrhea and atrophy of the uterus, ovaries, vagina, external genitals, and mammae, but these changes are often only the consequence of a general lack of tone and disappear on convalescence and increase in bodily weight. Patients may have headache, indigestion, anemia, insomnia, leading to nerve exhaustion from endometritis and metritis from bacterial infection of retained secretion, just as they

would from restrained secretion in disease of the middle ear or elsewhere where drainage is interfered with; these increase at the menstrual period because lymphatic absorption is more active at that time.

Infections of the genital organs should be borne in mind in relation to skin diseases, since streptococci have been demonstrated in eroded skin surfaces (Sabouraud and Jadassohn). They can easily be introduced in careless local examinations, if the epithelium of the vagina is even slightly wounded; and this should be especially borne in mind if an intra-uterine examination is made, for, above the os internum the epithelium consists of a single layer of very delicate cylindrical cells, which make slight resistance to infection. The appearance of acne at the time of the period is probably due to increased absorption of products of inflammation during the premenstrual and menstrual hyperemia and is customarily associated with a mild chronic endometritis or endocervicitis. Bacterial invasion of retained blood in cases of retrodisplacements or tubal gestation or through abrasion from an ill fitting pessary cause persistent exanthemata.

The activity of the sweat glands in many women who are annoyed by increased perspiration at the time of the menopause, the abnormal reddening of the face, the flushings, the exanthemata, and the pigmentation which occur in pregnancy and in some cases of ovarian cysts and large myomata, show a connection between the skin and the generative organs which may be more clearly understood as our knowledge of internal secretion increases. Bandler (4) says: "The diseases of childhood, if these exanthemata involve the ovaries and uterus, may retard or inhibit the development of the genital structures."

The relation to diseases of the eye, ear, and nose to the female genital organs and the reverse, present many interesting points which are outside the field of systemic disturbances, as presented in this paper, but they should always be taken into consideration as causing complications the diagnosis of which can be properly made only in conjunction with specialists.

THE OVARY.

The ductless glands present perhaps the most interesting division of the subject of the relation of systemic states to gynecological conditions. Most authors ascribe to the inner secretion of the ovary a substance which influences oxidation of the tissue, and maintain that the lessening of this so influences metabolism as to produce the increase of adipose tissue which so frequently takes place at the normal climacteric or following oophorectomy.

It is not clear whether the nervousness, moodiness, and vertigo, increased acidity, colicky contraction of the pylorus, increased assimilation of carbohydrates, shortness of breath, palpitation, etc., observed in some cases are due to the ovarian hormones having ceased to act directly upon the various organs or upon the nervous system.

Berkeley (7) says the corpus luteum is the only part of the ovary which secretes internally and that the use of this is of value in treating toxemias of pregnancy as well as the above mentioned conditions. In early and mild cases of Graves's disease in young women, he gives corpus

luteum and says experience has shown it to be a useful antidote to thyroid toxins circulating in the blood. Doctor Beatson, of Glasgow, reported several years ago the gradual disappearance of certain cancers of the breast after total oophorectomy.

The genital glands have great effect upon the growth of the skeleton. Early maturity is associated with short legs, for the ovaries elaborate a hormone which stimulates the process of ossification. Late maturity of the ovaries, on the other hand, allows increase in height due especially to the length of the legs.

Bandler (4) thinks the principal role in osteomalacia is played by the ovaries and states that therapeutically castration produces excellent results. Removal of the ovaries causes the continuance of the infantile type; the "secondary sex characteristics" of increased width of hips, mammary development, etc., do not appear, but it never produces the secondary sex characteristic of the male, alteration in larynx, growth of beard, etc.

The ovaries have always been considered as a factor in chlorosis. The diminished power of blood formation is attributed partly to the lessened secretion because it is supposed that the ovarian hormones contain a substance which stimulates the blood producing structures.

Most authors think partial or entire amenorrhea is due to changes in the ovaries, either directly or through the influence of other glands or diseases which affect them; and that the normal ovaries preside over menstruation, exerting a trophic influence on the uterus, senile atrophy and lactation atrophy being physiological retrograde changes which occur with the cessation of ovarian activity.

Cushing attributes to the lowered function of the posterior lobe of the hypophysis, a disturbance in metabolism which causes gain in weight and atrophy of the ovary, associated probably with lowered function of the thyroid, presenting a condition called by Bandler "precocious menopause." The trophic changes between the hypophysis, thyroid, and ovaries are stimulating to further study as well as the definite changes which often take place in these and in the thymus when the ovaries are removed. An interesting theory is that overfunction of the ovaries may produce a uterine congestion which needs only slight disturbance to cause menorrhagia or metrorrhagia.

The epithelium of the normal uterus resists the premenstrual congestion up to a certain point; then menstruation begins. After the epithelium is bled the uterine wall contracts, and the ovarian substance responsible for menstruation is thrown out of the system. If the endometrium has adenoid hyperplasia or its contractile power is diminished, a normal ovarian congestion might produce excessive bleedings. In hysterectomy for the foregoing condition in women about forty years of age, large plump ovaries are found. Failure of the ovaries to regress at this time prevents the uterus from undergoing atrophy, and the persistence of premenstrual congestion in a uterus with lessened elasticity explains the excessive flow of the preclimacteric period. Alteration of ovarian secretion alone, or in combination with other ductless glands, may be a factor in sterility in reducing the

activity of the cilia in the Fallopian tubes, as upon these depends the entrance of the ovum into the uterus.

THE MAMMARY GLAND.

Administration of mammary gland substance corrects such menstrual irregularities as flooding, amenorrhea, and pain. Berkeley (7) says cystic tumors of the ovary sometimes disappear under the action of the mammary gland.

THE HYPOPHYSIS.

Grave lesions of the brain, such as cerebral hemorrhages, embolism, thrombosis, meningitis, and tumors of the brain do not influence the female genitals unless the hypophysis is injured. Frankl-Hochwart and Fröhlich have shown that the secretion of the posterior lobe, pituitrin, affects selectively the nerves of the genital organs, increasing the irritability of the sympathetic nerve fibres in the uterus; on account of its effect upon the muscles and blood-vessel walls, pituitary extract is recommended for menorrhagia due to atony.

Hofbauer introduced pituitrin as an oxytotic, as it excites anew labor pains which have stopped and maintains them. Danger in its use, however, may arise from an obstructing contraction band. Berkeley attributes to the secretion of the fore and mid portions of the gland specific beneficial action in cases of arrested physical growth; when encountered without complications, he has found the administration of these portions of the pituitary to cause gratifying increase of general growth and of genital development. Cushing describes a rare condition of excessive obesity and genital atrophy which are benefited by the administration of the anterior portion of the pituitary gland.

Bandler says infantilism may be due to failure in proper function of the thyroid, hypophysis, and other internal secretions, and that ovaries and uterine functions are influenced by increase or decrease of the secretion of each and all of the ductless glands. He calls attention to Harvey Cushing's statement that Mendelian principles hold good in certain families which have ductless gland peculiarities, such as instability of the thyroid, instability of the hypophysis, early or late genital maturity. The instability may be evidenced by increased activity in some members or generations, or decreased activity in other members or generations. Either increased or decreased function of the hypophysis in preadolescence causes failure of full development of genital organs or glands. After adolescence anomalies of the hypophysis result in atrophic changes in the genitalia.

THE PINEAL GLAND.

Two years ago the Rockefeller Institute made a grant to Doctor Dana and Doctor Berkeley for the study of the pineal gland, and they reported it to have a definite function in promoting the development of the nervous system, and surmised that this is due to the gland supplying a minute amount of intracellular ferment accelerating the growth of gray matter of the brain. They found, when giving his gland substance to mentally deficient children who had no grave organic defect of the brain, that the mentality of the latter steadily and rapidly im-

proved. "Pineal tumors are known to produce abnormal growth in height and premature genital development" (4).

THE SUPRARENALS.

In experimenting on animals, the intravenous injection of adrenaline produces in the outer genitalia pallor and contraction of vessels in vagina, uterus, and tubes, and the irritability of uterine muscles is greatly increased. Injection of adrenaline into the substance of a weak bleeding uterus has been recommended in cases of puerperal hemorrhage, but the removal of adrenal glands does not produce any marked genital change. The loss of their secretion may perhaps be compensated for by the secretions of other ductless glands. The amenorrhea of Addison's disease may be attributed to tuberculosis, as also that of Pott's disease. Suprarenal tumors have resulted in exceptional development of the body plus sexual precocity.

THE THYROID GLAND.

Hyperthyroidism produces in a limited number of cases presenile atrophy of genitalia and mammae which is attributed to metabolic acceleration. Diminished secretion of the thyroid gland in its effect upon limiting the growth in length of bones, may cause the developing young woman to retain a narrow infantile pelvis whose cavities are modified by the continued growth in breadth, causing thick clumsy bones. In pronounced myxedema the inner and outer genitals remain infantile, and sterility is common. Anomalies in the pelvis of half cretins cause disturbances in childbirth, and pregnancy increases symptoms of hypothyroidism. When hypothyroidism develops suddenly, menorrhagia frequently occurs, owing, probably, to loss of tone of vasomotor nerves, as the secretion of the thyroid normally acts as an irritant to the sympathetic nervous system.

Thyroid substance is of benefit in treating thyroid enlargement of girls just past puberty, when a parenchymatous enlargement develops because of the great metabolic demand upon the resources of the thyroid during rapid growth (7). Small doses of thyroid gland twice a day have a marked effect in reducing the struma to normal size. "Decreased function of the thyroid is an important factor in producing failure in complete development of the genital glands" (4).

Anomalies of thyroid function sometimes produce menorrhagia, but more frequently diminished menstruation. The ovaries may be responsible for this, as changes in them probably influence the thyroid to overactivity or underactivity or chemically altered activity. The changed thyroid secretion may affect the digestive, nervous, or psychic condition of the patient, and a consideration of this gives a new viewpoint regarding the hysterical, neurasthenic, and reflex neurosis formerly attributed to cessation of menstruation. A normal menopause with no physical or mental disturbance depends (if other functions of the body are normal) on a proper balance between ovarian and thyroid secretion. If the former diminishes too rapidly and the latter too slowly, the patient has hyperthyroidism; if the reverse is the case, the patient may present symptoms of hypothyroidism.

THE HEART.

Heart and vasomotor symptoms, such as palpitation, rapid pulse, blushing and pallor, tendency to faint, may develop for weeks or months before the establishment of the menses, appearing every day or once in several days and passing away when the period comes on, but recurring before several periods until the function is well established. Noticeable irritability of the heart at the time of the period is observable in most patients with hyperthyroidism. The thyroid gland may or may not be enlarged.

Interstitial fibromyomata are often associated with thyroid changes which are more marked the greater the amount of fibroid tissue in the tumor. X rays, causing a diminution in size of tumor, favorably affect the enlargement of the thyroid. Fränkel says this regression is due to the effect of the rays on the ovaries. This is of especial interest in connection with Walthard's study of 180 cases of uterine myomata. In my own practice I have found that removal of fibromyomata will reduce the size and symptoms of a hypertrophied thyroid.

THE PARATHYROIDS.

Tetany is ascribed to lack of parathyroid secretion, as the accidental or intentional removal of these glands is attended, not only with juvenile tetany, but with that noticed during periods of genital functional activity, menstruation, pregnancy, and lactation.

Valuable contributions to our knowledge of the ductless glands are being made by scientists all over the world, and I have no doubt many more additions will be made ere long.

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701 MADISON AVENUE.

FOUR UNUSUAL OBSTETRIC COMPLICATIONS.*

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The first report I have to make is one of Cæsarean section including hysterectomy, under spinal anesthesia, eighteen hours after complete rupture of the uterus at term. Rupture of the uterus in labor is a rare complication—about one in one thousand labors—but is liable to occur with any physician, without warning, at any time. The thinning of the lower uterine segment and ascent of Bandl's ring cannot often be recognized in impending spontaneous rupture, and certainly not in a corpulent person with thick abdominal wall, as with the patient in ques-

tion, so that prolonged labor, with vigorous pains and contractions without progress in the multipara, should always be regarded as a warning note and careful calculation of the position of the child, also of the cervix, is very necessary. While rupture occurs more frequently during manipulation with instruments and version, no doubt the excessive thinning of some portion of the uterus has first taken place.

CASE I. Large colored woman weighing 180 pounds, aged forty-four years, occupation, household duties, washing, and ironing. Mother of eight children; all labors normal; had one miscarriage. Family history negative.

Personal history: Barring the ordinary diseases of childhood she had always enjoyed good health, prior to, and during the present pregnancy, until the third month, when she had a strangulated umbilical hernia requiring resection of six inches of small intestines with end to end anastomosis, done at the Germantown Hospital. There were no adhesions following this operation and nothing to indicate that it had been a factor in causing the malposition of the child or the subsequent rupture.

The following history of the present illness was obtained, and confirmed by Dr. G. A. Parker, of Newtown, who referred the case to me. Three days before true labor began, she had pains which continued for three hours. Three days later, January 30, 1913, true labor began and the doctor, at 7 p. m., found the cervix dilated to about the size of a half dollar. At 9 p. m., he returned and found labor not very active and made no examination. At 10 p. m., she became very active and between 2 and 4 a. m., had an unusually severe pain and experienced a sensation "as though something had given way within the abdomen." Pain was so severe and continuous that the physician, who had been hastily summoned by the husband with the statement that "the old lady was pretty well racked," found it necessary to administer a narcotic, morphine sulphate grain one. The woman was pulseless and suffering from all the signs of shock and internal hemorrhage. Strychnine sulphate grain 1/20 was given hypodermically. At this time there was vaginal hemorrhage, necessitating, in his judgment, a vaginal tampon, also evidence of accumulating fluid within the abdominal cavity.

A diagnosis of cephalic presentation had been made. Position, to the left—presumably the left posterior, as that was the position at the time of operation.

The only thing that saved this woman from bleeding to death was undoubtedly the fixed position of the child after rupture, which prevented protrusion of the bowel and compressed, in part at least, the bleeding vessels. Forceps had not been applied nor had there been any attempt at version.

The woman was in a most unfavorable condition to operate upon, but it was her only salvation and worthy of the attempt, under spinal anesthesia, with vigorous stimulation. She was cold, clammy, and pulseless, so that ether and chloroform were out of the question.

Before going to the operating room, morphine sulphate, grain one quarter, and scopolamine, grain 1/100, were given hypodermically.

Stovaine, 4.25 cgm., was injected in the first lumbar interspace, on the operating table, with the patient on the side. Strychnine sulphate, grain one fifteenth, was given at the same time.

The median line incision, about five inches in length, was made, and the child, which afterward weighed nine pounds, extracted. The abdominal cavity was filled with clots and fresh blood. The placenta was located by following up the cord, well up against the diaphragm, entangled in the intestines. The ovarian arteries were ligated, while the broad ligaments and uterine stump, including the uterine arteries, were clamped with large hemostats, and allowed to remain in the lower angle

*Read before the Philadelphia Clinical Association, March 16, 1914.

of the wound, the handles protruding, surrounded with iodoform gauze, for fifty-two hours. This was done, of course, to save time. Blood clots were removed from the abdominal cavity by flushing with normal saline solution. The upper angle of the wound was closed with interrupted silkworm gut sutures.

After the removal of the clamps, on the third morning, the wound was packed with iodoform gauze and allowed to heal by granulation. This required about seven weeks on account of the thickened and indurated left broad ligament, which suppurated.

The stimulation during the operation, in addition to the strychnine, was, caffeine, grains four; one ampoule camphorated oil; digalen, minims fifteen, and one ampoule aseptic ergot—all given hypodermically. Intravenously: Adrenaline chloride solution, ten minims; one tablet of tyramine; normal saline solution, forty-four ounces. Oxygen was given continuously. The pulse, imperceptible at first, could soon be counted under the stimulation and varied from 160 to 150 to 142, and when the woman left the operating room it was 124.

Since there was no attempt at version nor instrumental delivery—the most frequent causes of rupture in labor—undoubtedly the rupture in this instance was the result of continued pressure against an unduly stretched and thinned lower uterine segment, cause by the malposition of the child. The unusual features in connection with this complication were: 1. The length of time between the rupture, or when it most probably occurred, and when it was possible to get her to the hospital and operate. 2. Though she was pulseless much of the time during the eighteen hours, she endured the trip, which included one half mile by carriage, twenty miles by train, and a mile in ambulance, contrary to what usually happens after complete rupture, unless operated upon very promptly. 3. Evidence of immediate improvement during operation with spinal anesthesia, with the stimulation used.

The mortality following complete rupture with early operation, varies from fifty to sixty per cent., while with delayed operation the mortality is from seventy-five to eighty-five per cent., but I have no knowledge of any recorded patient who has had the endurance to survive this length of time, under similar circumstances before operation, with rupture of this type. She is well and strong and, I am informed, the hardest working woman in the town in which she lives.

The second report is of a patient with fibromyxomatous degeneration of the chorion associated with an anomalous fetus, partially macerated, with hare lip, cleft palate, ankylosed shoulder and elbow joints, and ascites. The diagnosis of placenta prævia had been made by the family physician, Doctor Freeman, and it proved to be the marginal type.

CASE II. The age of this patient was twenty-six years, multipara, American. Weight 100 pounds. Occupation, household duties. The family history showed that the mother died from cancer at the age of fifty years, and that any relatives on the paternal side died from cancer and tuberculosis. On the maternal side, renal disease with nephropathy had been the predominant cause of death of the relatives.

The personal history gave the ordinary diseases of child-

hood; at the age of nineteen years a slight pulmonary hemorrhage, with recurring attacks for three years. Menstruation began at thirteen years, always normal, lasting three days, and of the twenty-eight day type. Married at twenty-two years. The first child died soon after birth. Three years ago gave birth to a normal child. Both labors were normal, as were the placenta and membranes.

Four months prior to the beginning of the present pregnancy, she miscarried at five months. No cause is assigned, except that a history of chronic catarrhal endometritis with leucorrheal discharge is given, which continued until the present pregnancy. No history of syphilis could be obtained. The last menstruation was May 10, 1913. Had slight flow in June and July, indicating imperfect fusion of the decidua, or some decidual disturbance at that time. Two weeks prior to admission, the lower extremities became swollen and edematous.

When admitted to the hospital, in addition to the hemorrhage, which had occurred six hours before, she had nausea and vomiting, with pain in the right side in the region of the liver. The liver was somewhat enlarged and congested. A catheterized specimen of urine gave a heavy trace of albumin, many squamous, and few round epithelial cells, few erythrocytes, some hyaline and many granular casts. The margin of the placenta could be distinctly palpated by digital examination and there was sufficient detachment, hemorrhage, and dilatation to warrant immediate emptying of the uterus.

The membranes were ruptured and the dilatation completed manually, compressing at the same time the detached portion of the placenta. A foot presented and when grasped, with the degree of maceration present, promptly separated from the body. After sufficient dilatation to extract an ordinary seven months' fetus, this one failed to move under fundal compression and slight traction on the remaining leg, but, instead, the cervix gave way like blotting paper, the laceration extending well up to the body of the uterus. Intrauterine examination discovered a cystic tumor as the cause of obstruction, which proved to be fetal ascites. The abdominal cavity of the fetus was perforated with a long sharp scissors and approximately two quarts of fluid were extracted. The fetus was then delivered without difficulty.

The placenta was large, thick, and fibrous in character, also adherent over a large area of the interior of the uterus, necessitating manual detachment; it weighed four pounds. Unlike the cystic degenerative changes, this was purely fibrous in character and the diagnosis of fibromyxomatous degeneration was confirmed by Doctor Wohl, the pathologist.

The change in consistence of the tissues of the uterus was so marked that it was difficult to make good repair on account of their friability. Good recovery followed and involution was complete in the usual time. Four months have elapsed and she is in good health, with no evidence of malignancy and no leucorrheal discharge.

This disease is so rare that little is found in the literature in reference to it. Virchow and Hildebrandt, and later Fischer, regarded it as fibroid degeneration of the connective tissue of the chorion at the placental site. It occurs late in pregnancy, and unless near enough to the cervical portion of the uterus to constitute a placenta prævia, does not interrupt the pregnancy. The patients go to term.

My own patients with cystic degeneration of the chorionic villi (six) and fibromyxomatous degeneration of the chorion (three) have shown no tendency toward malignancy subsequently, and some of them

have borne children since, which seems to disprove the theory of the close relationship between these conditions, particularly the cystic degeneration and the malignant decidual disease, chorioepithelioma. The only etiological factor discovered in this case, as with my other patients, was the previously existing endometritis.

Chloroform was the anesthetic used.

My third case was one of multiple subserous fibroids of the uterus, complicating pregnancy; hysterectomy was performed at the third month of gestation:

CASE III. Primipara, aged twenty-five years, with a negative family history. As to personal history, she began to menstruate at fourteen years, always suffered from dysmenorrhea. For three years before becoming pregnant, the menstrual flow increased in quantity and the pain became more severe. When pregnant one month, she discovered a lump in the lower portion of the abdomen, as she expressed it, associated with a feeling of intense weight and a desire to urinate more frequently than before.

About two weeks before being admitted to the Samaritan Hospital, she had a sudden sharp pain in the lower portion of the abdomen and back, also a slight hemorrhage. Doctor Lehman, her physician, obtained the following history: "Dysmenorrhea, intensified after marriage. Uterine discharge more or less constant, and semipurulent. Pain and tenderness in both inguinals. Amenorrhea, afterward found to be due to pregnancy. Growth discovered between the second and third month of pregnancy. Tumor about the size of an orange, not especially tender when palpated; situated at the isthmus, and involving the mesosalpinx. Constipation *always* present."

The reflex signs of pregnancy were exaggerated, which, together with the inguinal colic, the tumor in the cul-de-sac and to the left, and slight bleeding from the uterus, gave a clinical picture not unlike that of an unruptured ectopic gestation sac. By combined examination, the consistency of the tumor, per vaginam, was hard and inelastic; the cervix well up in the right inguinal region; the fundus of the uterus on a level with the umbilicus, slightly to the left of the median line.

Supravaginal hysterectomy was performed under ether inhalation anesthesia; the patient left the hospital in three weeks in good condition. The rapid growth of fibroid tumors during pregnancy is the rule, on account of the increased blood supply, so that the only unusual features in this case were the close similarity to ectopic gestation in many respects, and the infrequency of fibroids, complicating pregnancy at her age in life. The weight of tumors and uterus was four pounds.

My fourth case was one of placenta prævia centralis at the beginning of the eighth month. Cæsarean section was performed:

CASE IV. Family history negative. Personal history: Aged forty-two years. Hard working farmer's wife. Residence, Newton Hamilton, Pa. Weight 200 pounds. One child fifteen years ago. Last child, eight years old. No other children nor any miscarriages. She gave a history of continued leucorrhea, otherwise perfectly well. First hemorrhage January 7, 1914, slight; then at the end of her seventh month, January 9th, second hemorrhage, also slight, although greater than the first. January 12th, had the third hemorrhage, losing approximately a quart of blood. Was put to bed and tamponed by Doctor Bishop, of McVeigh town. She was kept in bed for three days to recuperate, then sent by train, about 200 miles, to the Samaritan Hospital.

Vaginal examination showed the cervix high, rigid, and unyielding, and only slightly dilated. Placenta could be palpated on all sides. Bleeding began again during examination. The child was viable and the heart sounds were good.

Cæsarean section was decided upon and performed under spinal anesthesia. Novocaine was

used, ten cgm., a little larger dose than usual on account of the size and weight of the woman.

Morphine sulphate, grain one quarter, and scopolamine, grain 1/100, were first administered hypodermically.

Pituitrin, one ampoule, was given before the incision was made, which by the way gave an absolutely dry field. The uterus was practically bloodless and remained firmly contracted until the abdominal cavity was closed. The Säger operation was performed.

The child was perfect, apparently, although feeble, and died in eighteen hours. The only assignable cause of the death of the child was loss of the maternal blood by the last hemorrhage, or possibly the effect of the pituitrin, as the uterus was firmly contracted when the abdominal cavity was opened. The dangers in the use of pituitrin, unless administered at the right time, with no obstruction nor anything to interfere with immediate delivery, were here shown.

The placenta was of the membranous type, covering a large area of the interior of the uterus, also the whole of the internal os. Recovery was uninterrupted and the patient left the hospital February 6th, twenty days after the operation.

This operation is not advocated for routine practice, but in selected cases, when the child is viable or when the cervix is rigid and unyielding and cannot be dilated quickly without great loss of blood. It certainly offers a very much better prognosis for the mother, also a better opportunity for the life of the child.

It is to be noted that the anesthetic in each case was different and carefully selected. The Cæsarean sections do remarkably well under spinal anesthesia with novocaine; no nausea and vomiting, no tendency to distention from gas or not the same tendency as from ether, and no tendency to acute dilatation of the stomach. The wisdom of using scopolamine morphine in advance is questioned, because of the danger of transmission to the child.

3540 NORTH BROAD STREET.

THE TREATMENT OF SCARLET FEVER.

BY HENRY C. BECKER, M.D.,
New York.

The treatment of scarlet fever will be modified by the severity of the attack, the age of the patient, and the complications. For the sake of convenience the treatment may be considered as it applies to the different forms, mild, moderate, and severe, scarlatina anginosa, the hemorrhagic and malignant types, the treatment of the complications, prophylaxis, and dietetics.

Mild cases.—In these no internal medication is required. However, regardless of how mild the infection or evanescent the rash, the patient should be put to bed and kept there absolutely for four weeks. This class as much as any other has a nephritis for a complication. The room temperature should be kept at about 70° F. and the patient should wear flannels to guard against the possibility of draughts; errors in diet and chilling of the skin

from exposure are the most frequent causes of the nephritis; because of the very mildness of the disease in these cases the parents, nurse, or guardians must be warned and impressed with the importance of these orders.

These patients, when children, are frequently very hungry, and for that reason it is best to control their diet for two or three weeks at least, even if albuminuria is not detected. The physician should be very explicit with those who have to do with the nursing in these mild cases (and in the average household it is the mother), for while she will understand and be most willing not to give meats, still she may be anxious to give the beef juice from a roast of beef or concentrated beef broths, thinking them to be "light" and "nourishing." Milk should be the basis of the diet; junket, milk toast, custard, sago with cream, vanilla ice cream, bread and milk, farina, oatmeal, cornstarch, rice boiled or as a pudding, crackers and bread, baked potatoes, baked apple and cream, apple sauce, stewed prunes, orange and grape juice. The resumption of animal fare should be very gradual in all cases and fish, oysters, chicken, and eggs should be given before beef, lamb, and mutton.

In mild cases as in all other types of scarlet fever, oil of eucalyptus should be employed externally for rubbing because of its powerful antiseptic and disinfecting properties. As a disinfectant, oil of eucalyptus is stated to be three times stronger than carbolic acid (White and Wilcox); the "old" oil is more effective even than the "new." Externally it is less irritating to the skin than most essential oils, which is important when we consider a new and sensitive epidermis. As it evaporates from the body the vapor is inhaled and exerts a disinfecting action on the air passages and lessens the tendency to ear and throat complications. The oil may be used pure before the desquamation has set in, the patient being rubbed once or twice daily with the same, but after desquamation it should be mixed with equal parts of liquid petrolatum or a cold cream made with liquid petrolatum as a base, which is the cold cream of the average pharmacy today. The reason for this dilution is that oil of eucalyptus is an essential oil evaporates, leaving no residue; to prevent "dusting" of the desquamated epidermis, a fixed oil is added, and as oil of eucalyptus in large doses internally is said to be an irritant to the kidney cells, it is just as well to employ a fixed oil that is nonabsorbable by the skin. The mixed oil rubbed in the patient's skin every morning after desquamation has set in acts as a protective against accidental chilling from possible exposure. There is no objection to bathing the patient with soap and tepid water every morning prior to rubbing with the oil.

In the itchiness that some patients complain of, the oil gives great relief; for the same purpose the writer has employed with satisfactory results some of the different lubricating jellies on the market made from Irish moss, glycerin, and containing some formaldehyde solution.

Severe and moderately severe forms.—To reduce restlessness, delirium, or excessively high temperature, the patient may be sponged with alcohol and water, equal parts, and this failing a cold pack may

be employed. When a bath is used the patient should be immersed in a tub of water having a temperature of 90° F., and afterward cold water or ice may be added until the temperature is reduced to 80° F. In all, the bath should last from three to five minutes. The patient's pulse should be noted during the bath, and the temperature should be taken just before and ten minutes after to note whatever effects it might have had. Such baths may be repeated at three or four hour intervals. In hyperpyrexia an ice cap to the head may be employed. Some recommend irrigating the bowels with a pint of cool water containing ten grains of sodium sulphocarbonate. The coaltar derivatives and antipyretics should not be employed because of their depressive action. High post eruptive fever is often the result of faulty ingestion and digestion. A dose of castor oil or solution citrate of magnesia may work wonders with a high fever from such cause. In all forms of scarlet fever it is advisable to keep the bowels active.

In young children the onset of the disease is often ushered in with convulsions; here a few whiffs of chloroform and an enema may be sufficient for their control. Should they persist, five grains of chloral hydrate, for a child one year old, dissolved in a teaspoonful of warm water, injected into the rectum, may control the convulsions; if a larger amount of water, i. e., one ounce, is used, it may dribble away. Should the convulsions recur, for a child one year of age, give a hypodermic injection of morphine sulphate, grain 1/16. An ice bag may be applied to the head. If the pulse is weak or when the first sound of the heart is not strong, or the two sounds lose their normal tone, stimulation must be started; strychnine sulphate, grain 1/100, every three or four hours for a child of three to six years of age; children when in a toxemic state tolerate large doses of strychnine. If the pulse is poor and of low tension, and no myocarditis exists, or if there is valvular disease and lack of compensation, tincture of digitalis in doses of two to five minims every four hours can be used. If there is sudden heart weakness and immediate response is demanded, camphor dissolved in sweet almond oil, one, two, or three grains, or solution of adrenaline chloride in doses of two to five minims should be given hypodermically.

The throat and urine are to be examined daily. The patient with an inflamed throat should gargle every hour with Dobell's solution and warm water, equal parts. Hydrogen peroxide diluted with water, one part peroxide and six or eight of water, may be employed. In young children unable to gargle a spray should be used.

In the severe anginous cases the throat symptoms outweigh all others; the membrane may spread to the faucial pillars, uvula, and also into the nares, greatly resembling a diphtheritic membrane; a culture should at once be taken to determine the presence or absence of Klebs-Loeffler bacilli. Once a day the throat should be painted with a fifty per cent. resorcin solution in alcohol (Seibert), and, besides, gargling and spraying should be done. When the membrane is extensive, spreading into the nares, hot saline irrigations should be employed; a fountain syringe with a nasal tip attachment is em-

ployed for this purpose and the bag should be held almost two feet above the level of the patient's head, who if a child is wrapped in a sheet and laid on its side while the nostrils are irrigated; should there be sloughing and fetor, a few crystals of potassium permanganate should be added to the hot normal saline solution, until it is a light pink in color; the potassium permanganate will act as a deodorizer. The irrigations may be repeated at three hour intervals. These patients often get great relief from holding pieces of cracked ice in the mouth; and if immediately afterward the patient's nose and throat are irrigated with hot saline solution, the treatment seems more effective and gives greater relief than when either is used alone (Winters). Steam inhalations from a croup kettle are also useful.

Malignant cases.—In this class of cases there is an overwhelming of the patient's system by a profound toxemia, a veritable shock is sustained. Here a hypodermic of morphine, grain 1/16, for a child one year of age, grain 1/8 to 1/16 for a child of eight or ten years, is of service in counteracting the shock to the constitution. For the pronounced vomiting, cocaine muriate, grain 1/4, in a capsule with bismuth subcarbonate, five or ten grains, for a child four to six years old may be of service. High colonic irrigations with warm saline solution should be used; when the pulse is weak and the heart demands stimulation the treatment as already outlined is indicated. Oxygen gas if the patient is dyspneic and stuporous should be constantly used.

In the hemorrhagic type, which is more severe, the blood is so disorganized that vomiting of blood takes place along with hemorrhages into the skin and submucous membranes; while the treatment as already outlined is indicated, these cases are invariably fatal. If the patient is cold and pale, hot baths are needed and dry heat when out of them.

COMPLICATIONS.

In scarlet fever, complications have a tendency to involve the kidneys and the serous membranes.

Nephritis.—The urine in all cases should be examined at frequent intervals for albuminuria, although a puffiness of the eyelids may precede its presence. When this condition exists the patient should be given small doses of calomel at frequent intervals, followed by a saline purge; after this the bowels should be kept active to aid in eliminating toxins. To stimulate diuresis, high colonic irrigations of normal saline solution at 110° to 115° F. should be employed at three or four hour intervals. To stimulate diaphoresis a hot dry air bath may be given the patient; hot water bags are placed in the bed about the patient, who is warmly covered by woolen blankets, between which is a rubber sheet. This usually suffices to start the patient sweating, but if it should be delayed a hot pack or hot bath may be given; the hot bath is not to be repeated, as it makes the skin too sensitive. As for medicines, if the patient has a high temperature with a bounding pulse, tincture of aconite should be administered in conjunction with the alkaline diuretics. Two minims of the tincture may be given every one or two hours till the temperature and pulse respond; this for a child of five to twelve years of age, younger chil-

dren get half the dose or in proportion. Liquor ammonii acetatis in half teaspoonful doses, potassium citrate, acetate, and bitartrate in five and ten grain doses are suitable for children of ages as given.

As for food, the patient should be on an exclusive milk diet or some modification of milk; if fever is high, the milk should be peptonized. The patient should be encouraged to drink plentifully of water to promote elimination and kidney stimulation.

Otitis media.—When earache is complained of by older children, or when a baby maintains a high temperature without other known cause and cries, is stuporous with symptoms akin to a meningeal irritation, always examine the eardrums. If red and bulging, incise immediately; afterward hot irrigations with a one to 10,000 bichloride solution are necessary. In babies a local or general anesthetic is not usually employed when incising the eardrums, but in older children it may be advisable. First instill into the ear a small amount of solution of adrenaline chloride, one to 5,000, and let remain for five minutes; then dry the ear and introduce against the eardrum a pledget of cotton wet with a few drops of Bonain's liquid. Let remain *in situ* for a few minutes and then incise. The Bonain's liquid is prepared by titrating in a mortar equal parts of crystallized carbolic acid and menthol and finally adding a similar amount of pure cocaine (not the salt of the alkaloid).

Cervical lymphadenitis is common in cases where throat symptoms are pronounced; beside the treatment of the throat condition, cracked ice may be applied externally unless signs of suppuration are present, when the glands should be incised and drained. Unguentum Credé applied to the swollen glands before suppuration is well worth trying. Sometimes a twenty per cent. ointment of ichthyol in wool fat gives relief from pain and prevents suppuration.

Scarlatinal rheumatism is really a septic infection of the joints or muscles. Externally a mixture of equal parts of ichthyol, oil of wintergreen, and wool fat may be applied and spread on the affected site, covered in turn with cotton batting and oiled silk. Sometimes codeine with small doses of phenacetin may have to be given for the pains.

Vulvovaginitis requires frequent cleansing with warm boric acid solution, employing a soft rubber catheter; after drying vulva, dust with compound stearate of zinc.

Other complications of less frequent occurrence are endocarditis, myocarditis, pericarditis, pleurisy, and peritonitis, and a consideration of their treatment need not be gone into here.

PROPHYLAXIS.

When a case of scarlet fever is discovered in a family of children the patient should at once be isolated and the well children removed to another home, and for fear that they have been exposed to the infection, they should be kept out of school for a week and under observation, with frequent examination of their throats and temperature.

The patient should be placed in an isolated room at the end of the apartment, so that others need not go through or past the room, or if in a house the patient should preferably be put on an upper floor

All hangings, rugs, carpets, and superfluous furniture should be removed from the room. Only such books and toys should be allowed as may be destroyed afterward. The nurse should wear a washable dress as well as a hood to protect her hair; the physician should wear a gown or duster in going into the patient's room, and which he may leave hanging on a nail outside the door when he leaves. Often a sheet soaked in two per cent. carbolic solution has a salutary effect in reminding folks of the quarantine. To remove linens, bedclothes, and the patient's nightclothes from the room, a wash boiler or tub half full of water and preferably containing some chloride of lime should first be brought in and the materials immersed in it; this will prevent "dusting about" of desquamated epithelium in removing clothes from the room. The clothes should then be thoroughly boiled and afterward rinsed.

When the quarantine is over the patient should have an antiseptic bath and a shampoo; a very weak bichloride solution will answer; this also applies to the nurse in charge. Fresh clean clothing may then be put on. There then remains the fumigation of the room and its contents. The windows and doors must be tightly closed and sealed and a formaldehyde gas generator outside the room forces the vapor through the key hole. The room should be kept closed for several hours and then well aired. If other children are to occupy the room it may be advisable to have it "done over," the wallpaper removed, the woodwork washed, and the ceiling calcimined.

The duration of the quarantine in this disease should be at least six weeks or until all skin has desquamated; eight weeks would be better yet. To aid in removal of the dead skin from hands and feet, pumice stone may be employed along with repeated soakings in warm, soapy water.

Convalescents are frequently hungry, and their diet should have supervision for two months after the onset of the disease; beside this for the secondary anemia that may be present a mild chalybeate tonic may be useful.

R Misturæ ferri et ammonii acetatis, ... $\bar{3}$ i;
Glycerini, ... $\bar{5}$ iv;
Aque, q. s. ad..... $\bar{3}$ iv.
M. Sig.: A teaspoonful every four hours in water.

229 WEST 105TH STREET.

EOSINOPHILIA IN CHOREA.

A Preliminary Study.

BY SIMON S. LEOPOLD, M. D.,
Philadelphia.

(From the service of Dr. Charles W. Burr, at the Orthopaedic Hospital and Infirmary for Nervous Diseases.)

At the suggestion and through the courtesy of Dr. Charles W. Burr, I was enabled to study the blood in eighteen cases of chorea. I am also indebted to Dr. W. G. Spiller for the use of two of his cases in the University Hospital. In each case a differential count was made. Several counts were made on each slide, and the average was selected, as a final result. In eleven of the cases a complete blood count was also made. The following is a brief summary of each case as studied, with special reference to the percentage of eosinophiles found.

CASE I. G. B., male, aged seven years. First attack of chorea April 26, 1913. Applied to hospital May 26, 1913, with moderately severe and generalized choreiform movements. Family history of rheumatism. Rheumatism and endocarditis occurred one month before onset of chorea. Blood examination, June 23, 1913, leucocytes, 9,760; eosinophiles, two per cent.

CASE II. E. L., female, aged seven years. First attack June 16, 1913. Generalized moderately severe choreiform movements. Family history of rheumatism. Patient's previous medical history negative. Heart normal. Blood examination, June 23, 1913, leucocytes, 5,760; eosinophiles, five per cent.

CASE III. M. N., female, aged fourteen years. First attack of chorea June 16, 1913. Choreiform movements limited to left side. Some slight affection of speech. Family history negative. Patient had had ordinary diseases of childhood; appendicectomy fourteen months before the onset of chorea. Heart normal. Blood examination, June 30, 1913, leucocytes, 7,120; eosinophiles, two per cent.

CASE IV. E. F., male, aged five years. Applied July 1, 1912. First attack June, 1912. General, not severe choreiform movements. Family history of rheumatism. Patient had rheumatism one month before onset of chorea. Blood examination, July 7, 1913, leucocytes, 5,200; eosinophiles, two per cent. There was also a distinct and severe secondary anemia. Red blood cells, 2,930,000; hemoglobin, sixty per cent.

This patient did not show any evidence of chorea at the time blood examination was made.

CASE V. M. H., female, aged seven years. First attack of chorea, autumn, 1908; second attack, February, 1911; third attack, February, 1912; fourth attack, July 2, 1913. Generalized choreiform movements; speech affected. Family history negative. Previous medical history: Pneumonia preceded first attack; varicella preceded second attack, third and fourth attacks occurred without any immediately preceding illness. Heart normal. Blood examination, July 7, 1913, leucocytes, 11,360; eosinophiles, sixteen per cent. Feces negative for ova and parasites.

CASE VI. E. W., female, aged nine years. Applied July 14, 1913. Attacks began five months before with constant blinking of left eye and restless movements of hand, not typically choreiform. Family history, father died of some type of insanity. Previous medical history, endocarditis, the time of onset of which could not be ascertained. Blood examination, July 14, 1913, leucocytes, 6,240; eosinophiles, three per cent.

CASE VII. J. R., male, aged eight years. First attack March, 1913. Choreiform movements confined to left side; distinct weakness of left arm and left leg. Family history negative. Previous medical history negative. Blood examination, August 11, 1913, leucocytes, 18,140 (probably explained by the fact that the patient had a burned hand); eosinophiles, four per cent.

CASE VIII. E. N., female, aged fourteen years. Applied August 11, 1913. First attack began one month before application to hospital. Slight generalized choreiform movements. Family history negative. Previous medical history, first menstruation two months before coming to the hospital, otherwise negative. Blood examination, August 18, 1913, leucocytes, 10,080; eosinophiles, five per cent.

CASE IX. T. C., male, aged twelve years. First attack March 25, 1911; second attack, August 28, 1911; third attack, February 24, 1913; fourth attack, January 5, 1914. Mild, generalized choreiform movements. Family history, one sister had chorea. Previous medical history, appendicectomy, July, 1913. Blood examination, March 16, 1914, eosinophiles, thirteen per cent.

CASE X. J. M., male. Applied June 23, 1913. First attack, June 13, 1913; second attack, March 2, 1914. Generalized, severe, choreiform movements. Family history negative. Previous medical history, rheumatism, February, 1913. Blood examination, March 16, 1914, eosinophiles, three per cent.

CASE XI. M. C., female, aged sixteen years, married. First attack of chorea occurred at seven years of age; second attack, February, 1914. Movements generalized and moderately severe. Previous medical history negative except for ordinary diseases of childhood. Blood examination, March 18, 1914, eosinophiles, four per cent.

CASE XII. S. S., male, aged eight years. First attack September 23, 1912; second attack, June 2, 1913; third attack, November 3, 1913. In each attack marked generalized

choreiform movements. Family history negative. Previous medical history, negative. Blood examination, December 16, 1913, leucocytes, 14,560; eosinophiles, fifteen per cent.

CASE XIII. E. S., male, aged nine years. First attack December 1, 1913. Severe, general, choreiform movements. Family history, rheumatism and erysipelas. Previous medical history, patient had rheumatism, July, 1913. Blood examination, December 16, 1913, leucocytes, 15,440; eosinophiles, six per cent.

CASE XIV. J. K., male, aged seven years. First attack, January 27, 1911; second attack, March 4, 1912; third attack, November 18, 1912; fourth attack, October 13, 1913; fifth attack, February 9, 1914. All attacks have been severe; twice been admitted to hospital. Family history, mother had three attacks of chorea as a child. Previous medical history negative. Blood examination, December 16, 1913, leucocytes, 15,520; eosinophiles, eight per cent.

CASE XV. S. Q., female, aged seventeen years. First attack, 1907, duration, two months; second attack, 1910, duration one month; third attack, 1911, duration four months; fourth attack, 1913. Applied to hospital March 16, 1914. Patient said that the present attack was a continuation of the one which began in April, 1913. Family history, insanity. Previous medical history, negative. Blood examination, March 23, 1914, eosinophiles, six per cent.

CASE XVI. B. A., female, aged nine years. First attack, March 2, 1914. Movements general, not severe. Family history negative. Previous medical history, patient had anterior poliomyelitis four years ago. Rheumatism and endocarditis four months ago. Blood examination, March 23, 1914, eosinophiles, two per cent.

CASE XVII. E. S., female, aged thirteen years. First attack, October, 1913; second attack, March 19, 1914. Mild choreiform movements. Family history of rheumatism. Previous medical history, negative. Blood examination, March 23, 1914, eosinophiles, two per cent.

CASE XVIII. M. B., female, aged eight years. First attack of chorea, March 16, 1914. Moderately severe generalized choreiform movements. Some involvement of speech. Family history negative. Previous medical history negative. Blood examination, March 23, 1914, eosinophiles, one per cent.

CASE XIX. H. C., male, aged ten years. First attack, March, 1914. Generalized choreiform movements. Slight weakness of left side. Speech affected. Family history of rheumatism. Previous medical history, negative, except for tonsillitis. Blood examination, March 23, 1914, eosinophiles, one per cent.

CASE XX. S. S., male, aged twelve years. First attack two years before coming to the hospital; second in March, 1914. Family history negative. Previous medical history, rheumatism immediately before the first attack of chorea. Blood examination, March 23, 1914, eosinophiles, one per cent.

There was some doubt as to whether this case was one of true Sydenham's chorea or habit spasm.

The cases studied with reference to the percentage of eosinophiles reveals the following:

1. Of the twenty cases a distinct eosinophilia varying from four to sixteen per cent. was present in ten (fifty per cent.).

2. There were nine patients showing recurring attacks of chorea. The number of attacks varied from two to five. Eosinophilia was found in six of the nine patients (66 $\frac{2}{3}$ per cent.).

3. Four of the nine patients showing recurring attacks of chorea had only a single recurrence. Of these four cases, eosinophilia (four per cent.) was present in one. The three remaining cases did not show eosinophilia. In one the diagnosis was very doubtful.

4. The five remaining cases showed from three to five distinct recurrences; eosinophilia ranging from six to sixteen per cent. was present in every case.

5. There were eleven cases in which the blood

was studied during or after the first attack. Three of these need not be considered, because in one the diagnosis was extremely doubtful, and in the other two there was no chorea perceptible at the time the blood examination was made, although the patients had apparently recovered from true chorea. None of the three showed eosinophilia.

6. Of the eight remaining cases studied in the first attack, eosinophilia ranging from four to six per cent. was present in four (fifty per cent.). In none were the eosinophiles higher than six per cent., whereas in the recurring cases thirteen, fifteen, and sixteen per cent. were observed.

In referring to the literature, to find whether eosinophilia had been observed in chorea, I was struck by the fact that the standard textbooks in English, *Osler's System*, the English translation of *Oppenheim's System*, and the English translation of *Nothnagel's System* had no reference to the study of the blood in chorea. The same thing was true of the standard German authorities, Curschmann and Lewandowsky. In referring rather exhaustively to the current literature, I was able to find the following references.

In 1902, Dr. Thomas R. Brown, in the *Maryland Medical Journal*, refers to twelve observations on the blood of two cases of chorea. He found eosinophilia ranging from 5.2 to 9.5 per cent.

In *Clinical Examination of the Blood*, R. C. Cabot, fifth edition, 1904, is this statement: "Chorea showed in twelve cases normal blood except for increased per cent. of eosinophiles."

Also C. J. Macalister, in the *British Medical Journal*, 1909, writing on Observations concerning the Blood in Chorea and Rheumatism, accidentally observed that the first two cases of chorea studied showed respectively twenty and sixteen per cent. eosinophiles. He thought it possibly due to unsuspected ova or parasites, but examination of the feces gave absolutely negative results. He subsequently counted the blood in six or eight cases and found eosinophilia in all but one. None of the cases of rheumatism showed this peculiarity.

Any conclusion based on the study of twenty cases must necessarily be largely speculative and only preliminary to future investigation along the same line. Therefore, subject to future study, this preliminary report indicates the following:

1. Eosinophilia is present in the majority of cases of true Sydenham's chorea.

2. Eosinophilia is present almost invariably in recurring cases, especially where there has been more than a single recurrence. To the best of my knowledge this fact has never been reported. Because of the limited number of cases studied, this observation must be taken tentatively, pending future and more exhaustive study.

3. The absence of eosinophilia in every case where the diagnosis of true chorea was in doubt may prove of some diagnostic significance in borderline and doubtful cases.

4. The presence of eosinophilia in the majority of cases is in favor of the theory of the infective origin of chorea rather than the theory that chorea is a functional neurosis.

And finally, further investigation in this field, the study of the blood picture in various stages of the

disease, with recourse to blood cultures and other bacterial investigations, may lead to some clue regarding the etiology, which is at present entirely a matter of conjecture.

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THE NECESSITY FOR COOPERATION OF THE MEDICAL PROFESSION IN THE SUCCESSFUL TREATMENT OF PYORRHŒA ALVEOLARIS.

By DAVID BERNHARDT FREUNDLICH, D.D.S.,
New York,

Visiting Dentist, Hospital for Deformities and Joint Diseases; Consulting Dentist, Sydenham Hospital.

This paper is not a treatise on pyorrhœa alveolaris, nor is it a claim to any wonderful therapeutic discovery. It is an appeal for the cooperation of the medical profession in the prevention and treatment of the disease. Dr. Charles H. Mayo, at a meeting of representative physicians and dentists in Chicago some time ago, said: "The next great step in medical progress in the line of preventive medicine, should be made by the dentists. The question is, will they make it?"

The writer asserts that the dentists are willing to make the step, but asks another question: Will the physicians cooperate? The careful and skillful dentist knows that patients suffering from pyorrhœa alveolaris can be benefited by the aid of a physician, and he realizes that it is important to advise constitutional treatment by the family physician. It is known that fully seventy-five per cent. of the diseases of the human race, originate in the mouth. Very often, for business as well as for financial reasons, the mouth is neglected. A constitutional ailment, incapacitating the individual, will generally demand immediate attention on the part of the patient, and it is here that it is necessary for the physician to recognize an oral condition as a possible etiological factor in the systemic disturbance, at the same time advising specific dental treatment.

In no branch of dentistry is the need of cooperation by the physician so evident as in the treatment of pyorrhœa alveolaris. All cases, whether treated cooperatively by the dentist and physician, or by the dentist alone, will show a degree of improvement, but in the writer's experience, the best results were obtained in those cases which were treated conjointly by the dentist and physician.

Uric acid diathesis, gout, rheumatism, arthritis, are among the systemic conditions that frequently produce local manifestations in the gums, and when such conditions come under the physician's notice, a careful examination of the oral cavity, especially the gums, is of great importance. Pyorrhœa alveolaris is too well known to the medical profession to call for an extensive explanation, but a brief history of the disease may serve to refresh the mind of the busy practitioner.

For centuries this condition has been recognized and treated by the medical and dental professions.

Celsus, at the beginning of the first century, prescribed remedies for "fastening loosened teeth." At this time Pliny, also, makes mention of medicines that were used to make loose teeth firm, and the subject of cleanliness of the teeth was given great consideration and care. For "strengthening the gums" astringent substances in water, wine, and vinegar were advocated and prescribed. Fifteen hundred years later, Ambroise Paré made unmistakable mention of this condition, and about the same time (1559) a book, *Zeen Artznei* (tooth doctoring), was published in Germany, author's name not given (may have been a second edition of Peter Jordan, published 1532), in which under the title of *Dentium Commotio* the author describes a premature dropping out of the teeth. The condition at that time was thought to be due to a deprivation of blood from "the thing that holds the teeth" and the use of local and constitutional remedies was advised. Mouth washes were prescribed in the form of wine in which burning gall apples had been dropped and extinguished, and olives boiled in water.

In the next century, Friedrich Ruysch, professor at Amsterdam, made exhaustive studies in the anatomy of the teeth and devoted a great deal of time to the study of the vessels connected therewith. It was he who called attention to the membrane lining of the maxillary sinus and discovered in it a number of bloodvessels. He tells us that there is an atrophy of the "alveolar parietes" following the extraction of teeth and that the same change takes place in the falling out of the teeth. He also mentions that the teeth become more and more loosened in proportion to the atrophic process, and points out that this condition is generally due to scurvy, but that sometimes it is caused by accumulations of tartar. He substantially confirms the relation existing between accumulations of tartar and pyorrhœa alveolaris. At this time, too, Leeuwenhoek drew attention to what he called "animalcules" of deposits on the teeth. More recently, J. M. Riggs (1869) stated that he had recognized and treated pyorrhœa alveolaris "for the past twenty-five years."

Locking further into the literature, the writer finds that in 1873, C. W. F. Bodecker (1), assisted by W. H. Atkinson, treated cases in a Brooklyn clinic. It might be interesting to note that the treatment followed in this clinic consisted in the complete removal of all calcareous deposits, this being accomplished at one sitting under cocaine phenate applied for four or five minutes under the gum on cotton. The pockets were then washed out with an antiseptic solution. Bodecker about this time said: "I claim that as long as the system retains its normal vitality, pyorrhœa alveolaris will not occur." A little later, in 1877, the name pyorrhœa alveolaris was adopted.

Younger (2), in 1894, recommended acupuncture—rapidly piercing the gums with a sterile needle—in flabby gums. In destruction of the alveolar septi, he passed a threaded needle through the gums and between the roots, and approximated them as nearly as possible. He maintained that by subsequent washes he was able to "restore teeth that for many years had been useless." In 1899, Dr. G. Lenox Curtis (3) said: "I believe that pyorrhœa alveolaris

can be cured. The restoration of the general health is essential in conjunction with local treatment." During this year, also, Fitzgerald (4), writing in England, says: "Although, strictly speaking, this condition lies within the province of the dental surgeon, yet it should be of great interest to the physician, since upon it may depend many disturbances of the whole system, particularly of the digestive organs."

Pyorrhœa alveolaris was first treated radiotherapeutically in 1902, by Sinclair Tousey (5), whose articles on dental radiography have been of inestimable value to physicians and dentists. Very recently active work has been done under the name of vaccine therapy, in its application to pyorrhea. Wright holds that by means of vaccines, the "bacterial power of the blood can be increased for any microbe invading the body." He was able to say in 1906, that by the vaccine method he had achieved uniform success. More recently, Dr. Joseph Head spent some time in the investigation of bacteria present in pyorrhœa alveolaris. Friederich Hecker (6), of St. Louis, 1913, classifies pyorrhœa alveolaris, giving this condition a most thorough consideration and devoting much thought to the vaccine treatment.

A paper entitled, *The Possible Relationship of Organic Diseases of the Nervous System to Riggs's Disease*, written by Joseph Collins, M. D., appeared in the June number of the *Journal A. M. A.* of this year, in which the author said, "I have had experience which convinces me that Riggs's disease may be the source from which serious organic diseases of the nervous system flow; I can offer no other proof of the truth of this statement than the occurrence of such disease in persons afflicted with pyorrhœa alveolaris; the absence of other etiology and the amelioration or disappearance of the disorder after the pyorrhœa had been treated locally and constitutionally by means of autogenous vaccine" and again later in the paper "the time has apparently come when it is incumbent upon us to treat seriously what has seemed to be only an offensive disorder and to institute early measures that will prevent a systemic infection which may be far reaching and extremely serious." The introduction of the vaccine treatment, it will be noted, marks the first radical change in the treatment of this disease during a period of eighteen hundred years. Whether or not this treatment will be efficacious in combating this condition, it is much too soon to say. The writer has made no comprehensive study of vaccine therapy, but he is watching with great interest the work of those actively engaged in it.

The following method of treatment which the writer has employed, generally, in pyorrhœa alveolaris has been found by him from study and experience to give the most uniform results. This treatment, however, has been modified to meet the requirements of the individual case.

The mouth is first sprayed with an antiseptic solution and all deposits are removed from the teeth, care being taken not to injure the soft tissues. Specially designed instruments are employed to reach surfaces which are difficult of access. The

writer begins on one tooth and does not leave it until it is thoroughly scaled. Where there are pus pockets, it is sometimes necessary to cauterize the part to check the formation of pus. A twenty-five per cent. solution of phenolsulphonic acid is used for this purpose. This is applied deep on an applicator. Where the pus is persistent after treatment, resorption of the root should be looked for, in which case it may be necessary to extract the tooth or to amputate the root.

After scaling the teeth, the mouth is again rinsed out with an antiseptic solution. The teeth are then thoroughly cleaned with orange wood and pumice and once more sprayed with an antiseptic solution, care being taken to force the solution around the gum margins and between the teeth. A complete sterilization of all instruments cannot be too strongly urged. The parts are then made dry and an astringent is applied, under the free margins of the gums. This is best accomplished with a glass instrument. The writer uses the following astringent, according to Buckley:

R Potassii iodidi, ...	.5ii;
Iodi (crys.), ...	.3iiss;
Zinci phenolsulphonatis, ...	.3ii;
Aquæ, ...	.5vi;
Glycerini, ...	.3iiiss.

The mouth is finally sprayed with an antiseptic solution. Where the pulp is in a low state of vitality, or a mechanical appliance is to be adjusted, or where the tooth is so sensitive as to be of constant annoyance to the patient, it is necessary to remove the pulp. To meet the requirements of the case, the patient is instructed to return at stated intervals, and advised as to the necessity of massaging the gums and keeping the mouth in an hygienic condition. Constitutional treatment by the family physician is always recommended and urged. Following are several interesting cases which have come under the writer's observation and treatment:

CASE I. Miss B. N., aged thirty years, secretary. An examination showed a marked recession in all the teeth, and the gums were highly inflamed and excruciatingly painful. The writer advised constitutional treatment to include a regulation of the diet. To prevent secretions from further attacking the gums and teeth, the patient was instructed to apply a chalk and water paste to the gums before retiring and to keep the mouth at all times in an hygienic condition. The usual pyorrhea treatment was administered, and after fifteen treatments the case showed marked improvement, the progress, however, being very slow at first. The constitutional treatment advised by the doctor was strictly followed by the patient.

CASE II. Mr. F. W. S., aged twenty-eight years, college instructor, was referred to the writer September 13, 1913, by Dr. Louis Jacobs, of New York. Upon examination pus pockets were found present around the six lower anterior teeth, the upper left bicuspsids, upper and lower right first and second molars. The teeth in general were a little loose. This condition of the mouth was recognized by the physician, who advised treatment at once. The writer treated the case for several weeks, using the specially designed instruments for removing the deposits, and the necessary local medication, the patient at the same time being instructed to massage the gums and to keep the mouth in an hygienic condition. The patient was discharged in six months with healthy gums. There were no pus pockets, the teeth were tight in their sockets, and the mouth in general presented a normal condition.

CASE III. Mrs. M. C. F., aged fifty years, referred to the writer by Dr. S. A. Maybaum, of New York. Examination showed reddening at the margins of the gums, pus pocket left lower central. After carefully scaling the

teeth carrying out a distinct system of selection, treating the pus pocket, and using the necessary astringent, the teeth and gums returned to the normal condition. The usual advice was given as to massage and keeping the mouth clean and a continuance of the constitutional treatment urged. The patient was instructed to return in six months.

CASE IV. Mrs. B. S., aged forty-five years, referred to me by Dr. Louis Kunz, of New York. Examination showed marked recession of the gums in the region of the canines and bicusps. The gums were turgid and bled profusely on the slightest provocation. Treatment had been advised by the physician to preclude the possibility of losing the teeth. After six treatments the congestion had subsided and the gums were hard and pink.

CASE V. Mrs. S., aged forty-five years, rheumatoid arthritis. This case came under the writer's treatment during his service at the Hospital for Deformities and Joint Diseases in August, 1913. The patient was confined to bed. An examination showed a fully developed case of pyorrhea. The writer removed some faulty bridge work and followed his regular method of procedure for pyorrhea. Constitutional treatment was administered by the advice of Dr. Henry W. Frauenthal, physician and surgeon in chief of the hospital, and in twenty-two treatments the gums were hard and pink and practically restored to their normal condition. The improvement in the patient's general condition was marked.

CASE VI. Dr. E. L. S., aged forty-three years, physician. The patient recognized the condition and came to the writer for treatment. An examination showed a general loosening of the teeth, gums engorged with blood and flabby. It was found necessary to extract the right second upper molar on account of resorption of the alveolar process. After twelve treatments, the gums were restored to the normal color and the teeth, generally, became firmer in their sockets. Difficulty was experienced with the molars, which to the present time have not responded satisfactorily to treatment. Constitutional remedies were used conjointly with the local treatment, and the patient was instructed to maintain an hygienic condition of the mouth. The gums and teeth were no longer sore and mastication could be performed without discomfort.

CASE VII. Mr. W. H. K., aged forty-three years, tailor, rheumatoid arthritis. This case was referred to me by Dr. S. Reitzfeld, of the Hospital for Deformities and Joint Diseases, under the service of Dr. Herman C. Frauenthal. An examination showed a typical case of pyorrhea. The teeth and gums were in a filthy condition. The writer instituted the regular form of pyorrhea treatment conjointly with the constitutional treatment, and in sixteen treatments the gums and teeth were restored to their normal condition. The arthritis did not entirely clear up, although marked improvement was shown.

Frank Billings, M.D., of Chicago, and others have averred that many cases of arthritis are cured where the infection can be traced to the oral cavity and removed. This should be of interest to the physician and an incentive to him to recognize the condition and advise expert pyorrhea treatment for cases coming under his notice.

In conclusion, the writer wishes to call attention to the fact that the cases cited were those that were recognized by the physician, and for which pyorrhea treatment was urged and employed. To the writer's mind, pyorrhoea alveolaris may be compared to any wasting disease, where the degree of recovery depends upon the stage in which the case is presented for treatment. For too many years the medical and dental professions have been considered separate and distinct, while as a matter of fact they are one profession. The day may come when all physicians will be required to be dentists, and all dentists physicians, but until that day, is it not the moral duty of the physician and dentist to co-operate in the study of this disease for the scien-

tific advancement of the combined professions and for the greater welfare of the patient?

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212 WEST 112TH STREET.

A NEW ELECTRIC OPHTHALMOSCOPE.

BY CHARLES H. MAY, M.D.,
New York.

The essential improvements in this new electric ophthalmoscope are simplicity, superior illumination of the fundus, and the replacement of the customary fragile mirror by a solid piece of glass which acts both as a condenser and as a reflector.

The mechanism of the instrument is illustrated by the accompanying figures: The metal filament

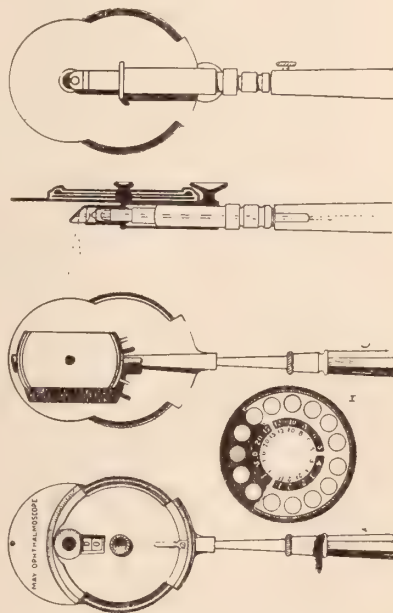


FIG.—May's electric ophthalmoscope.

lamp enclosed in the handle is a very small one (volts 2.75, ampere 0.1); this is sufficient because most of the rays are utilized, whereas with the instruments hitherto in use only a small portion of the reflected light reaches the fundus. The divergent rays emanating from the lamp are made less divergent by a convex lens immediately above the lamp, and are then conducted into a solid rod of glass which acts as follows: The lower end of this refracting and reflecting device is convex and acts as a convex lens, making the rays more nearly parallel; they then strike the upper, posterior portion of the glass rod, which is here ground at an oblique angle to form a prism; this surface is silvered and acts as a plane mirror, reflecting the rays so that they enter the eye of the patient. This condensing and reflecting device is attached to the anterior surface of the lens disc of an ophthal-

moscope in such a manner that the upper extremity covers the lower half of the sight hole; the upper half is left free, and through this semicircular aperture the eye of the observer receives the rays reflected from the illuminated portion of the background of the eye under examination. There is an arrangement by which the distance between lamp and reflector can be increased or decreased, thus varying the degree of convergence of the rays and the size of the illuminated area of the background.

The area illuminated represents an evenly lighted surface without reflex, break, shadows, or defects such as are so often observed in electric ophthalmoscopes.

The writer has utilized his double disc instrument (*Annals of Ophthalmology*, January, 1900), in which the lenses are interposed in the sight hole by rotating the milled edge of an anterior disc for the convex lenses and a posterior disc for the concave lenses; this obviates the necessity of rotating a quadrant into place when fractions of diopters or when strong lenses are required. A second advantage of the writer's ophthalmoscope is that it is exceedingly thin: thus a minimum of distance separates the eye of the observer from that of the patient—a very important point. The apertures of plates and lens openings are so arranged that they are larger than the sight hole, the edges of which are sharply bevelled—thus there can be only one edge capable of giving rise to a reflex; most ophthalmoscopes now manufactured are poorly constructed in this respect, and as soon as the blackening is worn off, as happens after a short period, there are annoying reflexes, which are very trying and interfere both with the ease of examination and the clearness of the fundus picture.

The source of light is a small battery in the handle, which measures five inches in length by a trifle over three quarters of an inch in thickness—a size much smaller than obtains in other instruments of this sort—made possible by the small lamp, the use of every part of the illumination, and economy through the automatic cutting off of the current the moment the examination is ended. A rheostat, easily turned with one finger, regulates the intensity of the light and enables one to examine the vitreous with feeble illumination.

The instrument can be used as a transilluminator.

The battery handle can be detached and used as a storage battery connected with the ophthalmoscope by cords; or the cords can be attached to the outlet from the street current, protected by a suitable rheostat.

Finally, in case the battery gives out or the mirror burns out—and this happens at unexpected times with the best electric instruments—the disc portion of the ophthalmoscope can be separated, readily attached to another handle with a tilting mirror, and thus converted into an ordinary reflecting ophthalmoscope for use with any convenient source of illumination.

The ease and clearness with which the fundus can be seen by an inexperienced observer, whether in the direct or indirect method, is quite remarkable and is the greatest advantage claimed for this new instrument with its innovation in the method of illuminating the fundus.

698 MADISON AVENUE.

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXLVIII.—How do you treat sunstroke and heat exhaustion? (Closed.)

CXLIX.—How do you treat the opium habit, viewed as a neurosis? (Answers due not later than August 15th.)

CL.—What is your experience with belladonna or atropine in the treatment of alcoholism? (Answers due not later than September 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best essay submitted in answer to Question CXLVII was awarded to Dr. Karl A. Meyer, of Chicago, whose article appears below.

PRIZE QUESTION NO. CXLVII.

THE TREATMENT OF TETANUS.

BY KARL A. MEYER, M. D.,
Chicago.

One of the most important rules in medicine is the prevention of disease, and nowhere does this hold true so much as in the prophylaxis of tetanus. In every case of crushing injury, compound fracture, and even in many minor injuries when contaminated with street dirt and dust (especially important are injuries around stables and farm yards), the prophylactic injections of antitetanic serum should be employed. In the less severe cases 1,500 units of the serum are injected subcutaneously; but when in doubt use three to four thousand units. If the case is not seen for a number of days after the injury, use the serum intravenously (3,000 units), and at the same time give 1,500 units under the skin. This is an important point, for the disease may develop after the subcutaneous injection, owing to the slow absorption of the serum and the virulence of the disease. This is overcome by the intravenous injection.

The local treatment of wounds would require too long a discussion, but remembering the fact that the bacillus of tetanus is an anaerobic organism, much can be accomplished by keeping all wounds exposed to the air and allowing no closed pockets of infection to form. If the injury is small, as in punctured wounds, gunshots, etc., make an incision to the lowest depth of the wound and cauterize. If irrigation is necessary owing to suppuration, use hydrogen peroxide and follow with permanganate or iodine solution.

The treatment of a case of tetanus has undergone some changes in the past few years, and the lowest mortality is shown in the cases treated with the serum. The one important rule is the early use of

the serum and in quantities sufficient to neutralize all the toxin in the system. When the first symptom of tetanus is noted, an immediate intravenous and intraspinal injection of antitetanic serum is given. In the average case 6,000 units are injected intravenously and 3,000 units intraspinally. At the same time it is of advantage to give 3,000 units under the skin, which by its slower absorption will neutralize any toxin that is found after the neutralization of that already in the system. In three to five days 5,000 units are again given intravenously, and later the injections are given according to the individual case and the symptomatology present.

Some advise the injection of the serum near the seat of injury, but the end results show no improvement. If the disease follows an injury, local treatment should be instituted. The wound should be thoroughly exposed and irrigated with hydrogen peroxide and permanganate. The intraspinal injection of magnesium sulphate solution is still advocated, and some enthusiastic reports have been made.

The general treatment will be as follows:

1. *Hygiene.* The patient is placed absolutely at rest in a large, airy room, with a nurse in constant attendance. The room should be the quietest in the hospital or home and darkened throughout the day. Nothing should be allowed to disturb the patient.

2. *Diet.* The diet should be liquid and given at stated intervals. Milk and cream form the basis of the schedule. Plenty of water should be given. If this causes too much disturbance, give nutrient enemata and tap water per rectum. Special attention should be given the mouth after each feeding, for sordes and stomatitis will result from the trismus.

3. *Baths.* Tepid baths are given daily, and continuous baths if possible are very restful.

4. *Medication.* The patient's bowels should be emptied by an initial saline and, if necessary, a vegetable cathartic should be used later on in the course, always remembering that much harm can be done, for convulsions may be brought on by the patient striving to use the bed pan. In case of convulsions, use from fifteen to thirty grains of bromides per rectum and, if necessary, chloral can be added. These medicines are given with four ounces of normal salt solution every four hours until the convulsions are controlled. Chlorotone in fifteen to twenty-five grain doses can also be used. In very severe cases morphine hypodermically may have to be used to control the seizures. If cardiac failure is imminent, use caffeine or camphor hypodermically. During convalescence iron preparations should be used.

In conclusion, allow me to emphasize the prophylactic measures necessary to combat the disease and remember, the earlier the diagnosis and the sooner the serum is used, the better the prognosis.

Dr. Louis Newwelt, of New York, writes:

Tetanus is an intoxication caused by trauma and a subsequent infection, and characterized by muscular spasms; its toxin is one of the most powerful poisons. Occasionally, the source of infection cannot be found, but a thorough search will reveal its origin to be a foreign body in the alimentary canal, or injury (sometimes a mere abrasion) of the nose, mouth, ear, vagina, rectum, or urethra; most often,

it follows punctured or lacerated wounds of the extremities. Gunshot wounds have been a most prolific cause of tetanus, particularly the toy pistol variety. Statistics show that since "safer and saner" methods of celebrating the Fourth of July have been instituted, and the prophylactic use of antitetanus serum has been followed in suspected injuries, the number of cases has considerably decreased.

The tetanus bacillus being an anaerobic micro-organism, is most frequently found at the bottom of infected, punctured, or lacerated wounds which are covered with a purulent discharge or scab. A few cases have been reported following vaccination. Catgut and commercial gelatin may contain the bacilli, and therefore in all surgical work, catgut and gelatin should be sterilized before using. Tetanus has also occurred in the puerperium, and following abortion, the injection of diphtheria antitoxin, frost-bites, and burns. Lacerated wounds that have been contaminated with material from the ground, such as soil, dust, and particularly stable refuse are liable to harbor the tetanus germs.

The treatment of tetanus for the present is mainly prophylactic, and the only way to prevent its occurrence is the administration of tetanus antitoxin, and that at the earliest possible time. The usual amount for a prophylactic dose is 1,500 units, given preferably by the intraspinal or endoneural method, or by the intravenous, intramuscular, or subcutaneous method, the choice being in the order mentioned. Paint the wound and the surrounding skin with a three per cent. alcoholic solution. Every wound, especially if punctured, must be thoroughly opened up, all covering and overhanging discharges or scabs removed, and the wound thoroughly cleaned. Antitoxin should be used as a prophylactic in all compound fractures. If a hemorrhage obscures the wound, secure hemostasis by ligature or bandage. The wound is then irrigated with hydrogen peroxide, followed by a swabbing with a three per cent. alcoholic solution. A drain of rubber tissue or gauze packing, impregnated with the iodine solution, is placed at the bottom of the wound, and a sterile dry dressing applied. Later dressings are done according to aseptic and antiseptic principles. With this prophylaxis, the number of cases of tetanus has been much reduced. Tetanus antitoxin should then be injected, giving 1,500 to 3,000 units, preferably into the spine or into a nerve if one is exposed. Tetanus following parturition and vaccination are prevented by strict adherence to the surgical principles. Tetanus neonatorum should be avoided by keeping the umbilical stump surgically clean.

As soon as the presence of tetanus is suspected, the source of infection must be sought and thoroughly opened. Remove all sloughs, wash the wound with hydrogen peroxide followed by tincture of iodine (three per cent.), insert a rubber tissue or gauze drain, and apply a wet dressing of *Liquor burrowii*. As the slightest jar or irritation throws the patient into severe and most painful convulsions, he should be placed in a darkened, well ventilated, and quiet room. Retention of urine calls for catheterization, and the bowels should be kept well open. Free diuresis and diaphoresis should be instituted. If stimulation is required, use alcohol freely. Water is given copiously. The diet consists of concentrated, easily digested liquid food, and if

the patient cannot swallow, feed by gavage or through the rectum.

Drugs play a somewhat minor part in the treatment of this disease. To allay irritability and muscular spasms, large doses of chloral, grains twenty, and potassium bromide, one dram every three to five hours, may be given. Good results have been reported with chloretone, thirty to seventy-five grains, dissolved in an ounce of whiskey; if the patient cannot swallow, give it by the stomach tube or by the rectum in an ounce of hot olive oil, repeated every twenty-four hours. •

Tetanus antitoxin is the treatment *par excellence*, especially when used as a prophylactic, or in the very early stage. In the later stages, when convulsions occur, a lumbar puncture between the third and fourth or the second and third lumbar vertebrae, followed by an intraspinal injection into the sub-arachnoid space of one c. c. of a twenty-five per cent. solution of magnesium sulphate for every twenty pounds of weight, produces marked relaxation for a number of hours. This can be repeated several times, if necessary, although the patient must be carefully watched for respiratory paralysis. Should this dangerous symptom occur, it is well to resort to the intravenous injection of calcium salts. In the later stages of the disease, antitoxin does not seem to have much influence.

(To be concluded.)

Therapeutic Notes

Treatment of Hematoma of the Auricle.—D. H. Palmer, in *Northwest Medicine* for December, 1913, advises the following treatment for this condition, frequently termed "cauliflower ear": The skin surface of both aspects of the ear, together with the immediate vicinity of the face and scalp, are first made ready for operative work by any of the approved surgical methods excepting the use of iodine. An incision is then made over the prominent point of the swelling through the perichondrium into the hemorrhagic cavity, after plugging the external auditory canal with cotton. All clots and new formed cartilage or bone are next removed with a fine gouge or curette, the anterior surface of the old cartilage being gently scraped until it is smooth. After this the incision is closed except for a small opening that will just admit a Eustachian catheter, connected with a small Pyncheon pump. By means of this accumulated blood can be rapidly removed, and the perichondrium, skin, and cartilage approximated by suction.

The final step in the treatment consists in the application of a plaster of Paris dressing. The skin surface is well dried and a new dry cotton plug placed in the external auditory canal. A generous coating of sterile petrolatum is next applied to both surfaces of the ear and for an inch anteriorly and posteriorly to the ear on the head. An assistant has ready about one half a tumblerful of plaster of Paris cream, which is poured into a cardboard mould surrounding the ear. The latter is thus encased in the plaster, with the Eustachian catheter inside and the pump being operated continuously. As the plaster begins to harden a slight rotary mo-

tion is kept up with the catheter, in order that it may be easily removed through the cast. The track of the catheter thus constitutes a drain to the cavity in the ear and permits the escape of any fluid. To support the cast and prevent motion, a small piece of gauze should be placed over the cast and a light bandage or adhesive tape applied. After ten days the cast may be removed by fragmentation, when the ear will be found in a practically normal condition.

In the author's series of thirty-five cases, for the most part treated with the plaster of Paris dressing, no recurrences or local infection took place.

Value of Iodine Treatment in Typhoid Fever.

—A. Bidault, in *Semaine médicale* for November 26, 1913, is stated to have obtained good results in typhoid fever with the administration by mouth of the following solution:

℞ Iodi, ...gr. iss (0.1 gram);
Potassii iodidi, ...gr. viiss (0.5 gram);
Aquæ destillatæ, ...℥viiss (200 grams).
Fiat solutio.

One dessertspoonful of this is given in a quarter glassful of water every two hours—six times a day—and in addition, an enema of the following composition:

℞ Iodi, ...gr. 4½ (0.05 gram);
Potassii iodidi, ...gr. iiii (0.2 gram);
Aquæ destillatæ, ...℥v (150 grams).
Fiat solutio.

is given, after a cleansing enema, twice a day—in the morning and at 5 p. m. A considerable reduction in the febrile temperature soon follows, after which the dose of iodine solution is diminished, the medication being continued, however, for two or three weeks longer. Typhoid fever thus treated, according to Bidault, runs a mild course and early passes into convalescence, which is itself rendered unusually rapid. Repnikoff has recently employed the treatment—administering the drugs, however, only by mouth—in an epidemic of typhoid fever in a rural Russian community. Of seventy cases thus treated, including a large number of severe ones, but one ended fatally, and in this case the treatment had not been strictly carried out.

A Laxative Powder.—Leube, in *Paris médical* for May 24, 1913, is credited with the following formula:

℞ Rhei pulveris, ...℥i (30 grams);
Sodii sulphatis exsiccati, ...℥ss (15 grams);
Sodii bicarbonatis, ...gr. lxxv (5 grams);
Olei menthæ piperitæ, ...gtt. x

M. Sig.: One teaspoonful in a tumblerful of water at night.

Treatment of Tuberculous Peritonitis.—H. Lawrie, in the *British Medical Journal* for November 29, 1913, states that he found the following mixture of decided value in two serious cases of tuberculous peritonitis:

℞ Calcii carbonatis præcipitati, ...℥iii (8 grams);
Creosoti, ...℥ss (2 grams);
Mucilaginis tragacanthæ, q. s. {
Potassii iodidi, ...gr. xv (1 gram);
Benzosulphinidi, ...gr. viii (0.5 gram);
Olei menthæ piperitæ, ...℥v (0.3 gram);
Aquam, ad℥viii (240 grams).

M. Sig.: Two drams every four hours for a child five years of age.

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METASTATIC MANIFESTATIONS OF
SINUS THROMBOSIS.

Is sinus thrombosis really becoming a deeply in-
teresting question? During the past six weeks, we
have had ceaseless inquiries as to this subject. One
correspondent has been indefatigable. As our read-
ers are aware, we paid an ardent tribute to his curi-
osity in a leading article on pulmonary metastases
of sinus thrombosis. (See this JOURNAL for May
23, 1914.) Knowing it is an editor's duty to seek
out and hold fast to that which is well weighed and
critically admirable, we consistently avoid anything
second hand, and in this instance we were at great
pains to consult the originals, and give chapter and
verse references. We may be forgiven a word of
self congratulation on our circumspective selection
of articles. Ganter, for instance, has described in the
clearest manner cases which show that the lung is
often the seat of a metastasis. On this subject the
remarks of Körner in his *Ohrenheilkunde der
Gegenwart*, should be consulted. He says (p. 125):
"When metastases occur in sinus thrombosis, they
take place in the lungs and other organs, but seldom
in other organs only"; and he adds, "peripheral
metastases, in the muscles, joints, and mucous glands
(*Schleimbeuteln*) do not appear to lead to general

pyemia." On page 93 he states the matter in three
forms: "As regards the localization of these meta-
stases, statistics disclose the following figures: Of
forty-five cases, gathered from the literature of
otology, only twenty-one were examined post mor-
tem. There were no metastases in four; in four-
teen there were metastases in the lungs only; in the
lungs and other parts of the body there were three,
and in other parts of the body only there were
none." Compare Hessler (*Die otogene Pyämie*,
p. 9), who says that "Lung metastases almost
invariably occur after sinus thrombosis." We
shall perhaps carry greater conviction if we quote
from an experimental paper by Georgi (*Experi-
mentelle Untersuchungen zur Embolielokalisation in
der Lunge, Beiträge zur pathologischen Anatomie*,
45, 401, 1912.) In sinus thrombosis, the embolus
invades the upper lobe; in pyemia, on the other
hand, the lower. In this way Kundrat was able
to distinguish an embolism originating in the sinus
from that of puerperal pyemia. The distinction
will be familiar to every reader of Helly's address
to the Pathological Society of Wurzburg. It is, in
fact, the cardinal point of the whole pathology.
He fully established by experiment the observation
of Kundrat, exhibiting animals in which embolism
of the upper lobe of the lung derives from the supe-
rior vena cava. The opposite theory of Georgi on
the localization of an embolus in the lung, shows in
an extreme degree the conflicting views of experi-
menters. In his researches the animals exhibited
embolism of all the lobes of the lung. In these in-
stances the negative conclusion is so obscure as to
be tantamount in its actual result to no conclusion at
all. On the disputed question of the relation of the
embolus to the vein, we shall probably find it best
to allow with Kretz that an embolus from the jugu-
lar vein and superior vena cava finds its way into
the upper lobe of the lung through the branches of
the superior pulmonary artery. The latter observes,
of this current of the blood, "According to my ex-
periments, the circulation, above and below, follows
a system, but no law seems to govern the course of
an embolus from right to left." (*Verhandlungen
der deutschen pathologischen Gesellschaft zu Strass-
burg*, 280, 1912.) Georgi admits the force of this
hypothetical law of the localization of lung em-
bolism, but a few pages further on in his article
(410), he elects in favor of a general distribution in
the lungs—"A localization of the embolisms in the
sense in which Kretz uses the term, is a generaliza-
tion to which we must demur." It appears to us
that the tone of these experimental documents dif-
fers very subtly. Hitherto we have been conscious
of a distinct phenomenon—that embolisms of the
lungs follow sinus thrombosis, but now, after the

experimental disillusionment, we feel that the question is becoming a mixture of too many positive and negative elements. The latest writers have clearly disclosed the bearing of the pulmonary embolism. It is a metastasis of the sinus thrombosis. The size of the embolus, as Focht and Lindemann in a Russian paper say, assists the metamorphosis. No doubt some very complex and interesting experimental questions will come up to account for it, and perhaps, wherever largeness of temper and lucidity of mind are prized, they will be settled.

THE CARE OF THE FEEBLEMINDED.

While the insane and various dependents are fairly well cared for in this country, there is one class of defectives which has received but scant attention, namely, the feeble-minded. In the report of the committee on idiots and feeble-minded of the State Board of Charities which was made at the close of last year, it is estimated that in New York State there are not less than 30,000 persons who, for their protection and the good of the community, should be segregated. Yet up to the present time the State, including the various minor jurisdictions, has made provision for less than 4,000; and, even with the completed Letchworth village and certain contemplated extensions at Rome and Newark, the total number cared for will be only about 7,000. On account of the many evil effects of having these incompetents at large, it is a matter of gratification to learn that Governor Glynn has now appointed a commission, the chairman of which is Mr. Hebbard, the former efficient commissioner of public charities in this city, and which includes such well known neurological specialists as Dr. Charles L. Dana and Dr. Max G. Schlapp, to report to the legislature the best means of dealing with this menace to the community. Professor Schlapp's neuropathological clinic at the Post-Graduate Hospital has been for some time a sort of clearing house, one purpose of which is to register every mental defective in the city; and included in the report of the justices of the Court of Special Sessions for the year 1913, a large part of which is devoted to the Children's Courts, there is a very instructive account of the examinations of some 3,000 subjects by himself and his corps of assistants.

In a valuable contribution on Feeble-mindedness as a Leading Social Problem, in the *Boston Medical and Surgical Journal* for May 21, 1914, Dr. E. E. Southard, director of the Psychopathic Hospital, Boston, declares that the feeble-minded embody the largest single practical problem before Massachusetts at the present day; stating, however, that a problem, as he somewhat narrowly uses the term,

means a problem for solution, a problem which by human means can be solved. Society, he says, can readily find out statistically where to work; it can thwart selective mating of the unfit; it can educate; it can transplant; it has means of determining which persons undoubtedly belong in institutions. He concludes with a number of statements of an encouraging character, among which are the following: The availability of the Binet-Simon and other intellectual tests makes desirable the establishment of numerous dispensary centres for preliminary diagnosis, so that cases suitable for well tried educational methods in the State schools may be winnowed out. Social sense of the importance of the problem has been aroused; the interest of pediatricists has been engaged, and the eventual results of certain children's diseases are being shown in the concrete case. Workers in eugenics are being enlisted to study the hereditary factor in some of these so called "acquired" cases, and, it is hoped, will solve the problem of the interplay of heredity and somatic factors in the pathology of feeble-mindedness. Statistics tend to indicate that the problem is more a medical than an economic one. The interplay of heredity and somatic factors promises to show lines of prevention both eugenic and environmental. Socialism of the Fourier-Marx type will have to reckon with this problem; it would not appear that communism has any ready solution of the problem of those who, being feeble-minded, are by nature neither free nor equal. On the other hand, some form of socialism of the St. Simon type, or what may be termed State socialism, is the most practicable form to cope with this problem. Indeed, the practical solution of these problems of feeble-mindedness and allied defects is fast leading us to something of the sort, whether we choose to call it socialism or not.

We have called attention, more than once, to the singular way in which the various aspects of medical practice seem to be heading toward the elimination of the family physician as we have known him for so many years, and the establishment of a sort of sanitary police who will make prophylaxis their chief concern. This problem of the feeble minded has the same socializing tendency.

Considerable interest in this important matter has now been awakened, and it is to be hoped that by the work of the commission much greater public concern will be aroused throughout the State and in the country at large. It is encouraging to note that at the recent annual meeting of the American Therapeutic Society, after the discussion of a paper by Dr. T. E. Satterthwaite on Some Problems in Genetics, a committee was appointed to recommend suitable legislation.

SYPHILIS OF THE LIVER.

The use of chologogues and other drugs in the treatment of hepatic carcinoma is obviously harmful, and we have witnessed prolonged though not permanent improvement in such a case by substituting copious draughts of water for "remedies" which had been administered as the result of an erroneous diagnosis. The cause of such morbid effects is obvious; the liver being a great detoxicating organ, its functional activity is unduly enhanced when toxic substances other than intermediate waste products of digestion reach its cells; any morbid process which may be present, is correspondingly activated. This fact emphasizes the importance of a correct diagnosis; indeed, the patient's life may otherwise be compromised, for in another form of tumor, that due to syphilis, judicious medication insures prompt recovery.

The distinguishing features of syphilis of the liver, which occurs far more frequently than is generally believed, are unfortunately few, but a history of syphilis, congenital or acquired, should always be regarded as very suggestive. To omit the Wassermann test under these conditions is not permissible. Beside the anorexia, emaciation, gastric disturbances, occasional hematemesis, more or less jaundice, ascites, etc., common to all hepatic disorders, especially cirrhosis and carcinoma, there occurs frequently in hepatic gumma, a fever of obscure origin; the nodules, frequently located in the left lobe, are usually large and hard, and give rise to pain—due to perihepatitis over the gummatous nodule—which is unusually severe at night. The peritoneal friction rub of Janeway is clearly elicited in such a case. When jaundice occurs, which is by no means always the case, it tends rapidly to attain its maximum intensity.

Given such a train of symptoms, even the patient's negation of a history of syphilis, in view of the possible presence of the congenital form, should not prevent resort to the Wassermann test or, if this is unobtainable, the therapeutic test, which means a course of the iodides and inunctions of mercury. Prompt reward will follow if the hepatic tumor is a gumma; in a few weeks it will have disappeared.

PLAGUE AND THE PUBLIC.

The present condition of the plague outbreak in New Orleans reveals an attitude that in certain ways reflects great credit upon the medical profession. Within a comparatively few years there was another such epidemic, but in that very community the facts were suppressed until the disease had become firmly established. The United States government finally had to take charge, almost by

force. Since then there has been widespread popular dissemination of scientific information, concerning contagious diseases in particular. This is due to the efforts of physicians, both in the laboratory and in the field. They found how insects and other forms of life carried disease to human beings. It was discovered that the rat was the primary source of danger and that the rat flea could take up the plague bacilli. This knowledge has been spread far and wide by popular lectures, by magazine articles, and by newspaper paragraphs. By this time it is as common property as the fact that malaria and yellow fever are carried by mosquitoes.

In New Orleans we can see the results of our efforts. Instead of a panic developing, the citizens quietly realized the seriousness of the situation and handed the control of the epidemic over to the United States Public Health Service, knowing that all precautions would be taken. The result is that instead of hearing, in much detail, how the neighboring towns are enforcing "shotgun" quarantines against all travelers, we read that such activities are being directed against the rats and not our fellow beings. When one contrasts such a quiet appreciation of affairs with DeFoe's description of the great London epidemic, where hundreds died and thousands fled the city, one can realize the great advances that have been made. Community sanitation and hygiene are indeed the striking improvements of this age.

A CASE OF SUPERHEROISM.

An example of what may be called superheroism is referred to by Clive Riviere in the *British Medical Journal* for July 18, 1914. William Mitchell was recently drowned in the Thames in an effort to save Sir Denis Anson; his physician now discloses the fact that Mitchell was the subject of an artificial pneumothorax, which made the gallant attempt more hazardous and more courageous. He came under medical care some eight months ago with extensive tuberculous infiltration of the right lung reaching to its base, but with a clear left lung. Riviere produced an artificial pneumothorax on February 2nd, and extended it on subsequent occasions till the right lung was completely collapsed, under a pressure of twelve to fourteen cm. of water, save for some adhesions on the inner anterior surface of the apex. Mitchell continued at work, returning for refills every four or five weeks. He received his ninth and last injection of nitrogen gas on June 12th, and left with an intrapleural pressure of fourteen to eighteen cm. of water and his heart displaced one inch outside the left nipple line; this must have fallen to near atmospheric pressure by the time of his death. His left lung was clear and unembarrassed, and he could undertake moderate exertions, but he was dyspneic on severe exertion, and was well aware of this disability. That the

presence of a pneumothorax must have greatly handicapped him in his heroic attempt there is no room to doubt—it is only when this fact and his knowledge of it are realized that his bravery appears at its full value.

INJURY FROM THE CONTENTS OF A GOLF BALL.

Mr. Walter H. H. Jessop reports in the *Lancet* for July 18, 1914, the case of a patient, aged forty-three years, who, while cutting open a golf ball to show the construction to a friend, pierced the core, with the result that there was a discharge of a semifluid caustic substance—explained editorially by the *Lancet* to be caustic potash or potassium hydroxide—with such force as to hit the ceiling, which was ten feet high; some of the substance struck the patient in the eye, covering cornea and conjunctiva with a grayish, puttylike material, which was picked off in shreds after the eye had been washed with boric acid solution. The patient suffered severely from pain, photophobia, vascular congestion, chemosis, and a mucopurulent discharge, and as late as July 6th the photophobia still persisted and the cornea was very hazy, while vision was reduced to 6/60. The treatment was olive oil and atropine, fomentations, and close bandaging. It appears that some golf balls are constructed of rubber wrapped around a small bag filled with the caustic; it seems reasonable to order that the box containing balls so made be plainly marked in some way so as to warn a prospective investigator into their construction of the risks he incurs. Perhaps a pure golf ball act would safeguard inquisitive players.

SINGULAR EFFECT OF NEOSALVARSAN ON THE SKIN.

J. H. Sheldon, M. B., of Insein, Burma, reports a remarkable case of skin eruption in a Madrassi adult male, who on account of characteristic symptoms, received two doses of neosalvarsan of 0.9 gram each with a fortnight's interval, followed by seven mercurial inunctions extending over another two weeks. Twenty days later, according to the *Lancet* for July 11, 1914, the patient turned up in the following distressing condition: The skin covering the whole body, scalp, trunk, limbs, and even penis and scrotum, was swollen, thickened, and hard, and pitted only slightly on pressure. Fissures were present at practically every fold and flexure—ears, neck, axillæ, elbows, wrists, abdominal wall, groins, knees, and ankles. The entire surface was covered with fine scales, which were raised in clouds by the brushing of the hand over the chest or abdomen. The palms and soles were peeling. The itching was intense. The hair was very dry and brittle, but there was no alopecia. These symptoms were probably due to an arsenical dermatitis and hyperkeratosis. The condition improved rapidly under sweet oil inunctions and another course of mercury.

News Items.

The Death of Dr. Michael F. O'Rourke.—The Medical Board of St. Vincent's Hospital announces with regret the death of Michael F. O'Rourke, M.D., on July 22d. Since 1902, Doctor O'Rourke had been continuously connected with the institution as resident physician, as chief of medical clinic, and since 1911 as assistant visiting physician. His integrity of character, his unselfish devotion to duty, not less than his professional skill, won for him the respect and affection of his colleagues. The Sisters of Charity and the poor whom he so generously served, will long bear his name in grateful remembrance.

New York Health Commissioner and Patent Medicines.—At the meeting of the advisory council of the committee on food inspection of the Department of Health of the City of New York, called for August 6th, among the subjects which will be discussed are the misstatements made in the advertisements of patent medicines. It is believed that under the sanitary code the department has authority to prosecute the manufacturers who make false statements regarding the curative qualities of their products. It is possible that at a later date steps may be taken to require publication on the label of the formula of all proprietary medicines.

Addition to Brooklyn Hospital.—The work on the new \$700,000 wings of the Brooklyn Hospital is already well under way. The hospital when completed will have room for 225 patients, a small increase in the number now accommodated. There will be thirty-five private rooms and twenty-two beds in semiprivate wards of four beds to the ward. There will be separate rooms for ninety nurses. It is planned to have a roof garden and open air playground exclusively for children. Roof gardens for adults will be arranged on other parts of the roof. The architect has made as much balcony space as possible. The plans call for a private ice plant and a dynamo for generating the electricity used in the buildings. The plans are unique in their placing of the building. Court space is allowed, so that there will be plenty of fresh air on all sides of the buildings. Red brick with stone trimmings are the materials to be used in the construction.

German-Greek Society in Munich.—A society under the name *Deutsch-Griechische Gesellschaft* has been organized, under the protection of Her Majesty, the Queen of Greece, with the object to enlighten the world, particularly the world of learning in regard to modern Greece, to promote the study of Christian Greece, the character and the peculiarities of the Greeks, and their language of the present time. This task the society attempts to accomplish in the first place by means of a journal, *Hellas*. Honorary members of the society are Princess Theresa of Bavaria, the Crownprince Georgios of Greece, the Crownprince George of Saxony, Prince John George of Saxony, Duke Bernard of Meiningen, Prince Charles of Hessen. The first list of members published comprises two hundred names of men, Greeks and Germans, distinguished in the world of science.

Fifth International Congress of Phthisiotherapy.—The committee of organization of this congress announces that it will meet in St. Petersburg, September 15, 1916. There will be an exhibition of the mechanical features of phthisiotherapy, viz., instruments, models, apparatus, models of health resorts and sanatoriums, dietetic products, books, periodicals, drawings, etc. A detailed description of the hydromineral, climatic, and seaside resorts of Russia will be distributed to delegates to the congress. After the congress, there will be an excursion to the Caucasus, the Crimea, and Odessa.

The sections of the congress are as follows: Climatothermalassobalneotherapy; thermohydrotherapy; kinetotherapy; dietetics and treatment with kumyss; electrotherapy; röntgenotherapy and radiotherapy; phototherapy.

Further notices will be issued concerning the membership of the committee of organization, the list of presidents of sections, the order of business, etc. For information, until September 1, 1914, address the secretary's bureau, Conseil médical supérieur, 11 place Alexandrine, St. Petersburg; after September 1st, address the council at Vyborgskaja storona 5, Quai de Pirogoff, Musée de Pirogoff, St. Petersburg. The secretary general is Professor Fedoroff, the assistant secretary, A. Voinilch.

Oneida Criticizes the State Department of Health.—The *Oneida Dispatch* for July 24, 1914, takes the State health department to task for crediting Oneida with the highest death rate in the State for May, to wit, 30 in 1,000. If this rate was correct, there would have been in Oneida 270 deaths, whereas there were actually only 22 deaths, or 2.6 per mille. Oneida prides itself on its beauty and healthfulness, and avers that its drinking water, even if hard, is good.

Tuberculosis Census of Churches to Be Taken.—A tuberculosis census of thousands of churches in various parts of the country will be taken in September, under the direction of The National Association for the Study and Prevention of Tuberculosis. The census will be part of the preparation for the Fifth Annual Tuberculosis Day to be observed during the week of November 29th. The ministers will be asked to report on the number of deaths from tuberculosis in the last year, the number of living patients in their parishes on September 1st, the number of deaths from all causes, and the number of members or communicants. These figures will be made the basis of an educational campaign, which will culminate in the Tuberculosis Day movement, for which occasion sermon and lecture outlines and other forms of tuberculosis literature will be distributed free to ministers. Last year nearly 75,000 churches, schools, and other bodies took part in the Tuberculosis Day observance. The movement had the approval of leading church officials of every denomination. More than 1,200 antituberculosis societies scattered all over the country will work this year to make Tuberculosis Day a success.

Greater Protection for New York City School Children's Health for Next Year.—Plans for 1915 are now being prepared by the Bureau of Child Hygiene of the Department of Health, which has charge of the health supervision of the school children in New York city, to extend the scope of its activities and to make its work more efficient. To do so the bureau will request a budget allowance for 1915 of \$554,670, or \$123,780 more than this year's. The increases asked for are provided for 9 additional medical inspectors, 3 surgeons, 9 dentists, and 84 nurses. There are enrolled in the public and parochial elementary schools of the greater city 885,577 pupils. Of this number 330,179, or 37.3 per cent., received a physical examination at the hands of the school medical inspectors last year. Of the number examined, 230,432 or 69.7 per cent. had some physical defect requiring treatment; there are about 617,247 children in our public and parochial schools suffering from one or more defects.

The number of each kind of defect found was as follows: Defective vision, 27,629; defective hearing, 1,645; defective nasal breathing, 29,507; hypertrophied tonsils, 36,958; pulmonary disease, 590; cardiac disease, 2,556; nervous disease, 1,446; malnutrition, 13,991; orthopedic defects, 1,490; defective teeth, 194,207. The Division of School Medical Inspection now employs only 102 physicians to make examinations of pupils in over 700 school buildings, with the result that each medical inspector has an average of over 8,000 pupils in his charge. A proper arrangement is one medical inspector to 1,500 pupils. The plan is to increase the force of these inspectors to 111, or 9 more, an increase, however, which will merely take care of the normal growth of the school system. In the course of the year some 5,335 cases of diphtheria, scarlet fever, etc., developed in the schools; early detection with prompt exclusion from school prevented these cases from spreading abroad.

The bureau also intends to increase the number of school nurses to 279; only 195 are now employed and this number is entirely inadequate. Its most useful work is home visiting to instruct mothers. The purpose of medical inspection is to discover remediable physical defects, and its value is measured in terms of cures. Where such defects are allowed to remain neglected the cost of the examination is entirely wasted. Of the 230 odd thousand children found with physical defects only 55,069, or 23.9 per cent., were reported during the year as having procured treatment. To make sure that more school children should receive treatment for defects the department established eleven clinics maintained only for poor children whose parents are unable to pay for private treatment. They merely supplement the other agencies maintained either by private philanthropy or at public expense, where the latter are manifestly inadequate.

Death of Professor Reclus.—Professor Paul Reclus, the noted surgeon, died in Paris, France, on July 29th, in his sixty-eighth year. Professor Reclus was born at Orthéz in the Lower Pyrenees and was educated at the College of Sainte-Foy-le-Grande and the Lyceum of Nîmes. He was an officer of the Legion of Honor, professor of the Surgical Clinic of the Faculty of Medicine of Paris, surgeon in chief to the hospital of the Hotel Dieu, a Counselor General of the Lower Pyrenees, and a former mayor of Orion. Of his notable surgical works, the most recent is one on the use of cocaine in surgical operations.

Mortality in New York for Week Ending July 25, 1914.—There were 1,331 deaths and a death rate of 12.44 per 1,000 of the population reported during the past week against 1,249 deaths and a death rate of 12.13 for the corresponding week of 1913, an absolute increase of 82 deaths with an increase in the rate of 0.31 of a point, equivalent to a relative increase of 33 deaths. The mortality from measles, diphtheria, and typhoid fever showed a considerable increase over that of last year, as did that of organic heart disease, Bright's disease, and nephritis. On the other hand, the mortality from whooping cough and tuberculosis was considerably below that of last year. The mortality from scarlet fever, diarrheal diseases under five years, other digestive diseases, and lobar pneumonia was approximately the same. There were eight deaths from sunstroke against four.

The death rate for the first thirty weeks of 1914 was 14.37 per 1,000 of the population against 14.67 for the corresponding period of 1913, a decrease of 0.30 of a point.

Personal.—In the medical department of the University of Louisville the following appointments are announced: Dr. Leon L. Solomon, professor of medicine and clinical medicine; Dr. David C. Morton, professor of clinical medicine; Dr. Sidney J. Meyers, professor of medicine and medical economics; Dr. Frank W. Fleischhaker, professor of physical diagnosis, and Dr. F. Stuart Graves, of Boston, professor of pathology and bacteriology, *vice* Dr. Leon K. Baldauf, resigned.

Dr. Lew Chee, of Pekin, is visiting the United States, to inspect hospitals for information to be used in the construction and management of a hospital to be built in Canton next year at a cost of \$750,000.

Doctor Lemoine, professor of clinical medicine at Lille, on the occasion of the twenty-fifth anniversary of his teaching was presented with a portrait of himself, painted by M. Pharaon de Winter.

Dr. James F. Donnelly, of Castle Corners, S. I., received, on July 6th, a commission as first lieutenant in the Medical Reserve Corps of the United States Army.

The Alvarenga Prize of \$180 has been awarded to Dr. Herman B. Sheffield, of New York, for his essay, *Idiocy and the Allied Mental Deficiencies in Infancy and Early Childhood*.

Dr. George H. Whipple, associate professor of pathology in Johns Hopkins Medical School, has been appointed director of the Hooper Institute, San Francisco.

Dr. E. Klein has replaced Dr. I. Maisbach as city physician of Hoboken, N. J.

Dr. E. R. Brush has been appointed chemist to the Zanesville, Ohio, board of health.

Dr. Henry M. Chase and Dr. Hilbert F. Day have been appointed surgeons to the Boston Dispensary.

Members of the consulting staff of the tuberculosis and general hospitals at Eastview, N. Y., are as follows: Dr. S. E. Getty, of Yonkers; Dr. Charles Ogilvy, of New Rochelle; Dr. William J. Vogeler, of Yonkers; Dr. Ervin Torok, of Tarrytown; Dr. G. A. Peck, of New Rochelle; Dr. Alexander Snowden, of Peekskill; Dr. Charles F. Chapman, of Mount Kisco; Dr. H. von Wedel, of Dobbs Ferry; Dr. J. L. Kelly, dental surgeon, of New York; Dr. H. H. Forbes, of New York; Dr. H. R. Charlton, of Bronxville. The visiting staff is made up of: Dr. George P. Coopernail, of Bedford Village; Dr. B. H. Belcher, of Yonkers; Dr. A. E. Chace, of Tarrytown; Dr. J. F. Black, of White Plains; Dr. E. C. Littell, of Yonkers; Dr. F. R. Lyman, of Hastings; Dr. E. F. Briggs, of Bedford Hills; Dr. C. W. Fairchild, of Tarrytown.

Dr. T. S. Brown has been appointed superintendent of the Mary Fletcher Hospital, Burlington, Vt., *vice* Dr. B. J. Andrews, resigned.

Dr. William Martin Stahl, of Danbury, Conn., has been appointed house surgeon of the University Hospital, Baltimore.

Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

June 8, 1914.

Prognosis of Morphinism.—H. Koenig divides morphinists into three classes so far as prognosis is concerned: 1. Those with chronic, painful affections. 2. Those who were led to the use of morphine as a result of acute, painful affections, including such as are occasionally recurrent, for example, gallstones or nephrolithiasis. 3. Those who use the drug to alleviate mental unrest and similar psychic disturbances. In the first group, if it is possible to cure the chronic condition, there may be a chance of the patient's breaking the habit. With patients of the second group there is the greatest hope of curing it. In cases belonging to the last, however, a cure of the habit is hardly to be expected. Of twenty-eight of the author's patients seventeen were in the first and third groups and eleven in the second. Of all these patients only four, or fourteen per cent., can be determined to have been cured of their habit. And of these four, only two have been proved by the direct observation of the author to be still free from the addiction, reducing the percentage of certain cures to seven. These two cases were among those in group two. The author does not believe that the mere withdrawal of the drug is in any way an adequate treatment for the condition, and holds it to be necessary to continue the most careful treatment for many months before the patient can be discharged. No cure can be considered as reasonably permanent until from three to five years have elapsed since discharge without return to the use of the drug. One of the patients included in the total was addicted to the new drug, pantopon.

Anemic Erysipelas.—Ernst von Czyhlarz describes three cases of atypical erysipelas occurring in anemic individuals. The phenomena were much the same in all cases: Swelling of the face suggested nephritic edema, except that it involved only the nose, cheeks, and the region of the eyelids; there was slight tenderness of the area; slighter redness than in ordinary cases; and constitutional symptoms of moderate pain in the inflamed area, high fever, and a leucocytosis. All three cases were mild and recovery was quite rapid. The importance of the condition lies in the fact that it may escape recognition as erysipelas, and may lead to the infection of others.

June 15, 1914.

Icterus.—A. A. Hymans, V. D. Bergh, and J. Snapper would limit the term icterus to such conditions as showed an abnormal amount of bile pigment in the blood, irrespective of whether or not visible jaundice was present. The authors find that there is constantly more or less bilirubin present in normal human blood serum, the amount varying widely in different individuals, but remaining fairly constant for the same person. On the average, bilirubin is present in about one to 300,000, though normal persons may show as little as one to 800,000 or as much as one to 80,000. The latter condition is termed "constitutional hyperbilirubinemia," but its genesis and significance have not been determined.

If bilirubin is present in one to 100,000 to one to 80,000 in a case of chronic nephritis without liver lesions, this is strong evidence of beginning failure of the heart. Other forms of failing cardiac compensation are also associated with excess of bilirubin in the serum, as is pneumonia among the acute diseases. In cases of hemolytic jaundice there are crises of hemolysis during which there is a high concentration of bilirubin in the serum from which it is deposited in the tissues. In the intervals the serum content may fall to nearly normal, but the jaundice may persist owing to failure of the pigment to leave the tissues. There seems to be a threshold value for the serum before the contained bilirubin is excreted through the renal tissues to appear in the urine, and this seems to be reached when the concentration exceeds one to 60,000. There is also evidence that the same concentration must be reached before the pigment is deposited in the tissues.

Albumin of Serous Fluids.—K. Ujihara finds that the albumin precipitated from serous fluids by the addition of dilute acetic acid, consists of a mixture of euglobulin and fibrinoglobulin. Pseudoglobulin is not precipitated by dilute acetic acid. This mixture of globulins is pathognomonic of exudates and constitutes an important finding for the differential diagnosis between transudates and exudates. The appearance of these substances always marks an inflammatory process.

Visual Disturbances from Atoxyl.—Richard Steinebach reports a case of almost complete blindness from 1.2 grams of atoxyl given over a period of twenty-six days. There was no luetic infection and the drug was being given for a severe anemia. Reviewing a number of reports of atoxyl amblyopia, the author concludes: 1. Toxic action of atoxyl, specially severe and lasting visual disturbances, cannot be excluded even by the cautious therapeutic employment of the drug. 2. Such toxic actions are especially to be feared in cases in which there is latent or obvious injury of the central nervous system. 3. Such injuries may include the cachexias, autointoxications, chronic infections of the nervous system (lues, etc.), and intoxications, especially chronic alcoholism. 4. The conditions mentioned above should constitute absolute contraindications for the use of atoxyl.

Immune Therapy of Acute Gonorrheal Ophthalmia.—Paul von Szily employed large doses of living sensitized gonococcic vaccines in three adults and twelve newborn infants with acute gonorrheal ophthalmia. The vaccines were made directly from the cultures obtained from the patient upon whom they were to be used. For sensitization the serum of an infected person was employed. All of the cases but two showed marked and immediate improvement, being striking twenty-four hours after the first injection. Cure was promptly obtained in all. One adult had a perforated cornea, and the treatment had to be continued longer than in the rest. Another proved resistant to the injections, and after eight had been given, he still had some secretion containing a few gonococci.

Therapeutic Investigations with Copper Lecithin Preparations.—E. A. Oppenheim has secured

favorable results from the external application of such preparations in certain cases of surgical tuberculosis, particularly when combined with the intravenous or inunction methods of administration of similar copper preparations. Intramuscular injections were also given. For local use three preparations were employed; a three per cent. salve of cinnamic acid copper lecithin, a four per cent. copper chloride lecithin salve, and a five per cent. solution of copper dimethyl acetate. For injection intravenously the last one of these preparations was employed. In addition to these the author had a paste made for filling into sinuses and cavities which contained one quarter per cent. of copper. The action of the copper seems to be almost solely as a germicide with special destructive affinity for the tubercle bacillus, inhibiting the growth of this organism in dilutions of one to 1,500,000.

WIENER KLINISCHE WOCHENSCHRIFT

June 25, 1914.

Hysterical Monoplegia.—Max Berliner cites a case of this kind in a boy aged fifteen years. His previous history was negative. One evening he had a chill and dropped a tea cup that he happened to have in his hand. The next morning he noticed that he could not use his right hand as well as his left, and in the evening the entire extremity was affected and the arm cyanosed. He used the hand for one week, although it caused him pain, and then a total paralysis of the right upper extremity set in. Treatment for one year was without avail. The physical examination was negative. There was a total absence of active motion for a year, no atrophy being present, and the electrical reactions being normal; the diagnosis of functional paralysis was made and a favorable prognosis given. Therapy consisted in the isolation of the patient from his parents, and the application of the faradic current. He improved very rapidly, obtaining normal mobility in all the joints in a very short time.

Thyroid Enlargement during Menstruation.—Nestor Woronytsch observed that normally the thyroid differed in size at various times, particularly in those showing evidence of thyroid disease. In a small percentage of cases, the gland is enlarged during the menstrual period, but it is impossible to determine with certainty whether the enlargement is the result of menstruation or not. As the increase in size occurs in so few cases, we can only regard menstruation as a probable cause, and the earlier reports to the contrary, and the deductions made therefrom, do not seem to have sufficient foundation.

Origin of Luetic Reacting Bodies in the Cerebrospinal Fluid.—Wilhelm Spaet performed numerous experiments to determine whether the lymphocytes of the cerebrospinal fluid contained the bodies which gave a positive reaction. As a result of his investigations, he reached the conclusion that this is not the case, contrary to the opinion of Wassermann and Lange. He has observed that the same results as were obtained with the lymphocytes of the cerebrospinal fluid in cases having a positive Wassermann, could also be obtained by using cells of a nonsyphilitic nature—the leucocytes

of guineapigs, the cells of cases of tuberculous meningitis, erythrocytes, etc.

Röntgen Ray Carcinoma.—Hugo Bichler adds three positive cases and one doubtful case to the literature on this subject. Carcinoma of the skin is usually seen later in life than the other forms of carcinoma, but carcinoma due to the action of the Röntgen rays may come on at any time. Hesse, who has reported many of these cases, puts the average age at forty-one and two thirds years, but it must be taken into account that he includes the pioneers in this work—middle aged physicians and x ray workers. The lapse of time between the primary dermatitis and the development of true carcinoma was fifteen, eighteen, eight and fourteen years as compared with an average of nine and one half to ten years, figured from the time of the first Röntgen application to the death of the patient. The finding of two carcinomatous areas on the same hand is quite common in Röntgen carcinoma. The making of an early diagnosis is important and the rapid growth of a hyperkeratitis, which previously showed little change, the deep seated disintegration and the lack of healing properties of the surrounding tissue, are to be regarded as the main stigmata of a beginning carcinoma. The most important symptom is pain.

Results in the Investigation of "Filterable" Virus.—R. Kraus points out that up to the present time, only pathogenic filterable virus has been obtained, no saprophytic virus being discovered despite the investigations of Esmarch and others. Small round elements are seen in variola, molluscum contagiosum and molluscum epithelioma, sheep pox, and foot and mouth disease. In many infectious diseases, variola, rabies, cholera, and trachoma, inclusion bodies are found which help to make the diagnosis. The nature of these has not been definitely determined. By some they are regarded as protozoa, by others as the product of the reaction of the virus on the cells. Considerable work is being done to cultivate the virus of variola, hydrophobia, and other diseases. Up to the present time there are about forty diseases caused by filterable virus, and it is possible that the etiological factors of scarlet fever, measles, and mumps also belong to this group.

July 2, 1914.

Experimental Studies on the Epididymis.—Kyrle and Schopper, working with dogs, found that tying of the spermatic cord did not lead to atrophy of the testicle; division of the vas deferens did not interfere with its function, and resection of a part of the epididymis caused neither atrophy nor disturbance of function. These results differ from those of most experimenters, which is probably due to the fact that the bloodvessels are spared. When the latter are injured changes in the testicle take place. This is especially so if the small vessel which accompanies the spermatic cord and lies very close to it, is lacerated or divided. Further observations were that in an animal in which a resection of the tail and the body of the epididymis had been done on both sides, semen was found, not only in the canaliculi of the remaining portion of the epididymis, but also in the surrounding connective tissue

in the form of an infiltrate; in another dog in which both spermatic cords had been tied, spermatozoa were found in both the arteries and veins of the epididymis.

Artificial Tumors in the Region of the Pineal Gland.—Novak followed the technic of Karpus and Kreidl in exposing the region of the pineal gland in dogs and injected liquid paraffin, causing an artificial tumor in this area. One of the injected dogs died after two months as the result of a pneumonia and the control animal was promptly killed. Autopsy showed that the paraffin had remained in place. The weight of the injected dog was 3,230 grams; that of the control dog, 5,580 grams, although both dogs weighed the same at the time of operation. The genitals of the control animal were better developed. No conclusions can be drawn from this experiment, but it proves that the technic of the operation can be carried out and the desired result obtained.

Four Cases of So Called "White Bile."—Steiner operated in four cases of this condition, a true hydrops of the entire biliary system. Etiologically it is due in most cases to a chronic obstruction of the common bile duct by a tumor, adhesions, or stone. Two different theories are advanced for the hydropic condition of the biliary fluid, one that as a result of chronic congestion of the biliary passages the liver cells lose their function and cannot form bile; the other, that a condition of paracholia exists—the liver cells do not lose their function to form biliary pigment, but, as a result of the high pressure, the biliverdin which is produced is absorbed by the blood and lymph vessels. The conditions necessary to produce hydrops of the biliary system are: 1. Continued obstruction of the common bile duct, whether caused by tumor, stone, or adhesions; 2, there must be increased pressure in the biliary passages; 3, the secretion of the mucous membrane of the biliary passages may be normal, increased, or, after long continued obstruction, decreased; 4, the gallbladder must not contain highly virulent bacteria or empyema will develop.

Cholesterin Content of Serum in Skin Diseases.—Fischl estimated the cholesterin content of the serum in over 100 different skin diseases. In cases of urticaria, chronic eczema, pemphigus, dermatitis herpetiformis, pruritus senilis, mycosis fungoides—the xanthomata—the cholesterin content was higher than normal. Most of these diseases show an eosinophilia, and the increase in the cholesterin content may be accounted for by the fact that the granules in the eosinophiles have been shown to contain a lipid substance. In fact, the increase in the cholesterin content and the increase in the eosinophilia seem to go hand in hand. Whether this is simply a coincidence cannot as yet be definitely determined, but the fact that the two phenomena are very frequently observed in the above mentioned skin diseases seems to show that a close relation exists. The cases that showed a decreased cholesterin content are those associated with fever and marked changes in the cells—erysipelas, ulcerating carcinoma, erythema multiforme, herpes zoster, burns, tuberculosis of the skin occurring with tuberculosis of the lungs. Syphilis has not been sufficiently studied to make a report.

Fat Intoxication.—Weltmann fed rats with a large amount of fat and found that hemolysis took place. After two days they showed evidences of poisoning. They became comatose, the breathing was slow and labored, diarrhea set in with rapid loss of weight, and they usually died at the end of eight days. The liver and spleen showed atrophy and fatty infiltration, and in some cases the spleen and kidneys were colored brown, which could be traced to the presence of hemosiderin. Methyl alcohol extracts were made of the organs of the animals fed with fat, to determine whether hemolytic substances were present in greater quantity than in normal animals. The extract of the intestines of the fat animals hemolyzed twice as strongly as that of the normal intestines. The extracts of the liver showed no hemolytic substances, and this organ probably takes no part in the hemolysis occurring in fat intoxication.

ZENTRALBLATT FÜR GYNÄKOLOGIE.

May, 1914.

Ovarian Lesions Following Radiotherapy.—Schiffmann performed several experiments upon guineapigs to determine what effect, if any, was produced by radium and mesothorium. He concludes that the effect is very similar to that following the Röntgen ray, namely a constant and well marked degeneration of the follicles.

Radical Abdominal Operation for Uterine Cancer.—Kriwsky gives the results obtained in a series of 109 operations. These include cases of cervical cancer, except in very old or very fat patients, in whom vaginal extirpation was done. The author holds that by abdominal operation one is better able to determine the degree of lymphatic involvement and also to remove such nodes more thoroughly. In twenty-eight cases, enlarged nodes were present. Of the fifteen patients that died following the operation, one died from a pleuropneumonia, a second from shock, nine from septic peritonitis, and four from septicemia. Of the remaining patients, eleven were free from recurrence two to three years after the operation, twenty-seven showed recurrences and fifty-six were not heard from.

June, 1914.

Prevention of the Loss of Sponges in Laparotomies.—Kubinyi's method consists in using a nickled flat ring of metal in which are ten holes. Through these holes passes a long piece of tape to one end of which is attached the gauze sponge, the other ends being tied together.

Simplification of the Abderhalden Reaction.—Hüßy strongly upholds the Abderhalden reaction, believing that it fails in not more than one per cent. of cases. In most instances the failures are probably errors in technic. The preparation of the placental tissue is particularly difficult, and when once obtained does not remain useful very long. In place of the usual material, he has been employing 0.5 grams of a preparation, made by Hoechst, of placental tissue that has been dried and ground into a fine yellow powder. In using this powder care must be taken to avoid getting any on the outside of the dialyzers. One drawback is that the powder

adheres so closely to the paper shells that it is very difficult to cleanse them so that they can be used again.

Vicarious and Complementary Menstruation.—Hirschberg briefly reviews such conditions and then reports a case of his own. A woman aged twenty-seven years when fifteen had a watery discharge from her breasts at the menstrual period. Since she was seventeen, this discharge has been bloody. It usually appears one or two days before the genital discharge and continues several days later. On two occasions, when she was pregnant the mammary bleeding ceased.

ARCHIV FÜR SCHIFFS-UND TROPENHYGIENE.

June, 1914.

Uzara in the Treatment of Amebic Dysentery.—Seyffert says that uzara, a preparation the nature of which is not stated, has a striking and prompt effect in amebic dysentery, quickly influencing the toxic components of the ameba, and reducing the mortality in acute cases. It tones up the vascular system, quiets the intestine, and so lessens the hemorrhages. Colic and tenesmus disappear after the first dose. The preparation has no amebicide properties, and therefore is best administered in connection with ipecachuanha. The length of treatment will probably be further reduced.

July, 1914.

Treatment of Amebic Dysentery with Emetine.—H. Siebert says that emetine should be given in the worst cases of amebic dysentery in which the symptoms are threatening and the most rapid effect is necessary; in cases of milder dysentery in which ipecacuanha is not well borne; in cases in which ipecac does not react; and in cases where the nursing is not such as to guarantee proper care.

PARIS MÉDICAL.

June 13, 1914.

Partial Sensory Epilepsy in Brain Tumor.—André-Thomas reports a case of brain tumor in which seizures of sensory and motor Jacksonian epilepsy, constant in form and localization, appeared. Upon administering bromides and dietetic treatment, the motor element in the seizures disappeared, the sensory phenomena, however, consisting of puckering sensations in the labial commissure and left thumb and index finger, continued. The blood Wassermann test was negative. Operation was only done late; but in the presence alone of the definite sensory aura when syphilis has been excluded, surgical intervention may be considered.

June 20, 1914

Syphilis and Pulsus alternans.—M. Dehon and J. Heitz found eight syphilitics among twenty-five cases of pulsus alternans. Gravier noted, among forty cases of alternating pulse, nine of certain and five of probable syphilis. Syphilis probably plays an important role in the causation of pulsus alternans. In two of the authors' cases, marked benefit was procured by antisyphilitic treatment. In all cases of alternating pulse, a Wassermann test should be made.

PRESSE MÉDICALE.

June 24, 1914.

Albumin Diagnosis in Serous Effusions.—Mosny, Javal, and Dumont point out the diagnostic value of ascertaining, by precipitation and weighing, the amount of albumin contained in exudates and transudates. Serofibrinous and infectious pleurisy shows a high content of albumin. Any pleural fluid showing more than forty grams a litre of albumin must be considered of microbic origin. Purulent pleurisy shows about seventy grams of albumin—a much greater amount than serofibrinous forms. Any effusion showing less than thirty grams of albumin a litre is a transudate and not an exudate, viz., a hydrothorax and not a pleurisy. Ascitic fluid in cirrhosis and heart disease shows less than thirty-five grams of albumin a litre; ascitic fluid the result of tuberculous or cancerous peritonitis shows more than forty grams. In a case of apparent ascites, the finding of less than three grams of albumin led to the discovery of an extensive hydronephrosis. Albumin estimation proved particularly useful in exudates due to cancer.

Liquid Petrolatum.—A. Martinet finds liquid petrolatum especially indicated in cases of constipation with hyperchlorhydria and intestinal spasm. In children also its use is often successful. In biliary insufficiency, however, that is, in the majority of cases of enterocolitis, the drug fails. In atonic cases with flaccid stomach, movable cecum, and dilated colon, liquid petrolatum not only fails to yield results, but increases the dyspeptic symptoms, such as a local feeling of weight, anorexia, discomfort, etc. Some subjects manifest an extreme dislike to taking the remedy; this may, however, be overcome.

June 27, 1914.

Intranasal Treatment of Frontal Sinusitis.—M. Denis and L. Vacher say that the first step consists in destroying and freely opening the anterior ethmoidal cells, care being taken to spare the surrounding mucous membrane. All fungus outgrowths or polyps that might mask the anterior angle of the nasal vault are removed. Local, regional, or general anesthesia is used. Entering the sinus through the canal, from the nasal fossa by means of a curved probe or forceps; enlarging the canal to a diameter of six or seven mm. by means of a series of three curved rasps, curetting the sinus and irrigating it with a mixture of boric solution and hydrogen dioxide are the next steps. In some cases an opening is made directly into the sinus through the anterior ethmoid cells, after careful exploration.

Uremia and Death.—D. Dumitresco and A. Popesco report observations on the urea of the blood at death, just before death, and after death. Patients who died of a disorder lasting from a few days to a few months showed a pronounced excess of urea in their blood at the time of death.

Paroxysmal Tachycardia.—Esmein and Donzelot report the case of a young woman with repeated attacks of paroxysmal tachycardia in whom, whenever the tachycardia lasted more than two hours; syncope regularly took place. A sensation of intense cold, beginning in the limbs and extending

over the whole body, always preceded fainting. Consciousness was partly lost for one or two minutes, then returned, a sensation of intense and unpleasant laryngeal constriction being simultaneously experienced. These fainting spells could not be ascribed to temporary heart block or to ventricular fibrillation, for the heart continued to beat regularly and no serious harm followed. The syncope was due in part to cerebral anemia. The patient's right sided hemianesthesia, loss of pharyngeal reflex, vasomotor aura, and laryngeal globus support this view. A neuropathic predisposing factor, leading in such a case to momentary inhibition of a hypersensitive brain, is borne in mind.

SEMAINE MÉDICALE.

June 24, 1914.

Peripheral Traumatic Paralysis of Vascular Origin.—F. Lejars remarks that Gerulanos, of Athens, among eleven cases of paralysis of the brachial plexus of traumatic origin, found wounds of vessels in eight patients, including an aneurysm in five, arterial thrombosis in two, and hematoma in one. In civil practice this indirect form of nerve traumatism is likewise met with, and deserves general recognition. In one of the author's cases, motor and sensory paralysis of parts of the right arm and forearm, with marked atrophy of the triceps and posterior muscles of the forearm, was produced by a bullet wound below the coracoid process. Exploration showed a whitish, fibrous pocket containing blood, exerting pressure on the axillary artery and the radial, which was reduced to a thin, reddish band. The axillary was ligated and the nerve freed; in four months the motor and sensory functions wholly returned. Two other cases have been observed by the author.

July 1, 1914.

Bile Retention Due to Disease of the Liver Cells.—A. Lemierre, M. Brulé, and H. Garban assert that bile retention, complete or incomplete, may appear either because of obstruction of the biliary passages, as in cholelithiasis, hepatic cancer, and probably also certain cases of jaundice of the catarrhal type; or, because of some diseased condition of the hepatic parenchyma itself, e. g., cirrhosis, fatty degeneration, simple congestion, acute or chronic intoxication, or some infection, more or less severe, localizing itself selectively in the liver or simultaneously involving other structures. Where the disturbance of the liver cells is but slight, bile retention is demonstrable only by examination of the urine for bile salts and urobilin. From this there are all grades of severity of retention up to that manifested in grave icterus. Typhoid infection or chloroform intoxication may give rise to these various grades of bile retention in different patients, according to the extent to which the hepatic cells are impaired.

BRITISH MEDICAL JOURNAL.

July 11, 1914.

Carbon Monoxide Poisoning.—Ivor J. Davies draws his conclusions from the symptoms of eighteen men who survived a mine explosion and from observation of the effects produced on members of the rescue party who entered the mine some

hours later. There was marked languor, weakness, and a strong desire to lie down. Drowsiness, giddiness, and mental confusion were complained of, and one of the most marked of the symptoms was extreme muscular weakness in the legs, this usually being the first to be felt. The most prominent physical signs were marked cardiac weakness, with remissions and relapses in some of the cases. The pulmonary signs varied, there being edema of the lungs, bronchopneumonia, and bronchitis. Ataxia preceded loss of consciousness in many cases. Peripheral neuritis developed in five cases, in four of which the paralysis involved the external popliteal nerve with resulting foot drop. Perhaps the most remarkable phenomenon was the occurrence of a cutaneous erythema in nine patients, involving the buttock in all but one, and, in some, other portions as well. Seven of the cases also had patches of erythema over the scapula and six on the chest wall. The skin over bony prominences seemed frequently involved. The erythematous patches were raised and of a brilliant cherry color. They were painful and exceedingly tender to the touch. There was dermatographism in many of the cases, and vasomotor instability was often marked. The skin areas showed decided atrophy in some cases. The skin lesions were thought to be due to an angioneurosis arising from anoxemia. The rescuers showed much the same train of symptoms except that they were present in a milder degree. There was no disagreeable sensation associated with the gradual loss of consciousness, and often the persons seemed exhilarated and jovial. Muscular weakness was so marked that the lightest objects seemed too heavy to carry. Cardiac palpitation was common and early, and was often so marked that the men could hear each other's hearts pounding at a distance of several feet. Artificial respiration, the administration of oxygen, brisk friction, and the use of stimulant drugs gave relief, but the victims were usually weak and complained of severe malaise for several days after recovery.

Tuberculous Milk in Edinburgh.—A. Philp Mitchell previously studied the frequency of bovine infection in glandular tuberculosis among children in this city and now reports on the bacteriological examination of 406 samples of milk collected from as many shops. Of these samples, eighty-two, or twenty per cent., were found to contain tubercle bacilli. In the course of his observations, he found that many samples would show tubercle bacilli on guineapig inoculation by only one of the two methods used, and hence he lays stress on the importance of conducting such observations by simultaneous inoculation of two pigs, the one intraperitoneally, the other subcutaneously.

LANCET.

July 11, 1914.

Treatment of Ankylostoma Anemia.—H. B. Day bases his observations on a study of over 300 cases, all of which were very severe, the average hemoglobin content being only twenty-two per cent. on admission, and one fifth of the cases having not over ten per cent. These observations are summarized by Day as: "1. Patients with slight anemia may benefit from hematinics without the expulsion

of worms. But no case of decided anemia can be really improved unless the worms are expelled. 2. Recent cases of moderate anemia from ankylostomiasis are cured by the expulsion of the worms. Recovery in most chronic cases is very slow unless hematinics are given. 3. Under treatment with vermicides and iron the rise in hemoglobin is a reliable index to the expulsion of the worms, provided the marrow is in a condition to respond. 4. The administration of simple forms of iron by mouth is more satisfactory than the use of organic compounds or hypodermic medication. 5. Manganese cannot be substituted for iron. 6. After the expulsion of worms in a moderately severe case the recovery from anemia is better and quicker when arsenic is given as well as iron. 7. In severe cases of ankylostomiasis the administration of arsenic is often essential to recovery. 8. In such cases arsenic given by the mouth may be ineffectual, but hypodermic medication generally succeeds. 9. Arsenic by itself is useless. Iron is always essential to recovery from severe ankylostomiasis. 10. Persistent eosinophilia after the complete expulsion of worms may be attributed to the presence of living larvæ in the tissues. 11. Intense and persistent anemia in ankylostomiasis generally denotes exhaustion and atrophy of the bone marrow."

Deferred Death after Tracheotomy.—John Biernacki finds that in most cases of deferred death after tracheotomy for laryngeal diphtheria the fatal ending is due to "suffocation by a plug of desiccated mucus and inflammatory discharge located in the neighborhood of the tracheal bifurcation, as is proved by the immediate relief of obstruction and marked general improvement which frequently ensue when the plug is removed with forceps after such cases have become serious or are even moribund." By placing the child on his back and elevating the shoulders on a hard pillow it is a relatively simple matter to insert a pair of suitably bent forceps through the tracheotomy wound and withdraw the offending plug. Such cases as show this type of obstruction seldom end in recovery, however, for the plug forms again at shorter intervals after each removal. The best method of treatment is a prophylactic one by which every effort is made to prevent the formation of the plug, or, if there is a tendency for its formation, to keep it soft and to facilitate its spontaneous expulsion. Such prophylaxis is obtained by the continued use of steam in tracheotomy cases; the use of a spray of a solution of ten grains of sodium bicarbonate in one ounce of water tends to soften the discharge and often provokes coughing which expels the accumulated mucus or brings it to the inner end of the tracheotomy tube so that it may be swabbed out. Where there is definite plug formation the strength of the sodium bicarbonate solution should be doubled. Extraction should always be deferred until it is certain that no help can be obtained from spraying alone and the obstruction has become immediately dangerous. Great care must be exercised in the use of forceps to prevent damage to the tracheal mucous membrane, for such damage increases the tendency of the plug to reform.

Artificial Pneumothorax.—W. Parry Morgan analyzes the defects in the ordinary methods and

presents a much improved technic and apparatus. He shows that under the usual conditions there will be no oscillation in the manometer even when the needle point is between the two layers of the pleura, unless some air is introduced and that the amount which can enter in the ordinary method unless the lung is punctured is too slight to show the oscillations indicative of entrance into the pleural cavity. By an ingenious device of a throttled tube and two manometers, combined with a specially shaped needle, Morgan has perfected a means by which one can introduce small amounts of gas into the pleural cavity, while the manometer system remains open, and determine the proper location of the needle point, for if it is not between the two layers of the pleura there will be no oscillation. By his device it is also possible to control the pressure of the injection to a nicety and to measure at all times exactly the pressure of the gas as it enters the pleura and the mean intrapleural pressure. This gives one the desired information as to the amount of gas which is required to produce some immobilization of the lung. He finds that less than 300 to 400 c. c. of gas introduced into the pleural sac cannot be demonstrated by the x ray, and that when such amounts as were introduced by the older methods showed x ray evidence of a large quantity of gas, the remainder was obtained from the lung as a result of its puncture. An elaborate explanation is given of the theory upon which the calculations are based for the determination of any of the pressures desired during the course of the operation, and simple rules are stated.

BOSTON MEDICAL AND SURGICAL JOURNAL.

July 9, 1914.

Acute Abscess and Gangrene of the Lung.

I. J. Walker has obtained the following statistics as the result of a review of the literature for the last ten years: Total number of cases of acute abscess of the lung, 132; males 98, females 32, sex not mentioned 2. Total number of cases of acute gangrene, 40; males 27, females 5, sex not mentioned 8. Average age in cases of acute abscess, 24.5 years; in cases of acute gangrene, 38.6 years. In acute abscess of the lung the right side of the chest was involved in 60 cases, the left in 45, both in 5; side not mentioned in 22. In gangrene, the right side of the chest was involved in 21 cases, the left in 9, both in 2; sides not mentioned in 8. In acute abscess the lobes found to be involved were: Upper, 21; lower, 76; middle twice, both upper and lower 5 times. In 28 cases the lobe was not specified. In acute gangrene: Upper, 10 times; lower, 24; middle, 0; both upper and lower, 6. In acute abscess cases, adhesions were present in 63, absent in 2, not mentioned in 57. In acute gangrene they were present in 17, not mentioned in 23. In 104 cases of acute abscess the lesions were single, in 16 multiple, not mentioned in 12. The mortality in cases of acute abscess treated medically was fifty-four per cent.; in those treated surgically, twenty-five per cent. The mortality in cases of gangrene treated medically was eighty-nine per cent.; in those treated surgically, forty-four per cent.

Pathology of the Seminal Vesicles.—J. Delinger Barney says that vesiculitis may occur from

infection with tubercle bacillus; that when one vesicle is involved its fellow may also be safely accused; that radiographs with collargol seem already to demonstrate the presence of inflammatory changes, and their future as a diagnostic aid seems bright; that dense adhesions, usually surrounding the junction of vas and vesicle, not only make operation difficult, but in most cases would make successful separation of the two structures impossible; that disease of the vas at its ampulla accompanies disease of the vesicle, and the conservation of the former structure, in the hope of preserving the continuity of the seminal duct, is of doubtful value to the patient.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

July 18, 1914.

Hereditary Glaucoma (Simple). The Report, with Operative Notes, of Three Generations of One Family, by F. P. Calhoun.—This paper was abstracted in our issue for July 4th, page 54.

The Value of Miotics in Chronic Glaucoma, by W. C. Posey. This paper was abstracted in our issue for July 4th, page 55.

Iliofemoral Aneurysm.—W. S. Halsted's case was one of partial occlusion of the left external iliac, which was secured by means of an aluminum band, and the author believes that the case demonstrates quite convincingly the utility of the metal band.

Absorption of Epinephrine from the Nasal Submucosa.—J. D. Pilcher states that W. B. Chamberlain called attention to the pronounced vascular effects of injection of epinephrine and cocaine into the nasal submucosa. The phenomena suggested that the nasal submucosa must be an unusually good absorbing surface, since neither epinephrine nor cocaine produces these marked effects on hypodermic, or even intramuscular, injection. Pilcher, at the suggestion of Sollmann, confirmed these effects by a series of experimental investigations.

Sclerocorneal Trephining for Glaucoma.—W. R. Parker concludes that average results from this operation are better in the noninflammatory type than in other forms of glaucoma. Frequency of iritis and effects on tension are less when a partial iridectomy is performed or when the iris is left intact.

Granuloma annulare.—M. B. Hartzell says that the "ringed eruption" of Colcott Fox can no longer be properly described as a rare malady. As to its nature, nothing definite is known. The objection which has been made to the name, that it is not a granuloma, apparently is supported by its histopathology, which is much more that of a connective tissue neoplasm than of a granuloma. Halle thinks it is a chronic inflammation of the middle and deep portions of the corium, while Dalla Favera believes it wholly dependent upon the bloodvessels; but these views do not in the least explain the peculiarities of the neoplasm. The author's own belief is that it is not related to any other. As to its etiology, he cannot furnish even a reasonable conjecture.

The Pineal Gland in Relation to Somatic, Sexual, and Mental Development.—C. P. McCord

concludes that administration of minute quantities of pineal tissue from young animals to young animals stimulates rapid growth of the body, but not beyond the normal size.

Intraspinal Administration of Tetanus Antitoxin.—W. H. Park and M. Nicoll, Jr., conclude that, on experimental and clinical grounds, the following recommendations for the treatment of tetanus with antitoxin would seem to be amply justified: In every case strongly suspected of being tetanus, from 3,000 to 5,000 units of tetanus antitoxin should be given at the first possible moment intraspinally, slowly by gravity, and always, if possible, under an anesthetic. In order to insure its thorough dissemination throughout the spinal meninges the antitoxin should be diluted, if necessary, to a volume of from three to ten c. c. or more, according to the patient's age. When fluid is drawn off previously to the giving of antitoxin, an amount of the latter somewhat less than that of the fluid withdrawn should be administered. In brief, tetanus antitoxin should be used in precisely the same way as antimeningitis serum. It seems advisable to give, at the same time, a dose of from 10,000 to 15,000 units of antitoxin in the vein. A similar dose given subcutaneously, three or four days later, will insure a continuance of the highly antitoxic condition during the next five days. The proper and thorough surgical treatment of the wound and the use of sedatives, stimulants, etc., are very essential factors in the treatment of the disease.

Shotgun Wound of Abdomen; Rupture of Gravid Uterus.—Lincoln Davis, reporting the case, remarks that the wound in the abdominal wall was directly transverse, the uterus was ruptured in a longitudinal direction, and no marks or shot wounds could be found on the body of the fetus. It would seem that rupture of the uterus was the result of a bursting strain, rather than of actual perforation by the shot. The patient recovered, notwithstanding considerable loss of blood.

MEDICAL RECORD.

July 18, 1914.

Diagnosis and Treatment of Gastric and Duodenal Ulcers.—Max Einhorn believes that the old teaching of our clinicians, that ulcer of the stomach is indicated by pain soon after eating, is correct; usually there is an excess of acidity. In gastric ulcer the blood is commonly vomited, and in duodenal ulcer it appears in the stools; these signs cannot always be depended upon. The best means of recognizing the presence of an ulcer, and of ascertaining whether it is in the stomach or duodenum, is the thread test; though not all ulcers can be demonstrated by it. The x ray will also occasionally be helpful. An ambulatory treatment may be applied in appropriate instances. It consists in first giving large doses of bismuth, which is one of the best remedies in all forms of gastric or duodenal ulcer. A dose of half a dram may be combined with six grains of calcined magnesia, and the diet should consist principally of milk, eggs, and cereals, with a great deal of butter and not too much meat. The patient should lie down for half an hour after the bismuth, and if this cannot be done, should apply a wet compress over the abdomen at night. If pain

is very pronounced, 1/120 grain of atropine may be given once or twice a day for a limited period. In cases where considerable hemorrhage occurs, absolute rest in bed is indicated. An ice bag should be kept applied and all food and drink forbidden for the time being. The medical treatment would consist of adrenaline, from five to ten drops by the mouth, and a ten per cent. solution of gelatin. Subcutaneously, blood serum or emetine hydrochloride, a half grain, may be administered. If pain is severe, a suppository of opium and belladonna should be employed. After a day or so, a large amount of water containing grape sugar, five per cent., should be allowed to flow slowly into the rectum (Murphy drip). Then rectal feeding may be used temporarily; after which feeding by the mouth may gradually be resumed, or duodenal alimentation resorted to. In special cases, the latter may be employed two days after a hemorrhage, and there is no absolute contraindication to the introduction of the tube even during the hemorrhage. In cases of peptic ulcer of medium severity, the Laube rest cure plays the greatest role. As to medication, bismuth subnitrate is the mainstay. Silver nitrate may be given for two or three weeks at a time, and scarlet red may also be employed, either alone or in conjunction with the other remedies. Olive oil and liquid paraffin are likewise beneficial. The alkalies may be given to combat hyperacidity, and atropine, cautiously, to diminish hypersecretion. The paper concludes with the indications for operation, among which are perforation, recurrent profuse hemorrhages, strictures of the pylorus, and ulcer accompanied by tumor formation and suspected malignancy.

Treatment of Toxemia of Pregnancy by the Duodenal Enema.—E. McDonald has treated twelve cases of toxic vomiting of pregnancy with good results. A small rubber tube is thrust into the empty stomach after the pharynx has been anesthetized. When the tube is down about twenty-two inches, eight ounces of a solution of sodium chloride slightly stronger than the physiological solution are injected; after which the tube is passed down about twenty-eight inches. The patient is next placed upon her right side, in a semiprone position, and suction is made by means of a vacuum bottle and syringe, to withdraw some of the contents. An injection is then made, by means of a gravity can, of a litre of a solution containing from four to six grams, by measure, of granular sodium sulphite. This solution has the effect of precipitating itself through the intestines, and within thirty minutes it begins to appear at the anus. The results have led him to believe that the chief factor in toxemia is intestinal stasis and intestinal absorption.

Huntington's Chorea.—C. R. McKinniss says: 1. It has been generally proved that to have the disease, one or both of the parents, if living past middle life, must have been choreic. 2. There is no positive law of anticipation in the disease. We cannot say positively what the result will be if a person takes a choreic mate. 3. In a disease in which transmission from parent to child is so marked, we cannot too strongly emphasize the danger of marriage of these individuals.

ARCHIVES OF INTERNAL MEDICINE.

June, 1914.

Experimental Study of German Measles.—A. F. Hess finds that in almost all cases of rubella there is a definite increase in the lymphocytes in the blood even before the appearance of the exanthem. This premonitory lymphocytosis might be of value in institutions in heralding the infection and facilitating the segregation of infected children. It may also serve to differentiate rubella from scarlet fever, which shows an increase in the polynuclear cells in its early stage.

Differential Diagnosis of Intestinal Entamebas.—C. F. Craig urges the study of the living parasites rather than stained preparations in the differentiation of *Entamoeba coli* from *Entamoeba histolytica*. In the living condition, any intestinal entameba possessing active motility of progressive character, having a well differentiated ectoplasm and endoplasm, and containing erythrocytes, may unhesitatingly be diagnosed as *Entamoeba histolytica*, while a sluggish entameba, with but slight differentiation of ectoplasm and endoplasm, and no erythrocytes in the endoplasm, when the feces contain blood, may be regarded as *Entamoeba coli*. In stained preparations of the organisms, likewise in the vegetative stage, differences in the finer structure of the nucleus are of assistance in the distinction between the two species. In the cystic stage of development, whether studied in living or in stained preparations, *Entamoeba histolytica* shows a smaller cyst than *Entamoeba coli*, with a thinner wall and less frequent double outline, containing characteristic chromidial bodies, and possessing nuclei never exceeding four in number; whereas in the fully developed *Entamoeba coli* cyst the normal number is eight.

Theobromine Sodium Salicylate and Theocin in Acute Experimental Nephritis.—R. Fitz finds that the immediate effect of repeated small doses of these drugs on renal function in acute experimental uraemic nephritis of different degrees of severity is beneficial, since they cause an increased output of urine, chlorides and nitrogen, and do not diminish the excretion of phenolsulphonephthalein. In bichromate nephritis, however, their action is prejudicial, nitrogen excretion being unaffected and that of phenolsulphonephthalein diminished. Repeated injection of these drugs in sufficient amount produces a condition of renal fatigue in which the kidney is no longer able to react.

Endomeningeal Treatment of Tabes and Cerebrospinal Syphilis.—T. R. Boggs and R. R. Snowden report five cases of tabes and three of cerebrospinal syphilis in which a modification of the Swift and Ellis method of treatment was applied. Salvarsan, 0.6 gram, was first given intravenously, seventy-five to 100 c. c. of blood withdrawn an hour later, serum from this blood soon after heated in a water bath at 56° C. for half an hour and an intraspinal injection of twenty-five to thirty-five c. c. of the undiluted serum given at once, spinal fluid not exceeding thirty-five c. c. in amount having previously been allowed to drain off. After the injection all pillows were taken away, the foot of the bed was elevated, and the patient kept on his back

for at least an hour. Treatments were repeated at seven to twenty day intervals. From the results obtained the authors deem it evident that the intraspinal method is a step forward in treatment. The patients were all relieved from pain and showed a definite improvement in locomotion, in some instances amounting almost to a restitution to normal. The psychic effect of the treatment was also marked, and the nutrition rapidly improved. The cerebrospinal fluid was strikingly influenced.

AMERICAN MEDICINE.

June, 1914.

Huntington's Chorea.—E. L. Melville says that Huntington's chorea never occurs until middle life, takes years to develop, and, when once established, yields to no form of treatment. In most cases there is marked dementia in the later stages, and in those he has observed paralysis, voluntary and involuntary, and extreme restlessness. Gowers classified the disease with senile chorea, but the general impression seems that the two are distinct affections. Huntington's chorea is progressive; its duration is from ten to thirty years. No definite pathology has been determined. Most of the cases which have come to autopsy show some increase in the interstitial tissue of the cortex, an accumulation of cell elements about the vessels, and some evidences of pachymeningitis, but whether these changes were the results of specific disease or merely end results, it is impossible to say. The diagnosis is not difficult. The heredity, the chorea, the tendency to insanity, and the development in middle life are the salient features. The author gives detailed histories of two cases and states that in the past twenty-five years he has been able to trace eighteen well authenticated instances, all from one woman, the great grandmother of the two patients described. All these persons were of exemplary, intelligent New England stock, who have lived quiet, well ordered lives until they reached middle life; when they were attacked by the malady.

Methods and Efficiency in Outpatient Work.

F. H. Klaer, of the University of Pennsylvania Hospital, from a survey of methods and results of treatment in the medical outpatient department, draws the following conclusions: 1. Outpatient departments are most important parts of the hospital system, and necessary factors in the treatment of disease among the poor of a large city. 2. Efficient work in them can best be carried on by a graded staff properly instructed in the essentials of medicine, and on continuous service. 3. Treatment of outpatients should be as individual and personal as that of patients in private practice. 4. The question of a patient's right to free treatment is a social one, and can be definitely decided at the admission desk. 5. Complete records are essential to thorough work.

The Value of Fresh Blood Examinations to the General Practitioner.—R. L. Watkins states that a fresh blood specimen (preferably a drop drawn from the lobe of the ear) reveals things which cannot possibly be seen by any other method of blood examination. It is impossible to examine the blood while it is circulating in the body; we must use the

next best method, and examine it as soon as it is drawn, and make a photomicrograph for recording purposes. If the practitioner has a case, for example, of doubtful tuberculosis, whether of the lungs, joints, or glandular system, a fresh blood examination, for the presence of the mycoderma, or Salisbury yeast, will determine the diagnosis. So persistent is the yeast, in very incipient as well as advanced cases, that its presence is unmistakable. Exposure to the air very quickly dissolves it; so that a photomicrograph must be made very promptly. Rheumatism is not only discernible in the blood in its latent stages, but the kind of crystal which predominates, whether urate, phosphate, or cystenic, is easily ascertained. This method of fresh blood examination has not been in the past, and is not today, taught in any college or laboratory; yet it is the simplest and oldest method in existence.

JOURNAL OF TROPICAL MEDICINE AND HYGIENE.

June 1, 1914.

Emetine Treatment of Dysentery in Young Children.—R. G. Archibald administered emetine in two cases of amebic dysentery in children aged respectively eight and twenty-eight months, and concludes that young children are extremely tolerant of the drug. In severe cases he deems it advisable to use an initial dose of one sixth grain for a child of two, and repeat this dose every twelve hours until one half grain has been given. The total amount of emetine given should be controlled by microscopic examination of the stools, at intervals during convalescence. Failure to find entamoebæ on the first examination does not preclude the possibility of their being present; their detection is facilitated by a preliminary purge. In order to avert relapses, emetine should be continually given once weekly or fortnightly for at least three months after apparent cure. The intramuscular method of injection is best, particularly in patients whose vitality has been somewhat lowered.

Proceedings of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-ninth Annual Meeting, Held at Boston, May 19, 20, and 21, 1914.

The President, Dr. J. WHITRIDGE WILLIAMS, of Baltimore, in the Chair.

(Continued from page 201.)

Hospital Efficiency, with Particular Reference to Product Rather than Expenditure.—Dr. E. A. CODMAN, of Boston, stated that at present trustees of hospitals gave attention to the efficiency of their institutions in expenditures, but they had made little or no effort to find whether the treatment of the patients which was given by their medical and surgical staffs was good or bad. It had been taken for granted that the public preferred to be treated by a physician or surgeon who had a great reputation, even if he was hurried or careless, than by an individual of lesser reputation who

could afford the time and pains necessary to obtain a good result in the treatment of disease which afflicted the patient. Hospitals in which promotion was made by a seniority system could not help tending to the inevitable practice of allowing the more capable surgeons to do the easier and more brilliant cases, while the more tedious and difficult and grave cases might be referred to the younger men whose private reputations made little demand upon their time. There seemed to be some ground for the contention that it would be better to have a young surgeon do a large number of easy operations, so that when he was older his experience might benefit the more difficult cases which fortunately were much fewer in number.

Abdominal Cæsarean Section for Eclampsia.—Dr. REUBEN PETERSON, Ann Arbor, presented the following summary and conclusions:

1. Since the 500 cases of abdominal Cæsarean operations represent the work of 259 operators, they are a very fair index to the present status of the operation as a method of treating ante partum eclampsia.

2. Since the results of operative obstetrics, especially abdominal section, were far better at the present time than formerly, the value of the operation as a method of treatment of eclampsia could only be judged by grouping the cases chronologically.

3. Between 1903 and 1913 there were 283 cases of eclampsia treated by abdominal Cæsarean section with seventy-three deaths or a maternal mortality of 25.79 per cent. Up to 1908 there were 198 cases with ninety-five deaths, or a mortality of 47.97 per cent. Hence the maternal mortality in the five year period had been reduced nearly one half.

4. Hence the old figures of a forty or fifty per cent. maternal mortality from abdominal Cæsarean section for eclampsia were incorrect and should no longer be quoted.

5. The mortality percentage quoted above (25.79) could be considerably lowered by care in technic and by not making use of the suprapubic route when there was great probability that the woman had been infected from below.

6. Nearly one fifth of the entire series, ninety-one operations, were performed by thirteen men having five or more cases to their credit, with seventeen deaths or a maternal mortality of 18.68 per cent.

7. Deducting fifteen cases where the proportion of moribund and septic patients was very high, the remaining seventy-six cases with ten deaths gave a maternal mortality of 13.15 per cent.

8. Although an eclamptic might die after a single or survive after many convulsions, the latter must be utilized as an indication of the degree of eclamptic poisoning until we had a better method of estimating the patient's condition.

9. Emptying the uterus either spontaneously or by artificial means, while it put a stop to the further elaboration of toxins from the fetus, the placenta or both might not be sufficient to prevent further convulsions or in certain cases death of the mother from intoxication.

10. In the present series convulsions were caused

after abdominal Cæsarean section in 251 out of 457 cases or in 54.92 per cent. These statistics agreed with those made up from those obtained from thousands of cases of eclampsia showing that convulsions ceased after emptying of the uterus, either spontaneously or artificially in from 52 to 62 per cent. of the cases.

11. Even when the convulsions ceased after delivery a certain proportion of the patients died. In 146 cases where the convulsions ceased after abdominal Cæsarean section during the five year period (1908-1913), there were forty-one deaths or a maternal mortality of 19.8 per cent.

12. While the foregoing percentage of patients died after emptying the uterus by abdominal Cæsarean section after cessation of the convulsions, the mortality was much less than where the convulsions continued, since in 130 of such cases there were forty-one deaths or a maternal mortality of 31.53 per cent.

13. The operative treatment of eclampsia had never been given a fair trial. To do this the uterus should be emptied quickly, as soon as possible after the onset of the first convulsion, not emptied after all kinds of medicinal treatment had been tried and failed.

14. In the present series there were twenty-five deaths after 124 operations performed after one to five convulsions or a maternal mortality of 20.32 per cent.

15. The best results in the operative treatment of eclampsia were bound to follow immediate emptying of the uterus in cases where the woman had not been infected by frequent vaginal examinations or attempts at delivery from below. This was shown by the following:

16. In sixty of the 124 cases where the operations were performed after from one to five convulsions, where no examination or only one or two vaginal examinations had been made and where no attempts were made to deliver from below, there were only nine deaths or a maternal mortality of fifteen per cent.

17. The increase in mortality due to delay was shown by a mortality of 30.33 per cent. where the operations were performed after the sixth convulsion. This was ten per cent. higher than after quick delivery and five per cent. higher than the total mortality resulting during the same period (1908-1913).

18. In sixty cases where the convulsions ceased after operations performed after from one to five convulsions there were eight deaths or a maternal mortality of 13.33 per cent. The mortality was twice as high (26.92 per cent.) after operations performed under the same conditions except that the convulsions continued.

19. When the abdominal Cæsarean sections were performed after more than five convulsions, there was a resulting mortality of 26.31 per cent., where there was a cessation of the convulsions, and 36.36 per cent. where they continued.

20. The average number of convulsions in 386 cases of eclampsia in the abdominal Cæsarean series was nine where the cases were not grouped. The average was ten up to 1908 and eight from 1908-1913.

21. Twins occurred thirty-one times in 500 cases of abdominal Cæsarean section for eclampsia, or in 4.02 per cent. of the cases. This was over three times as frequent as twins in normal cases.

22. Excluding premature children and counting as living all children who survived one hour after delivery, there were nine deaths from 1908 to 1913 where 248 children were delivered by abdominal Cæsarean section or a fetal mortality of 3.62 per cent. Under the same conditions fetal mortality was 10.69 per cent. if children dying the first three days after delivery were counted among the deaths. Even estimating the fetal mortality by this method, it was much better than by any other method of treating eclampsia.

23. The fetus as well as the mother was affected by eclamptic poison. The greater the number of the eclamptic convulsions before delivery the greater the fetal mortality. Hence for the sake of the fetus the uterus should be emptied as soon as possible after the first convulsion. If other factors in the case called for abdominal Cæsarean section, the chances of the fetus would be much better than if another method of delivery was employed.

24. In 474 cases of eclampsia in the present series, 83.75 per cent. were primiparæ and 16.17 per cent. multiparæ. The relatively larger proportion of primiparæ was due to the fact that primiparous conditions, such as undilated and rigid cervix and rigidity of the soft parts, more often called for the abdominal operation than for other methods of delivery.

25. The maternal mortality was higher after abdominal Cæsarean section in multiparous women than in the case with primiparous eclamptics. In the present series, in 225 primiparæ the maternal mortality was 24.44 per cent., while in forty-eight multiparæ the mortality was 27.08 per cent.

26. The fetal as well as the maternal mortality was higher in multiparæ after abdominal Cæsarean section. This was probably due to the greater degree of intoxication among the multiparæ, since in both primiparæ and multiparæ the children, because of the nature of the operation employed, escaped the traumatism of labor. The greater intoxication among the multiparæ was probably due to their being on the average older than the primiparæ, the average of the former in seventy-seven cases being 32.6 years, while the average age of the latter in 397 cases was 24.6 years.

27. The maternal mortality in eclampsia after abdominal Cæsarean section steadily increased with the age of the patients, it being 23.63 per cent. between the ages of sixteen and twenty years and 31.11 per cent. between the ages of thirty-one and thirty-five.

28. The number of eclamptic cases in the present series steadily increased from the fifth month of gestation up to full term, also, the farther advanced the pregnancy, the lower the maternal mortality.

29. Unless the aseptic technic employed in attempts to deliver from below was known, abdominal Cæsarean section was contraindicated, so great were the dangers of fatal peritonitis when the patient was infected.

30. The high death rate of abdominal Cæsarean

section after operative procedures was shown by the fact that there were ten deaths in twenty-nine such cases or a maternal mortality of 34.48 per cent. This nine per cent. increase in mortality over the total mortality (25.79 per cent.) during the same period was undoubtedly due to sepsis, shock, and delay in emptying the uterus.

31. The mortality was distinctly higher after abdominal Cæsarean section in eclampsia if vaginal examinations had been made prior to the operations. The danger increased directly with the number of examinations made and the lack of asepsis employed.

32. Any obstetric condition which made delivery by the natural passages prolonged and difficult, might be an indication for abdominal Cæsarean section in eclampsia. If delivery was decided upon, the uterus should be emptied by the method which would perform the work the quickest and with the least trauma and shock to mother and child. However, it must be borne in mind that there was more danger of sepsis when the peritoneal cavity was opened.

33. With the present state of our knowledge of this operation for eclampsia, it could not be denied that older and more tried methods of emptying the uterus in eclampsia gave better results in eclamptics with normal pelves and soft parts, hence should not be lightly discarded in favor of the more brilliant and more easily performed abdominal operation.

34. But with a maternal mortality after abdominal Cæsarean section of 18.68 per cent. in 191 cases of eclampsia in one series, 13.13 per cent. in seventy-six cases in another, and fifteen per cent. in sixty cases where the uterus was emptied after a few convulsions, the operation under consideration had reached a stage where it could no longer be disregarded by obstetricians who had based their opposition to the procedure upon statistics which were altogether too high.

End Results of Interposition of the Uterus.—Dr. JOHN OSBORN POLAK, of Brooklyn, New York, said that the normal supports of the uterus might be enumerated as follows: 1. The uterine ligaments, especially the uteropelvic and uterosacral, which maintained the cervix in its normal position. 2. The pelvic floor and pelvic fascia which made the pelvic diaphragm. 3. The supporting action of the adjacent pelvic organs. 4. The action of the intraabdominal pressure. And, finally, the axial relation of the uterus to the vagina. He drew the following conclusions:

1. Interposition should be limited to women at or past the menopause, with a relatively small uterus, and when the procedure was elected in those still menstruating, sterilization by tubal ligation should be done at the time of the operation. 2. The cases of prolapse in which sliding took place in the postpubic cleavage plane, were not corrected by this procedure. 3. The morbidity was wholly due to technical defects, namely, improper preparation, imperfect hemostasis, vesical injury, etc. 4. In anteverting the uterus, the anterior wall of the uterus should rest on the fascial plate just behind the pubis, the fundus should not be brought under the arch, as excessive anterior displacement not only

avored recurrence, but anteflexed the uterus and interfered with drainage. 5. The curettings from uteri about to be transposed should always be examined, as degeneration might occur, and hysterectomy was easy after this operation.

Uniting Separately the Five Structures Injured in Lacerations of the Pelvic Floor.—Dr. BARTON COOKE HIRST, of Philadelphia, for a number of years in his clinic in the University Hospital of Philadelphia, had had the recently delivered women placed upon an operating table in the dorsal gynecological position and anesthetized. This had been done in different series of patients on every day of the puerperium up to the seventh. As a result of this study, embracing hundreds of patients, it was possible to state the following facts in regard to lacerations of the pelvic floor: The pelvic fascia over the levator ani muscle showed a split running parallel with the descending ramus of the pubis; the levator ani was torn loose from its attachment to the pubis and ischium, the injury began close to the bone and ran downward and inward toward the mid line of the posterior vaginal sulcus; the fascia between the levator and the deep transversus perinæi showed a triangular split with the apex above. This deep transversus perinæi was torn apart in the middle line and the two halves were retracted so that there was a gap between the ends of an inch or more; the junctions of the two halves of the superficial transversus perinæi and of the bulbocavernosus muscles were torn apart if the perineal body was injured, as was commonly the case in laceration of the perineum. These facts being established, and it was only necessary to look at a sufficient number of recently delivered women to establish them, the rest of the problem was easy of solution. Such a denudation of the injured region must be made in secondary operations as to expose the component and anatomical parts, and then these component structures should be united separately at the site of the injury and restored to their original condition. But in either case the levator ani must be exposed by cutting through the pelvic fascia, under which it lay. There the belly of the muscle was attached to the portion arising from the pelvic bones; the deep transversus was brought out of its cavity in which it had retracted and was united in the middle line; the pelvic fascia between the levator ani and the deep transversus was united, and finally the perineal body was repaired. For convenience of illustration the sutures were represented as interrupted, but as a matter of fact, the buried continuous tier catgut was used for the levator and the fascia; buried interrupted for the deep transversus and perineal body. The skin of the perineum was finally united over the catgut sutures by Michel's clamps.

President's Address: Has the American Gynecological Society Done Its Part in the Advancement of Obstetrical Knowledge?—Dr. J. WHITRIDGE WILLIAMS, of Baltimore, stated that in the conversion of Cæsarean section from the most dangerous operation in surgery to one whose results were so good, it was in imminent danger of being abused by knife loving obstetricians, and by surgeons who knew nothing of the resources of obstetrics. The early accounts of tardy operations for

the removal of a dead child from an exhausted and infected woman stood in marked contrast to the first elective operation performed by Lusk, in 1887, but particularly to the long series of successful operations which were afterward reported by many of the members. One of the most interesting phases of obstetrical history was afforded by the fifty-one papers upon extrauterine gestation. In these one could trace the evolution of a pathological curiosity into a condition of everyday occurrence. For purposes of analysis he classified the 346 obstetrical papers into thirty-two groups and presented them in tabular form. One of the most important factors in the lack of productivity was to be found in the system of medical education. Until recently university ideals were entirely lacking in the medical schools, and even now in many institutions affiliated with universities the connection was purely nominal. How many obstetrical departments were provided with proper accommodations for a sufficient number of patients for the instruction of students, with adequately paid and enthusiastic assistants, or with suitably equipped laboratories for research work, not to mention a salary for the director in any way commensurate with the ability and efforts necessary to supervise the work in anything like an ideal manner? Real university departments were just beginning to be organized in some other branches of medicine, but he knew of none in gynecology or obstetrics.

From extensive investigation he knew that in most of the schools obstetrics was the least well cared for department, and must ordinarily be content with what was not wanted by others, while the professor was frequently regarded by his colleagues as being engaged in an almost unworthy pursuit. No doubt some professors were poorly trained and fulfilled their obligations lightly, but he knew many who took them seriously and who felt depressed whenever they considered the status of their department and their inability to do better work. So long as such conditions existed, it was scarcely conceivable that many professors would be scientifically productive or would often be able to induce promising young men to devote themselves seriously to this branch of medicine, for the few men in this country who were really doing their duty, did so with great personal sacrifices and against odds with which they should not have to contend. A third reason for the low state of American obstetrics was that this was the only country in the civilized world in which obstetrics and gynecology were sharply divided. While it was debatable whether a union of gynecology and obstetrics was feasible for those engaged in private practice, or would materially improve the matter in most medical schools as at present organized, there was no doubt in his mind that the professorial chairs in the university medical schools needed to be filled by broadly trained scientific men, who were prepared to give their time to their duty. He hoped to see a number of such institutions scattered over the land, and then no future president of this or any other society would be able to say that its members had not done their part in the advancement of obstetrical or gynecological knowledge.

(To be continued.)

Letters to the Editors.

CARDIOPHOBIA AND CARDIOPATHY FROM COITUS INTERRUPTUS.

VICHY, FRANCE, July 17, 1914.

To the Editors.

I have just read in the *JOURNAL* (for July 4th), which follows me in all my European wanderings, an excellent article by Dr. Robert H. Babcock on Cardiac Hypochondriacs. I wish to corroborate everything he says about the thoughtlessness with which many cases of real or imaginary heart trouble are treated. Too little care is taken to differentiate between a functional and an organic trouble and too little pains are taken to elucidate the true fundamental etiology.

Thus, for instance, there are innumerable cases of severe tachycardia, arrhythmia, cardialgia, pseudoangina, etc., which are due exclusively to the pernicious and widespread practice of withdrawal, or coitus interruptus. Those cases are treated with digitalis, strophanthus, strychnine, bromides, aconite, etc., with no benefit or distinct harm, and all because the physician has not investigated the etiology carefully enough. The real cause ascertained, and the pernicious practice stopped (i. e., being replaced, not by abstinence, but by normal sexual relations), the symptoms disappear at once or very quickly.

The ascertainment of the fundamental cause and a hopeful attitude are conditions *sine qua non* of the successful handling—I do not say curing—of real or fancied heart disease.

WILLIAM J. ROBINSON, M. D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Lehrbuch der Chirurgie. Bearbeitet von Prof. KLAPP, Berlin; Prof. KUTTNER, Breslau; Prof. LANGE, München; Prof. LANZ, Amsterdam; Prof. PERTHES, Tübingen; Prof. POPPERT, Giessen; etc. Vierte Umgearbeitete Auflage. Erster Band: Allgemeiner Teil. Chirurgie des Kopfes, des Halses, der Brust und der Wirbelsäule. Mit 383 zum teil Mehrfarbigen Abbildungen. Jena: Verlag von Gustav Fischer, 1913. Pp. xiv-673; Zweiter Band; Bauchdecken, Leber, Milz, Pankreas, Magen, Darm, Hernien, Harn- und Geschlechts-organe und Becken. Mit 217 zum teil Mehrfarbigen Abbildungen. Jena: Verlag von Gustav Fischer, 1914. Pp. viii-483; Dritter Band; Extremitäten: Erkrankungen und Verletzungen der Weichteile, Deformitäten, Missbildungen, Verletzungen und Erkrankungen der Knochen und Gelenke, Amputationen und Exartikulationen. Mit 5 Tafeln und 488 zum teil Mehrfarbigen Abbildungen. Jena: Verlag von Gustav Fischer, 1914. Pp. xi-624.

This important work has reached its fourth edition in six years. The list of collaborators assures the reader that the various chapters have been written by men of wide experience in teaching and practice, who hold positions as professors of surgery and directors of surgical clinics. The work consists thus of a collection of authoritative articles by active teachers and practitioners of surgery. Furthermore, the articles are written in most instances by men specially interested in the particular subjects assigned to them who have made original investigations in these fields. There are two departures in the arrangement of the subject matter which have not yet stood the test of experience. In the first place, the surgery of the extremities is not treated in topographical sequence, but is arranged according to tissues. Thus soft parts, bones, and joints are taken up separately, and the injuries, diseases, and deformities of each are discussed in order. There is no doubt that in this way repetitions are avoided. The second change from general custom is that most of the subjects usually under the head of general surgery, will be found described in conjunction with the special topics.

Only four subjects, anesthesia, healing of wounds and inflammations, suture, hemostasis, and the treatment of wounds, make up the introductory part of the work. This arrangement is also used for the purpose of avoiding repetitions. The book has already been translated into Hungarian and Russian and will in all probability appear soon in English form.

Der chirurgische Operationskursus. Ein Handbuch für Ärzte und Studierende. Von Prof. Dr. VICTOR SCHMIEDEN, o. ö. Professor der Chirurgie, Direktor der Königlich chirurgischen Universitätsklinik zu Halle a. d. S. Dritte erweiterte und verbesserte Auflage. Mit 467 Abbildungen im Text und einem Vorwort von Prof. Dr. A. BIER in Berlin. Leipzig: Verlag von Johann Ambrosius Barth, 1914. Pp. xviii-416.

Schmieden's well known book has reached a third German edition in four years. An English translation was made two years ago, of the second edition, by Doctor Turnbull, of Glasgow. The present German edition has been carefully revised and brought up to date, and 113 new illustrations have been added. The work offers a marked contrast to the earlier books on operative surgery in that it suggests more the operating amphitheatre than the dissecting room. Furthermore, the operations of ligations, amputations, and resections which were described in such detail in the earlier books have properly been given a secondary place to the more modern and common operations on the abdominal viscera, brain, spinal cord, etc. The great development in surgical procedure is given full justice, and the student or practitioner who wishes to learn the most approved methods in use today will find this work of great value. Those methods are described in detail which the author has used or seen used in Doctor Bier's famous clinic in Berlin and which have shown themselves to be reliable and safe. The illustrations are unusually good and many of them are sketches from living and dead subjects. The author has been broad minded enough to select the best methods, whether German or foreign, and has given credit where it belonged. The result is that the book has an international character. The book deserves a high rank among the modern works on surgical technic.

Transactions of the American Otological Society. Forty-sixth Annual Meeting. Hotel Raleigh, Washington, D. C., May 6 and 7, 1913. Volume XIII. Part 1. Published by the Society. New Bedford, Mass.: Mercury Publishing Company, 1913. Pp. 252.

Being the official report of the transactions of the American Otological Society, the volume contains a list of the members; the minutes of the meeting; the list of the new instruments presented; the various papers composing the scientific program; and the discussion that followed. Judging from the program as published, the meeting must have furnished the usual amount of interest.

Diseases of the Rectum and Anus. Including the sixth edition of the Jacksonian Prize Essay on Cancer. Fourth Edition. Reprinted to include the Opening Address on the Surgical Treatment of Rectal Cancer, delivered at the Annual Meeting of the British Medical Association, Liverpool, 1912. By HARRISON CRIPPS, F.R.C.S., Consulting Surgeon, St. Bartholomew's Hospital; Member of the Council Royal College of Surgeons, etc. New York: The Macmillan Company, 1914. Pp. xii-588. (Price, \$3.25.)

The first edition of this treatise embodied the Jacksonian prize essay on cancer of the rectum by the same author. In the third edition, which appeared in 1907, a table of 380 consecutive cases of rectal cancer occurring in private practice, was included, with an analysis of the results obtained by the various methods of procedure. The fourth edition was reprinted to include the Opening Address on the Surgical Treatment of Rectal Cancer, delivered at the Annual Meeting of the British Medical Association, Liverpool, 1912. The chief value of the work lies in the chapters on rectal cancer, in which disease the author has had a wide experience. His conclusions, therefore, as to the best method of operative treatment based on the results obtained in a very long list of cases commands the interest of all who come in contact with this

most troublesome form of cancer. The comparison of results of excision of the growth and colotomy forms an interesting chapter and accentuates again the importance of earlier recognition and prompter surgical interference.

Das Problem der Geschwulst malignität. Als Antrittsvorlesung im Auszüge vorgetragen am 13. Dezember 1913. Von Dr. Med. MAX VERSÉ, a. o. Professor und Prosektor am pathologischen Institut der Universität Leipzig. Mit 1 Tafel. Jena: Verlag von Gustav Fischer, 1914. Pp. iv-88.

In discussing the malignancy of tumors it is necessary, as Versé states, to find out what a tumor is, from what it arises, and why. To answer these questions the author takes up the various topics seriatim. Under the heading of the pathological peculiarities of the tumor cells and their effect upon the body, are discussed the theories of origin and the specific changes in the cells, morphological, functional, vegetative, and chemical. Then are taken up for consideration the local conditions predisposing to tumor formation, and the general disposition. This is followed by a number of pages in which conclusions are drawn from what has been reviewed. Versé believes that in the ultimate analysis the tumor question is a cell problem, one that must be considered in its bearing upon the entire organism. The question waiting to be answered is, What is the cause of the malignant degeneration of the cell? He would answer it by agreeing with Rüllf's idea that the malignancy of cells depends upon a disturbance in their chemical arrangement. This monograph of some eighty pages is of distinct value.

Die Städtische Ohrenklinik Frankfurt a. M. Von Prof. Dr. OTTO VOSS, Frankfurt a. M. Mit 40 Abbildungen im Text und 6 Plänen. Würzburg: Curt Kabitzsch Verlag, 1913. Pp. 38.

This small pamphlet contains an account of the city ear hospital in Frankfurt. Judging from the numerous illustrations and the pages of description, every effort was apparently made to construct a hospital as complete as possible in every respect for the thorough and exhaustive examination of the patients. To those who are considering the construction of a similar institution, a profitable guide may be found in this contribution of Professor Voss.

Röntgentiefentherapie ihre theoretischen Grundlagen, ihre praktische Anwendung und ihre klinischen Erfolge an der Freiburger Universitäts-Frauenklinik. Von Prof. Dr. C. J. GAUSS und Dr. H. LEMBCKE, mit einem Vorwort von Prof. Dr. B. KRÖNIG. Mit 133 Textabbildungen. Berlin und Wien: Urban & Schwarzenberg, 1912. Pp. xii-332. (Through Rebman Company, New York.)

This monograph gives the history of the development of deep röntgenotherapy, including detailed accounts of physical, electrical, botanical, and biological experiments, upon which the method is based, and a description of the technic now in use, followed by a detailed report upon the treatment of 205 cases and the results obtained therein.

Beginning in 1906, Krönig and Gauss started treating selected gynecological cases with the Röntgen rays, giving three treatments a week, with a medium hard tube, at 15 cm. focus skin distance, filtering through a colpeurynter, using a two to three m. a. of current through the tube, each treatment lasting five minutes. Subsequently, the rays were filtered according to the method of Perthes, and an attempt was made to use the homogeneous rays of Desauer.

Twenty-five cases were treated by the Albers-Schoenburg technic, consisting of a full pastille dose given in three sittings, using a tube reading six to eight Walter; focus skin distance, thirty-eight cm.; each sitting lasting about six minutes, three to five m. a. passing through the tube; each series of treatments being followed by an interval of fourteen days before a second series of treatments was begun. The skin over the area treated was compressed and the x rays were filtered through a layer of aluminum or tin.

Results were obtained by these methods, but the patients' treatments extended over three to five months. In order to shorten this period of treatment, extensive experiments were carried out to utilize the greatest number of deep penetrating rays without bad effect on the skin.

It was found that by using filters of aluminum three mm. thick, with a layer of leather or a layer of sensitized paper, with tubes reading Walter six to eight, a given area of skin could receive twice the usual erythema dose without danger. By treating only a small area of the skin at a time and cross firing the rays so that they were directed toward the seat of the pathological process, and by allowing only a given area of skin to be rayed once, Gauss has administered 150 to 230 erythema doses in a single case without any ill effect on the skin and with decided therapeutic effect on the tumor.

The advantages claimed for the technic of Krönig and Gauss are: 1. Results obtained in the shortest possible time; 2, utilization of a greatly increased amount of x rays; 3, no danger to the skin. Krönig and Gauss have reported favorable results in carcinomas of the face, breast, rectum, and uterus. The monograph is a masterly and scientific exposition of their technic.

Trachoma, and Its Complications in Egypt. By A. F. MACCALLAN, Cambridge, F. R. C. S., England, Director of Ophthalmic Hospitals, Egypt. Cambridge: University Press, 1913. Pp. vi-74.

This little book gives a description of trachoma as it is met with in the East, and of its treatment as carried out at the Egyptian Ophthalmic Hospital. The first part is devoted to a history of our knowledge of trachoma, prevalence in Egypt, climatic and racial variations, age and mode of infection, and its clinical description. The second part deals with its pathology, the third part with its treatment, the fourth with the differential diagnosis, prognosis, prophylaxis, influence on ophthalmic operations, and the causes of blindness in Egypt. The following is worth quoting from the remarks on prophylaxis: "Cleanliness is the greatest safeguard against infection and should be observed from the day of birth onward. It is noteworthy that no European oculist in Egypt has become infected with trachoma during the last twenty years, also that the British army of occupation has practically no cases of trachoma in its ranks."

A Handbook for the Post Mortem Room. By ALEXANDER G. GIBSON, M. D. (Oxon.), F. R. C. P. (Lond.), University Demonstrator in Pathology, Oxford, and Honorary Assistant Pathologist to the Radcliffe Infirmary, Oxford. Oxford Medical Publication. London: Henry Frowde (Oxford University Press), Hodder & Stoughton, 1914. Pp. viii-140. (Price, \$1.50.)

Doctor Gibson has produced a very useful aid to post mortem work in this handbook recently published. It gives briefly, but clearly, the necessary directions for the autopsy itself, as well as an outline of the requirements of a good autopsy room, and the instruments needed. The handy size of the book is a further recommendation.

Interclinical Notes.

"Business has fallen off at our summer resort," observed Dr. Ben Trovato; "people are inclined to blame the railroad over which all our patrons must travel. Prehistoric rolling stock, raised commutation rates, a deal with the express company about baggage and hand packages, soft coal, plush covered seats with the thermometer at 90° F., are a few of the characteristics of our route to By-the-Sea. We are allowed to swelter in the station before leaving and, to add insult to injury, a boy sells palm leaf fans to passengers fully entitled to motor fans and two cents' worth of electricity. Rather than put up with two hours daily of this sort of thing, many men prefer to fight the summer at home. As a conscientious medical adviser, I cannot advise them to do otherwise."

* * *

According to Robert Emmett MacAlarney, in his story, Battler Binks, Scoreboard Man, in the *Popular Magazine* for the July month end, "the doctor end of prizefighting is mostly bluff. But there has to be someone with an M. D. to look over bruisers before they go into the ring; otherwise fussy, uplift folks are always butting into things." Doc Sparks, we learn, was a fight fan himself. He certainly uses most unprofessional language. e. g., "Yellow,

nothing. An undersized kid ain't made of Bessemer steel. You've gaited him too fast. . . . You've lost your chance, kid. That's why he went on the fritz when he fought the bull, Charley. . . . Battler, you've been a game chicken." Many of our best physicians are multilingual, however.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending July 23, 1914:

Cobb, J. O., Surgeon. Granted one day's leave of absence July 17, 1914, under paragraph 183, Regulations of the Service. **Draper, W. F.**, Assistant Surgeon. Directed to proceed to Ocean City, Md., Chincoteague, Washapreague, and Cape Charles, Va., for the purpose of making the annual physical examination of keepers and surfmen of the Life Saving Service. **Foster, A. D.**, Passed Assistant Surgeon. Detailed as a member of the board of commissioned medical officers now in session at the Bureau for the examination of candidates for appointment as Assistant Surgeons in the Service, vice Assistant Surgeon R. A. Kearny, relieved. **Irwin, F.**, Senior Surgeon. Directed to proceed to Tuckerton, N. J., July 20, 1914, and Atlantic City, N. J., July 23, 1914, for the purpose of making the annual physical examination of keepers and surfmen of the Life Saving Service. **Kearny, R. A.**, Assistant Surgeon. Relieved from duty as Recorder of a board of commissioned medical officers now in session at the Bureau, and directed to proceed to New Orleans, La., for duty in plague eradication measures. **Rucker, W. C.**, Assistant Surgeon General. Relieved from duty as member of a board of medical officers convened for the examination of candidates for appointment as Assistant Surgeon, on account of absence from the city. **Sprague, E. K.**, Surgeon. Granted twelve days' leave of absence from July 6, 1914. **Stoner, George W.**, Senior Surgeon. Directed to proceed to Asbury Park, N. J., for the purpose of making the annual physical examination of keepers and surfmen of the Life Saving Service.

Board Convened.

Board of medical officers convened to meet at the Revenue Cutter Academy, New London, Conn., July 17, 1914, for the physical examination of four cadet engineers to ascertain their fitness for promotion to third lieutenants of engineers. Detail for the board: Assistant Surgeon J. H. Smith, Jr., chairman, Acting Assistant Surgeon J. G. Stanton, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers in the Medical Corps of the United States Army for the week ending July 25, 1914:

De Witt, Wallace, Major, Medical Corps. To accompany first squadron, second cavalry, from Fort Ethan Allen, Vermont, to Pomfret, Conn., as camp instructor, etc., of militia sanitary troops, instead of Captain William K. Bartlett, previously ordered to such duty, amending part of Paragraph 4, S. O. No. 164, Headquarters, Eastern Department. **Flynn, James G.**, First Lieutenant, Medical Reserve Corps. Transferred July 15th from Eastern Department and Post Hospital, Fort Crockett, Texas, to Hospital, Port of Embarkation, Galveston, Texas. **Gosman, G. H. R.**, Major, Medical Corps. Reported for duty July 13th, at the Letterman General Hospital, San Francisco, Cal. **Jones, E. C.**, Captain, Medical Corps. Granted fifteen days' leave. **McDaniel, Adolphus A.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty and to report to the commanding officer, Fort Crockett, Texas, for assignment to duty. **Murtagh, John A.**, Major, Medical Corps. Relieved from treatment at Letterman General Hospital, Presidio of San Francisco, Cal., and from duty at Fort McIntosh, Texas, and will report for duty at Fort Screven, Ga. **Smith, Herbert A.**, First Lieutenant, Medical Reserve Corps. Relieved from further duty, Fort Porter, N. Y., and from active duty in the Medical Reserve Corps. **Thrasher, Benjamin O.**, Medical Reserve Corps. Ordered to active

duty, and will report to the commanding officer, Port of Embarkation, Galveston, Tex., for assignment to duty. **Van Voast, Rufus A.**, First Lieutenant, Medical Reserve Corps. Transferred July 15th from Eastern Department and Post Hospital, Fort Crockett, Texas, to Hospital, Port of Embarkation, Galveston, Texas. **Wolfe, Edwin P.**, Major, Medical Corps. Has been granted one month and fifteen days' leave of absence.

Births, Marriages, and Deaths.

Married.

Anderson—Davis.—In Black Rock, Pa., on Thursday, July 9th, Dr. Ida Z. Anderson and Mr. John K. Davis. **Fitzhugh—Wagner.**—In Monterey, Va., on Tuesday, June 30th, Dr. William D. Fitzhugh, of Doe Hill, Va., and Miss Elizabeth Wagner. **Hamm—Holtermann.**—In St. Louis, Mo., on Wednesday, July 15th, Dr. Malfred Hamm, of Madison, Ill., and Miss Mathilde Holtermann. **Phillips—Rennie.**—In New York, on Saturday, July 25th, Dr. Walter Phillips and Miss Helen Marie Rennie. **Rogers—Dolan.**—In Philadelphia, on Wednesday, July 15th, Dr. Jerome Rogers and Miss Louise M. Dolan, both of Pottsville, Pa.

Died.

Berretti.—In Boston, Mass., on Monday, July 13th, Dr. Albert F. Berretti, of Milwaukee, Wis., aged twenty-nine years. **Burns.**—In Riverside, Cal., on Sunday, July 12th, Dr. Robert Burns, aged sixty-two years. **Craig.**—In Ballston Spa, N. Y., on Monday, July 13th, Dr. Horatio G. Craig, aged sixty years. **Delaney.**—In Bristol, Va., on Saturday, July 18th, Dr. William T. Delaney, aged seventy-nine years. **Downs.**—In Bridgeport, Conn., on Friday, July 17th, Dr. Frederick B. Downs, aged fifty-eight years. **Feathers.**—In Farmington, Ark., on Monday, July 13th, Dr. Charles Feathers, aged thirty-two years. **Grosvenor.**—In Taunton, Mass., on Friday, July 17th, Dr. Lemuel C. Grosvenor, aged eighty-one years. **Hamilton.**—In Springfield, Mass., on Tuesday, July 21st, Dr. Theodore E. Hamilton, aged eighty years. **Hennessy.**—In Albany, N. Y., on Monday, July 13th, Dr. John V. Hennessy, aged sixty years. **Judson.**—In Rochester, Minn., on Monday, July 20th, Dr. Helen D. Judson, of Castile, N. Y., aged fifty-five years. **Knott.**—In Atlanta, Ga., on Sunday, July 12th, Dr. James J. Knott, aged seventy-five years. **Kremers.**—In Holland, Mich., on Wednesday, July 15th, Dr. Henry Kremers, aged sixty-four years. **McCartney.**—In Avon Park, Fla., on Tuesday, July 14th, Dr. James H. McCartney. **McGregor.**—In Cheboygan, Mich., on Tuesday, July 14th, Dr. A. B. McGregor, aged forty-two years. **Macdonald.**—In Brooklyn, N. Y., on Wednesday, July 22d, Dr. Henry Macdonald, aged sixty-two years. **Magruder.**—In Sandy Spring, Md., on Monday, July 13th, Dr. William E. Magruder, aged eighty years. **Matthey.**—In Davenport, Ia., on Monday, July 6th, Dr. Carl Matthey, aged sixty-two years. **Mellen.**—In Poughkeepsie, N. Y., on Wednesday, July 15th, Dr. Samuel F. Mellen, aged sixty years. **Nixon.**—In Dublin, Ireland, on Sunday, July 19th, Sir Christopher J. Nixon, aged sixty-five years. **O'Byrne.**—In New York, on Sunday, July 19th, Dr. William J. O'Byrne, aged sixty-nine years. **O'Rourke.**—In New York, on Wednesday, July 22d, Dr. Michael F. O'Rourke, aged thirty-six years. **Raizon.**—In Trinidad, Colo., on Wednesday, July 15th, Dr. James Raizon, aged seventy years. **Richy.**—In New York, on Saturday, July 18th, Dr. Henry A. Richy, aged seventy-five years. **Russell.**—In Cleveland, Ohio, on Wednesday, July 15th, Dr. Joseph W. Russell, aged thirty years. **Taylor.**—In Gilbertsville, N. Y., on Saturday, July 11th, Dr. David L. Taylor, of New York, aged forty-nine years. **Tilghman.**—In Jackson, Tenn., on Saturday, July 18th, Dr. J. J. Tilghman, of Ardmore, Okla., aged sixty-five years. **Webner.**—In Baltimore, Md., on Tuesday, July 14th, Dr. Henry W. Webner, aged sixty-two years. **Wiles.**—In Amsterdam, N. Y., on Friday, July 17th, Dr. Leslie L. Wiles, aged twenty-four years. **Wilson.**—In Amitie, La., on Wednesday, July 15th, Dr. William D. Wilson, aged eighty-two years. **Wise.**—In Beaver Falls, Pa., on Saturday, July 11th, Dr. George F. Wise, aged forty-three years.

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LANE'S AUTOINTOXICATION COMPLEX AND THE MANIFESTATIONS OF SENILITY.

By I. L. NASCHER, M. D.,
New York.

Lane, in his memorable paper on chronic intestinal stasis (*British Medical Journal*, November 1, 1913), mentions seventeen symptoms that result directly from the autointoxication of chronic intestinal stasis. Most of these symptoms also appear as normal manifestations of senility, while others appear frequently in the aged as pathological conditions which may or may not be due to autointoxication from intestinal stasis. Before commenting upon the remarkable similarity between Lane's symptom complex and the manifestations of senility, we will compare the two conditions, symptom by symptom.

1. Loss of fat (Lane). This is a normal senile phenomenon. The aged acquire a distaste for fat as the secretion of bile diminishes, and less is taken, the normal waste is not fully repaired, and beside the loss thus occasioned, there is a dispersion of fat in the body to produce atheroma, fatty infiltration, and fatty degeneration. Women after the menopause frequently gain fat in spite of the fact that they generally suffer from chronic constipation and the consequent autointoxication.

2. Wasting of the voluntary and involuntary muscles (Lane). This occurs normally in senescence and is due partly to lessened activity, partly to diminished nutrition from atheromatous and sclerosed bloodvessels.

3. Degenerative changes in the skin associated with alteration in its texture and color, the development of pigmentation, especially in certain localities, and a more or less offensive character of the perspiration. The pigmentation is so marked in some cases as to leave little doubt that the patient is suffering from Addison's disease (Lane). These are the ordinary changes found in the aged. The skin becomes dry owing to the atrophy of the sudoriparous glands, it becomes thin owing to waste of the underlying fat, loose owing to waste of muscle and connective tissue, and the portion exposed to sunlight and wind, becomes dark and tanned. Pigment deposits especially about the thighs and genitals, are due to passive congestion. Bromidrosis is frequent in the aged. No explanation has been given for this phenomenon, but the cause is evidently local, as it occurs almost exclusively in covered locations where

the skin is subject to attrition, as in the axilla, groin, and between the toes. In other locations there is diminished secretion.

4. The temperature of the body in case of uncomplicated stasis is subnormal, and that of the extremities is particularly so. In some cases the condition of the extremities is such that they become bloodless, so that no blood can be obtained by pricking the hand or foot. In such circumstances the patient seems to lose common sensation in the part more or less completely. There is no abrupt line of separation between this condition and so called Raynaud's disease. Occasionally the hands may be quite bluish in color (Lane). All these changes occur in the aged, not as pathological, but as physiological conditions at that period of life. Owing to poor surface circulation, the body feels cold and the extremities may appear bluish, and lessened metabolic and physical activity is responsible for the lower body temperature. There is usually lessened surface sensibility, due partly to degenerative changes in the nerve terminals, partly to lessened mental capacity and ability to interpret sensations. Lane's description of this symptom would indicate that he considers it a mild or early stage of Raynaud's disease. This disease, which is believed to be a localized arteriosclerosis and neuritis, is rare even in the aged, and as its etiology is unknown, to ascribe it to an auto-intoxication caused by intestinal stasis can be little more than a scientific guess.

5. The mental condition is one of apathy, stupidity, or misery. This may become exaggerated into a state of melancholia, or even apparent imbecility. These patients are very likely to commit suicide. They sleep very badly, and awake feeling they have derived no benefit from their night's rest. Neuralgic symptoms and so called neuritis are frequently present in varying degrees of severity. Epileptiform tic is not infrequently the result of intestinal stasis, as evidenced by its disappearance after colectomy. Headache is a very frequent feature, and may render the patient's life unendurable. One of the most serious symptoms which results from the damage to the nervous tissues by toxins is the want of control over the temper, which makes the sufferer very difficult to live with, and leads to much misery and crime. It is a much more frequent cause of serious crime than is generally imagined (Lane). These symptoms fit exactly old persons who have senile arteriosclerosis, and mental deterioration which leads to senile dementia. They sleep badly, but that is generally due to pseudosomnia with frequent naps during the day. Epileptiform tic is rare in the aged, but neuralgic

symptoms are not. In many cases these symptoms are exaggerated or fabricated to obtain sympathy. Headache is a general accompaniment of cerebral atheroma and arteriosclerosis. The irritability of the aged may be ascribed to their inability to accommodate themselves to innovations and to break themselves of lifelong habits. Even a slight knowledge of senile mentality will suffice to understand the change in temper. It is theoretically possible (since we cannot absolutely disprove it) that such change may be due to the effect of toxins upon the nervous tissue. Since reading Lane's article I have questioned many aged persons in whom irritability was marked and in *every case* I found it due to inability to accommodate themselves to modern thought and institutions.

6. The patient complains of so called rheumatic aches and pains in the muscles and joints and often in the skin (Lane). Senile arthrosclerosis is a general complaint among the aged, and while pain in the skin is rare at any time of life, senile pruritus is frequent. Both conditions are explained by other causes than autointoxication.

7. The thyroid gland wastes, so much so that in marked cases no evidence of its presence can be detected by the finger (Lane). This in the aged is the usual and physiological atrophy of senescence.

8. The blood pressure may be raised or depressed (Lane). This is no definite symptom. The blood pressure is usually raised in the aged, but many conditions, not exactly pathological, may temporarily or permanently lower it.

9. The breasts show very definite degenerative changes. These are most marked in the upper and outer zone and especially in the left breast. Cancer readily develops in this condition of the breast (Lane). Degenerative changes in the breast occur normally at the time of the menopause. If the statement that the degenerative changes are more marked in the left breast is borne out by facts and statistics, some local reason or cause must be found. Autointoxication alone will not explain the greater susceptibility of the left breast, while statistics do not show that cancer attacks the left breast more frequently than the right.

10. The several organs prolapse and alter in shape, partly because of the loss of fat, partly because of the wasting of muscular fibre. These changes are illustrated very well by the acquired mobility of the kidneys and the prolapses and bends of the uterus (Lane). Visceroptosis is common in the aged, owing no doubt to waste and atony of the muscles and flaccid diaphragm. To ascribe the prolapses, versions, and flexions of the uterus to muscle waste following autointoxication is rather far fetched in the face of the many direct causes for these conditions, as downward pressure from above, weight of the organ, flaccid ligaments, mechanical pressure of overfilled rectum and bladder, etc. More direct evidence is required before we accept theoretical possibilities as established facts. The same argument applies to the acceptance of autointoxication as the cause of excessive mobility of the kidney.

11. The patient becomes breathless on exertion. This may be so marked as to be regarded as asthma, while it may also be produced by the distention of the stomach or intestines interfering with the action

of the heart (Lane). Shortness of breath is an early manifestation of senile changes in the lung. This is readily explained when we consider the pneumokoniosis which increases from birth and which after the lungs have reached their limit of growth begins to diminish the aerating surface. This is the beginning of the vicious circle, diminished aerating surface, impaired oxygenation, impoverished blood, diminished repair, weakening and final rupture of the alveolar walls (senile emphysema), further diminished aerating surface, further impaired oxygenation, etc. Autointoxication from intestinal stasis plays no part in the production or continuance of this vicious circle. Dyspnea is called asthma only in the language of the layman. Gastric asthma, described by Lane, is a mechanical fault, not a result of autointoxication. It is the pressure upon the diaphragm, not any toxic property of the intestinal contents, that causes the irregular heart action.

12. Most of the degenerative changes that affect the muscle of the heart appear to be due to autointoxication. An examination by the x rays shows frequently a dilatation of the left heart and of the aorta with degenerative changes in its coats. Doctor Jordan has demonstrated this condition very clearly, while Dr. James MacKenzie has elaborated the clinical aspects in his remarkable work on the heart which has revolutionized our knowledge of cardiac conditions. Associated with the atheromatous degeneration of the large vessels there are similar changes in all the smaller vessels (Lane). Cardiac myofibrosis in the aged is almost always a nutritional defect, incomplete repair with production of a lower order of tissue, owing to impaired supply of blood through sclerosed coronaries, and to impaired quality of blood due to defective oxygenation. The blood may hold toxic matter, through the absorption of the products of intestinal decomposition, indeed such absorption goes on almost from birth. The heart muscle offers apparently greater resistance to deleterious influences and is better able to accommodate itself to changes in closely allied organs than any other tissue in the body. It meets increased respiration with greater activity; in active anemia and hemorrhage it slows down; in increased vascular resistance it acts with greater force, producing in itself thereby cardiac hypertrophy. It responds rapidly to drug stimulation and depression, and even mild psychic influences affect its action, but its composition is not altered except by impaired nutrition, bacterial invasion, or by excessive strain, which impairs its tonicity. Autointoxication from chronic intestinal stasis as a cause of cardiac degeneration is among the theoretical possibilities, but if it does occur, it is extremely rare. Naturally the left heart becomes dilated when degeneration of the cardiac walls occurs, and the same causes for extensive atheroma of the large vessels will produce the same effect in the smaller vessels. These are usual in the aged. Brown atrophy is a normal senile change in a heart which was not hypertrophied and in which the nutritional impairment proceeded slowly. Fatty infiltration is really a cardiac obesity, usually a part of a general obesity, and this is due to some metabolic defect causing suboxidation. Since we do not

know the underlying cause of this defect, one rational guess is as good as another and we cannot therefore exclude autointoxication, although it is difficult to harmonize the first symptom, waste of fat, with this. The cause of fatty degeneration of the heart is likewise problematical. In many cases it is associated with fatty infiltration, the fat cells apparently making their way into the muscle cells. One theory assumes that there is perverted protoplasmic activity, that there is metabolic perversion, the waste of protoplasm being repaired by fat. Another theory assumes that owing to insufficient nutrition, the muscle waste is replaced by tissue requiring even less blood supply than fibrous tissue. While we cannot exclude autointoxication as the cause of cardiac and vascular degeneration, there are numerous other causes far more likely to produce these results than autointoxication.

13. The kidneys are liable to derangement by the abnormal strain thrown upon them and degenerative and inflammatory changes result,* which are roughly grouped under the term Bright's disease (Lane). This symptom has universal application, although it appears more frequently in middle and advanced life. Excessive strain will cause the kidneys to degenerate in the same manner as other organs subjected to excessive strain. Inflammation follows irritation, and the acute inflammatory process will follow if the fluid passing through the tubules irritates the lining membrane. Prolonged strain, whether from excessive liquid ingesta, from renal stimulants as coffee, or from deleterious substances in the blood which, it is supposed, are converted and eliminated with difficulty, causes parenchymatous breakdown. The products of intestinal decomposition undoubtedly play here an important role. But pathologists making autopsies in senile cases frequently report chronic interstitial nephritis when the patients gave no evidence of the disease during life. They fail to differentiate between the normal senile contracted kidney with its physiological increase of connective tissue fibres first described by Walsh, of Philadelphia, and the pathological fibrosis. Clinical observers sometimes make a diagnosis of chronic Bright's disease when they find traces of albumin in the urine, if there are coincidentally increasing weakness, irritability, insomnia (usually pseudoinomnia), and high blood pressure, all normal manifestations of senescence. Indican is frequently found in appreciable quantities in the urine of the aged, yet they rarely give other symptoms of autointoxication (unless we accept the ordinary manifestations of senility as symptoms of autointoxication).

14. The hair of the head loses its color early in life and tends to fall out. A strange fact is the influence which the color of the hair has upon most of the changes just described. The darker the hair, the more marked is the tendency to degeneration under the influence of autointoxication. In the case of red hair the objective symptoms are but slightly marked. It would seem to be a great advantage to have red hair, and this varies with the brightness of the color and with the extent of its distribution. While the hair of the head tends to degenerate, hair grows excessively on places in which it is usually absent or inconspicuous, as on the cheeks, chin,

upper lip, forearms, about the nipple and along the middle of the back. It becomes occasionally a source of much annoyance and distress to the patient (Lane). Alopecia and canities, and in some places hypertrichosis, are normal manifestations of aging. It seems certainly irrational to ascribe such opposite results as alopecia and hypertrichosis to the same cause. Alopecia is probably due to impaired nutrition, as it was less prevalent when hair oils and greases of animal origin were used. Early alopecia rapidly increased when petrolatum was substituted for the animal fats and oils, and I believe that we can ascribe the prevalence of alopecia now as compared with its infrequent occurrence a generation ago, to this one fact alone. Hypertrichosis in the female is part of the general process of virilence. I have discussed this phase of the approximation of the sexes in old age elsewhere.¹ It seems to depend upon the sexual organs, as it occurs in the married female about the time of the menopause, and in the unmarried female somewhat earlier, while castration of the male is usually followed by thinning of the hair. Lane says the darker the hair the greater the tendency to degeneration, while in red hair the objective manifestations are but slightly marked. The brunette races develop earlier and age more rapidly than the blondes, and the more marked degeneration of dark hair may be thus explained. Red hair is an anomaly, rarely found in the aged. Red hair usually becomes darker with age, and if Lane's observation holds good, it can be explained only upon the theory that it contains coloring matter which is not acceptable to the chromophags.

15. The pancreas becomes infected directly by extension from the stagnating contents of the duodenum. This results in chronic induration, inflammation, and finally cancer of the organ. Pancreatic diabetes may also ensue (Lane). Induration and atrophy are normal changes in the process of senescence. The etiology of pancreatitis, pancreatic cancer, and pancreatic diabetes is unknown, and in the present state of our knowledge of these conditions one rational guess is as good as another. The generally accepted view is that there is one definite underlying pathogenic factor in cancer, and if Lane can show that autointoxication from intestinal stasis can produce cancer anywhere it would at once clear up the most baffling problem in the realm of medicine. Cancer and diabetes are essentially diseases of advanced life and are probably caused by some perversion in the process of senescence.

16. In a similar manner the ducts of the liver and gallbladder are infected, and gallstones, cholecystitis, and cancer may be produced, beside many acute or chronic diseases of the liver (Lane). Cholesterin stones have been frequently found upon autopsy in the aged, who gave no symptoms of gallstones during life. It is possible that the products of intestinal decomposition work their way through the common duct and against the stream, to the gallbladder and liver, causing irritation and inflammation, but here again we are dealing with theoretical possibilities. Cholecystitis in the aged is usually

¹Nascher. *Geriatrics. The Diseases of Old Age and Their Treatment.* Philadelphia, 1914. P. Blakiston's Son & Co.

due to the irritation caused by gallstones, in younger individuals by bacteria carried in the blood stream. An acute hepatitis could perhaps result if a considerable amount of deleterious matter were dammed back through the common duct as might occur in intestinal obstruction. Ordinarily the liver can dispose of such substances reaching it in the usual way through the portal vein.

17. Those diseases of the eye which are degenerative in origin are produced by and vary with the degree of autointoxication (Lane). The usual degenerative change in the eye of the aged is a sclerosis and flattening of the lens whereby presbyopia is produced. This is a purely senile condition for which no specific cause can be given. Nor is the etiology of cataract known. Autointoxication is generally given as the etiological factor in diseases of the eye when no local cause can be found and syphilis and tuberculosis are excluded. Autointoxication has been a handy explanation of the cause of any disease when the real etiological factor has not been determined. Lane gives a number of other pathological conditions resulting from the lowered resisting power of the tissues, produced by autointoxication including tuberculous infection, pustular infection of the skin, pyorrhœa alveolaris, infection of the genitourinary tract, of the large intestines, ulcerative endocarditis, thyroid changes, rheumatoid arthritis, Still's disease.

COMMENT.

Every one of the seventeen symptoms of autointoxication presented by Lane appears as a physiological manifestation of senescence or as a pathological condition to which the aged are especially susceptible. If we accept Lane's statement that these symptoms are due to autointoxication and to nothing else, then we must accept the autointoxication theory of senescence. Lane says these symptoms *are* so due, in most cases; of but few does he say they *may be* or *appear to be*. As applied to the aged, few are clearly due to autointoxication. Autointoxication from intestinal stasis or from constipation due to lessened peristaltic activity, undoubtedly plays a contributing part in the process of senescence. The aged are usually constipated, and indican is generally found in the urine, yet we occasionally find aged individuals who have never taken a laxative, who have no indicanuria, none of the symptoms we usually associate with autointoxication, yet present early marked signs of senility. The secondary results of autointoxication according to Lane include greater susceptibility to infections, yet the aged are more resistant to infections, some of the infectious diseases of early life rarely or never occurring in the aged. Kinks and adventitious bands and membranes are frequently found in the aged without producing symptoms of stasis, ptoses of the abdominal viscera are the rule, and chronic constipation with delayed passage of feces through the intestines due to diminished peristalsis, is usual. This last should produce the same results as stasis from gravity or kinks, but they do not follow.

We must therefore assume that Lane's symptom complex does not hold good in the aged or else that Lane has accepted the autointoxication theory of

senescence and ascribes the various senile changes to autointoxication. This theory is not accepted as the basic cause of senescence.

631 EAST 168TH STREET.

CONSERVATISM IN THE OPERATIVE TREATMENT OF SIMPLE FRACTURES.*

BY GEORGE WOOLSEY, M. D.,
New York.

By conservatism I do not understand the use of those methods only which generations of surgeons have stamped with their approval, the adherence to the established order of things in opposition to change. By conservatism in the operative treatment of fractures, I mean the use of any old or new operative method of treatment which best meets the indications, when operative treatment is decided to be necessary or advisable and safe. Long after other branches of surgery had undergone a complete revolution, fractures were treated as they had been for generations, except fractures of the patella.

Some years ago, in 1896, before the surgical section of the Academy of Medicine, and again in 1900, before the New York Surgical Society,¹ I read papers on Massage in the Treatment of Recent Fractures, especially periarticular fractures, the method so enthusiastically recommended by Lucas Championnière, of Paris. The results obtained, especially in many periarticular fractures, were excellent, far better in point of the time required and the function of the neighboring joint, than by the method of fixation. But surgeons were very slow to adopt this or any new method. Such a hold had the old routine method of treatment obtained that any innovation took slowly. Another potent reason for the ultraconservative treatment of fractures was the fear of suits for malpractice. Most malpractice suits were based on the results of the treatment of fractures, which deterred surgeons from departing from the long established methods, so they could rely upon one another in the defence of such suits.

The use of the x ray showed that the old orthodox methods were responsible for many cases of nonunion and for many poor results, a considerable number of which could easily be improved. Finally, a number of new operative procedures were launched and became popular and the pendulum, as is so often the case, swung to the opposite extreme, and many cases were unnecessarily operated in, sometimes with an unfortunate result. As these procedures combine the good and the bad, the salutary and the dangerous, it behooves us to select the good and avoid the dangerous by the proper selection of cases to which the newer procedures are to be applied. This is what I understand by conservatism in the treatment of fractures, as opposed to the tendency to apply too enthusiastically new methods not without danger. No one method is suitable for all cases, but each case must be judged by itself. This is the keynote to the correct treatment of fractures. It is time to sound a warning against the indiscriminate and even the frequent use of open

*Read before the Surgical Section of the New York State Medical Society, New York, April 29, 1914.

¹*Annals of Surgery*, September, 1900.

operation in the treatment of simple fractures. With few exceptions we should first attempt, with the use of the x ray and often of anesthesia, to obtain and maintain a proper position of the fragments, without operation. Not until such earnest efforts, sometimes repeated, have failed, should operative treatment be considered. The x ray is of the greatest service in showing which cases are suitable or unsuitable to the various methods of treatment. It must be interpreted with reference to the clinical symptoms and examination.

The passage of employers' liability acts and the use of x ray plates in medicolegal cases have begun to lead to a closer study of fractures with a view to obtaining more perfect results. A most important point to remember is that good function is much more important than the position of the fragments, and that it may be obtained when the position is by no means perfect, and that it may not be present when the position is nearly perfect, though it is most likely to be. Both the public and the employer are more alert in regard to the results of the treatment of fractures, demanding, primarily, the best possible function and, secondarily, the best position possible.

The first essential, then, to conservatism in the operative treatment of fractures is a careful clinical diagnosis, verified or corrected by an anteroposterior and lateral x ray, whenever it is possible. The latter serves, not only to correct the diagnosis, but as a means of record and comparison, in case displacement requires reduction. If the fragments are not in good position, reduction must be attempted and the result of the attempt disclosed by another x ray. This attempted reduction must be made early, in the first four or five days if possible, otherwise it is more difficult. This reduction of displacement is the essential thing in the treatment of most fractures, for when a fracture is reduced it is, as a rule, easy to hold it in position by a variety of means. In many cases, more often than is customary, the reduction should be made under an anesthetic, which relaxes the muscles. This is especially true of many periarticular fractures and of most, if not all, transverse fractures of the femur and humerus. Adequate reduction is most important in periarticular fractures, for here deformity interferes with free joint function. In transverse fractures, end to end replacement of the fragments is essential, otherwise nonunion or weak union, easily re-fractured, is the rule. This is an important class of fractures and the x ray has shown them to be more common in my experience than they were formerly supposed to be.

If end to end apposition is not obtained, what can we do or what happens? The correct practice is again to attempt reduction under anesthesia, angulating the limb at the fracture, if necessary, until the ends come together, and then straightening it. If done in the first five to seven days, this should be successful; if done later, extension may be required to overcome the overriding. In transverse fractures of the humerus it is quite possible to overcome overriding by traction, if applied early, but there is here little excuse for not reducing the displacement under anesthesia. In the femur, however, traction applied by adhesive plaster to the skin

is not capable of holding a transverse fracture that has not been reduced. Some years ago I operated on an ununited transverse fracture of the femur, ten weeks old, that had been treated by a physician with Buck's extension. At the outset the shortening was only a small fraction of an inch, but when I operated, it was three and a half to four inches and fully one and a half inch of bone had to be removed to bring the ends together, on account of the atrophy of the muscles. More recently I have used Martin's method of traction, under anesthesia, with seventy-five to 125 pounds applied by a canvas band over the upper end of the exposed lower fragment, with satisfactory results, but the longer and more free exposure increases the risk of infection, which should be avoided before using a bone plate.

Last fall, I had a patient, about twenty years old, with a nearly transverse fracture of the femur, with over 3.5 cm. shortening five weeks after the injury. In an effort to avoid bone plating, I used a Steinmann nail through the lower end of the femur, after breaking up whatever slight union there was. The weight was increased to thirty and thirty-five pounds, which acted directly on the lower fragment. He was discharged with a scant cm. of shortening and firm union. Traction applied through the Steinmann nail is the most effective safe method of reducing the overriding. If applied before the muscles have shortened too much, it will be possible wholly to overcome the overriding. In oblique fractures this is all that is required. In the transverse fractures end to end alignment must be obtained under anesthesia. The alternative is open operation and, when shortening has occurred, preliminary traction by means of the Steinmann nail is the best method of facilitating end to end apposition. In transverse fractures, therefore, the question of open operation not infrequently arises.

The operative treatment of simple fractures varies according to the bone fractured. We shall, therefore, consider it with reference to several of the more common fractures, and follow this with a few remarks on the operative methods. In simple depressed fractures of the skull with symptoms we always operate. The same holds in many similar fractures without symptoms, when we can make the diagnosis of depression, on account of the danger of cortical irritation giving rise to epilepsy, which I have seen in a number of cases. It is questionable how much good this does in preventing epilepsy in such cases. This cortical irritation may be due to the depressed bone, to dural thickening and adhesions, to a cyst resulting from a blood clot, etc. I have operated in several cases of infants who presented marked depression from forceps delivery. One case was that of a baby, twenty-one hours old, who was brought to me thus early, as the previous child of its mother had died in convulsions with a similar condition of the skull. In these cases it is very easy to elevate the depressed skull with an elevator introduced through a small opening in the skull at the border of the depressed area.

The two other fractures that have been treated for many years by most surgeons by open operation, are fractures of the patella and of the olecranon. In the rather rare cases of fracture of the patella by direct violence and without much separation,

bony union may be obtained without operation. I have shown one such case before the New York Surgical Society, treated with massage, where there were free motion and firm union at the end of five weeks. The vast majority of indirect fractures of the patella are best treated by open operation, provided the facilities for an aseptic operation are available and there are no complications. I find that a curved transverse incision crossing the front of the knee joint just below the patella gives the best exposure. The blood clot and the ragged folds of stretched fibrous tissue, lying between the two fragments, are removed and trimmed off, the lateral tear in the capsule on either side of the patella is carefully sutured with catgut, and the fibrous tissue in front of the two fragments brought together with two or three chromic gut sutures. This brings and holds the two fragments firmly together. In fact, the suture of the lateral tears accomplishes this, as in Vallas's operation, but I prefer to reinforce this with two or three chromic sutures in front of the patella. It is unnecessary, and therefore unwise, to drill the fragments for the passage of absorbable sutures or wire, and the latter is objectionable because it is likely to produce osteoporosis. The operation is done about a week after the injury, after the tissues have had time to recover their normal resistance, which is lowered by the trauma. I have tried Murphy's plan of injecting two per cent. formaldehyde solution in glycerin into the joint about five days before operating, in only one case. He holds that it so reduces the danger of joint infection as to relieve one of all worry, but in this case there was an intense postoperative reaction, so as to give me more worry than usual.

I have seen only one bad result from operation on a fracture of the patella, and that followed a subcutaneous purse string suture, many years ago. One should avoid as far as possible putting anything but perfectly sterile instruments into the joint, even the fingers covered with sterile gloves. In most cases fracture of the olecranon does not heal by bony union unless treated by open operation, and the intervening blood clot, etc., removed. Hence I have treated most of them in this way, using chromic sutures only through the overlying fibrous tissues. This brings us to a consideration of some fractures about which there is not such unanimity of opinion or uniformity of practice. I will consider especially fractures of the femur, forearm, and leg. The use of Lane's or other forms of metal plates was welcomed by many surgeons in the treatment of fracture of the femur, in many of which extension by a Buck's extension or a Hodgen splint failed to give a satisfactory result. Many cases were operated in unnecessarily or without proper selection, and I know of more than one fatality. This led to a more careful use of extension controlled by repeated x rays. But the extension was often inadequate, especially in transverse fractures. If these are recognized by the x ray, as they should be, an early attempt at reduction under anesthesia is imperative. If reduction is successful retention is easy. If reduction after more than one attempt fails, and it is particularly likely to do so if not attempted early, is open operation and plating the only proper and

the necessary treatment? I think not. From my limited experience with nail extension I think it should first be given a trial. It is far safer. The weight acts directly on the bone and not through the skin and soft parts and it may be increased to thirty-five or forty pounds or even sixty or more if necessary. This will reduce almost any shortening unless too much atrophy has occurred in late cases, and it often produces lengthening. It is the ideal method of reducing the shortening previous to the use of a plate in late cases.

I do not deny that a plate sometimes fulfils the indications better than anything else, but I hold that the use of the safer nail extension will materially reduce the number of cases that require a plate. In every simple fracture of the femur the use of the x ray, reduction of the displacement under anesthesia, if necessary, traction by a suitable method, of which the Steinmann nail method is the most effective, and control by a second x ray should all be tried before resorting to the use of a Lane plate. The latter should be used only when other methods have been tried and failed, never as a primary procedure. When we come to the case of old or neglected fractures, with shortening and displacement, or to cases of delayed union or nonunion, the case is different. Then the Lane plate is often our best resource. But here too efficient traction by the use of the Steinmann nail may be sufficient of itself, as I have found during the past winter, or it is the best preparatory treatment to reduce the shortening prior to the application of the plate. A bone plate should never be used in simple fractures unless ideal aseptic conditions prevail.

Fractures of the shaft of the bones of the forearm often furnish special indications for operative treatment, especially if both bones are fractured. The proper use of the hand depends upon the free rotation of the bones of the forearm. This requires fairly accurate adjustment of the fractured shafts, especially the avoidance of cross union between the two bones and their locking by excessive callus from one or both fractures. It is often difficult, and in the upper and muscular third of the forearm impossible, to reduce the deformity so as to avoid these dangers. Open operation may therefore be more often required in the forearm to obtain good function than in any part of the extremities. Plates are not always necessary, especially in cases of more or less serrated transverse fractures, for the unevenness of the ends of the bones holds them firmly together when once adjusted. In other cases it is better to apply a plate to one or both bones. No operation is needed if the bones can be so adjusted under an anesthetic that the interosseous space is moderately normal and the ends are in apposition for at least half their diameter.

In the large number of cases of fracture of one, or especially of both bones of the leg, that are treated every year at Bellevue Hospital, we see a few in which, even under anesthesia, the fragments of the tibia either cannot be properly adjusted, or cannot be held in proper position, even when adjusted by an open operation. Some of these may go on to a firm union, with faulty position, though

with a straight leg. I have an example of this in the waras at present, in an old man with calcareous arteries, beautifully shown by the x ray plate, who refused operation. But many require operative treatment to avoid malunion, delayed union, or non-union. I like to avoid metal plates on a bone covered only by skin; they are more apt to become infected or, subsequently, to require removal. In these cases, where there is less strain on the plate and less tendency to shortening, I prefer to hold the fragments together by a bone splint or dowel, taken from the crest of the same or the opposite tibia. This is sunk in a V shaped groove in the two fragments, after reduction, and fastened by chromic gut passed through two drill holes, one above and the other below the fracture. This does not act as a foreign body, does not delay union, and holds the fragments securely in most cases. Occasionally a metal plate seems to be the only thing that will hold the fragments in position.

In some displaced or rotated fragments of the internal malleolus and adjacent tibia I have used a nail to hold them in position with an excellent result. The nail is removed in three or four weeks. During the last three or four years I have also had three cases of fracture of the internal condyle of the humerus, in which the fragment was rotated in one or more axes through a varying radius, in one case 180 degrees, and could not be reduced. Open reduction was necessary, but one or two periosteal sutures held the fragment when once reduced. No plate was necessary. In many fractures of the head of the radius, open operation is necessary to remove a loose fragment that interferes with the movements of the elbow or rotation of the forearm. I have had a number of such cases and the results are very satisfactory as a rule.

Fractures of the surgical or anatomical neck of the humerus occasionally call for open operation. The question of open operation for fractures of the spine is one as to which opinions vary widely. But as this is not a question of the fracture proper, but rather of the injury to the cord, I will not consider it here. By limiting myself to the foregoing fractures, I do not mean to imply that operative treatment is not occasionally indicated in other fractures, but merely that these are the more common or important to be considered in connection with conservative operative treatment. In many other fractures operation is at times indicated, when other measures fail, but each case must be judged by itself.

OPERATIVE CONSIDERATIONS.

The operative treatment of fractures is undertaken better to fulfill two fundamental requirements of fractures, reduction and retention. Many different methods are in use and still more have been proposed.

Reduction is a or the most important feature and is common to all methods of open treatment. In most cases reduction is made after an open exposure of the fracture, which must be free and yet avoid injury to any motor nerves or large vessels and, as far as possible, to muscles. The strictest asepsis should prevail in this exposure. If there is overriding, this is to be overcome by traction, by

Lambotte's or other tractors, by Gerster's clamp, by levers, or by angulating the fragments with immediate replacement. In addition, oblique fractures may require some rotation of the limb to obtain an exact reduction. In the lower extremity direct traction on the bone through a Steinmann nail or pin passed through the lower end of the femur, the upper end of the tibia, or the os calcis, meets most, if not all of the indications of reduction and retention without the disadvantages of bone plates. It requires only local anesthesia or, at most, only a short nitrous oxide anesthesia. Traction, gradually increased up to forty or even sixty pounds, has been used, but it is rarely necessary to use over thirty-five or forty pounds. In recent fractures this corrects or overcorrects all overriding in a short time, and rotation or angular displacement can be overcome by traction on one or the other end of the nail. After the first two or three days of heavy weights there is little or no pain. Like all methods of treatment it has objections, especially when not properly used. Death has resulted in one case where the nail was applied too high up in the femur and passed through the fracture zone, converting it into a compound fracture. The nail should be removed by the end of the fourth week, or not later than the end of the fifth week, and then cases of bone fistula or abscess will probably not occur. The method avoids converting a simple into a compound fracture, and no foreign body is left in after the nail is withdrawn. In older cases, with shortening, "nail extension" may be used satisfactorily for reduction and retention, by itself or as the best way of overcoming the shortening so as to allow reduction by an open operation. The nail extension method may seem to some scarcely worthy of the term "operative treatment," but it must be carried out with strict asepsis. It requires only a minute incision on either side, after drawing the skin slightly upward.

Retention. There is now a large armamentarium for the operative treatment of fractures by plates, including Lane's and Lambotte's instruments and the various modifications of bone clamps by Bartlett, Gerster, Reder, and many others. The chief objection to the use of metal plates is, 1, that the operation makes a simple into a compound fracture for the time being, as do almost all operative methods of treatment; and, 2, that it leaves a foreign body in the tissues. Hence extreme care and the most painstaking asepsis must be employed, both as to the plate and the wound. This is the reason for many of the special instruments which are devised to avoid the introduction of the hands into the wound. Before operating, it is also better to wait eight or ten days after the injury until the patient's tissues have recovered their normal resistance. In spite of great care infection has not infrequently occurred. I have only had occasional late mild infection, ten to fourteen days after operation, not interfering with bony union, but requiring the ultimate removal of the plate. But I have known of more than one fatal infection, and several are reported in the literature. Metal plates are better borne, with less danger of causing trouble, when applied to bones like the femur which are

well covered by muscles, rather than to bones covered only by skin like the tibia. Other objections to metal plates are that they cause osteoporosis of the bone and delay in callus formation and ossification; hence delayed or nonunion has not infrequently resulted.

These objections and that of leaving a foreign body in the tissues are met by the use of bone plates, usually taken from the crest of the tibia. I have used these with excellent results in some fractures of the tibia, cutting a V shaped groove on the inner surface with a Hartley saw. Into this a plate four inches or so long, triangular on section, cut from the crest of the same or the opposite tibia, is fastened by chromic gut passed through drill holes above and below the fracture. This seems to stimulate rather than retard repair, hence is useful in delayed union. It is especially suited for use in the tibia, where there is less strain on the connecting plate and little tendency to shortening. It is not so often suitable for the femur. Here in recent fractures or in old malunited or ununited fractures, where there is shortening of the soft parts, the steel plate is often the only thing that will resist the lateral and longitudinal strain.

Some surgeons have used an intramedullary dowel of bone, after reaming out the medullary cavity, but it requires more exposure of the bone at the seat of fracture, inflicts more trauma, and is more difficult to apply than Elsberg's cylindrical aluminum splints. The latter have proved serviceable in certain cases, but I have had no experience with them. In some cases I have found that a nail or a screw meets the indications more simply and more effectively than a plate or anything else. Thus in a case of fracture of the external condyle of the humerus, extending into the joint below and some distance up the shaft above, the fragment could not be reduced without open operation, and could be best and most simply held in place by a single screw. An excellent result followed.

There are several other methods of fixation in less common use at present which I will only mention, i. e., bone ligatures or hooping, the old fashioned bone sutures, bone pegs, bone ferrules, and staples. An external immobilizing apparatus of plaster of Paris is usually required in addition to the internal retentive devices. When a serrated transverse fracture is accurately reduced, no internal holding device is needed, but only the support of a plaster of Paris splint.

For guiding rules in the conservative operative treatment of fractures I would say:

1. In recent simple fractures, do not operate unnecessarily, only after nonoperative treatment has been tried and failed, as no operative treatment is exempt from danger.
2. Be most careful as to asepsis.
3. Use the simplest thing that meets the indications and avoid leaving large foreign bodies in the tissues when possible.
4. Judge each case by itself.
5. In properly selected cases the operative treatment of fractures greatly improves the results.

117 EAST THIRTY-SIXTH STREET.

THE TREATMENT OF DIABETES MELITUS WITH BACILLUS BULGARICUS.*

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Whatever the etiology or pathology of diabetes may be, the treatment of it is a very important subject; first, because the disease is on the increase, and, secondly, because so much can be done for it. For not only is it not a hopeless condition, but it is positively curable in the majority of cases. The fact that the diabetic is unable to eat all the carbohydrates and sugars he wants immediately on getting rid of the sugar in the urine, does not vitiate the result. We must look upon the diabetic, as we do on a patient who is recovering from a broken limb. The fact that union has taken place, does not mean that the patient is able to do all that he could do prior to the injury. While sugar has been removed from the urine, it does not mean that the patient is rid of his hyperglycemia, or that his organs which have been injured to the extent that they are unable to carry on their functions properly, have permanently regained their power, and are as strong as they were prior to his illness.

My mode of treatment is entirely different from the usual forms adopted up to the present time, and because it is so little understood, and so many errors are made, I have prepared this paper.

Before proceeding with the consideration of the treatment, let us briefly go over the various forms advocated up to the present time. Before anything definite was known of diabetes and its treatment, many and various drugs and procedures were adopted, from bloodletting to the use of drugs too many to enumerate. The treatment may be divided into three groups: 1. Drug treatment; 2, diabetic treatment, and, 3, organotherapy.

1. *Drug treatment.* The oldest and best known of the drugs that is still in use is opium. It was first used by Achigenes in the second century and since then by Artius in the fourth, Rollo in the eighteenth, and by Frank Tomassen and Pelham Warren in the early part of the nineteenth century. Opium and its derivatives, morphine, heroine, and codeine, especially the last, are still used extensively. What the true action of opium may be is not clearly understood. Some hold that it interferes with metabolism and reduces it generally, others that it is a nerve sedative and has its main effect on the vasomotor system, others again, that it inhibits the formation of sugar. Roberts asserts that it diminishes the appetite and therefore reduces the sugar excretion. While its use may be of some value in some cases, in the main it is a dangerous drug to use, especially in the severe cases where we usually have a nephritic complication, and there it will do more harm than good.

In 1669, Willis gave a patient some calcium salts and cured him. Since then alkaline salts have been used on and off with varying results. They are believed to diminish the glycosuria, by increasing their combustion in the tissues or favoring its

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storage in the form of glycogen. Lépine avers that the glycogenic ferments do not act well in an alkaline medium. The bicarbonate and carbonate of sodium and the acetate, citrate, and bicarbonate of potassium are used as well as the calcium salts. In 1895 this mode of treatment was revised by Grüber, and Robin advocated the use of the glycerophosphates of lime and soda to make up for the loss of these salts which takes place in the diabetic.

Rudisch has strongly advocated the use of atropine methylbromide and states that if given in fairly large dose in conjunction with proper dietetic treatment, it greatly aids in lessening or preventing glycosuria.

Forchheimer found the same results to be obtained by the use of ether belladonna derivatives, and that it had some effect in lessening the acetone bodies. Probably the best results are obtained in mild cases.

The use of antipyrine has been advocated by the members of the French school, especially by Garnier, Dujardin-Beaumetz, and many others, but it has to be used in large doses and may upset the digestion and cause albuminuria. The use of bromides was advocated and undertaken by Begbie, of Edinburgh, in 1866 and since by many observers, and its use is of value in cases where there is great nervous excitability and irritability.

Arsenic has been used in large amounts and is in great use even now, but very large, almost toxic doses must be used to do any good. Further it does not increase sugar tolerance. It may be of value in debilitated cases for its tonic effect. So also with quinine. Lépine has stated that it has an antiglycosuric action. It was used by Dobson over one hundred years ago, and is still used in certain cases, but its action can also be attributed to its tonic effects.

Sodium salicylate has been attended with fair results, especially in recent cases of a distinctly rheumatic and gouty nature. Cantani has used lactic acid, asserting that it aids digestion and permits the use of nitrogenous foods for a much longer time.

Jambul has been used in the East and in Europe and some satisfactory results have been obtained, but it has proved to be of no value in the experience of many. Santonin has been advocated to control glycosuria, but exhaustive tests by Walter have proved it valueless. Many more drugs have been advocated but are too numerous to mention.

2. *Dietetic treatment.* The second form of treatment that has been and is still in use is the dietetic treatment. Rollo, in 1796, was the first to recommend an exclusive meat and fat diet in diabetes. Then came Bouchardat in 1830. He allowed a little more liberal diet, in that he permitted a little carbohydrate in the form of green vegetables and also allowed a moderate amount of alcohol. After Bouchardat came Proust with his gluten bread and inaugurated the large series of bread-stuffs made especially for the diabetic. Following him were Seguin, Pavy, Cantani, and Naunyn, all practising the dietetic treatment. Cantani was one of the most energetic advocates of the absolute animal diet. He allowed meat and fat, and as representative of the latter, olive oil and codliver oil. Later on he permitted butter and what he called

frutti di mare, a dish composed of small salt water animals, some of which contained large percentages of glycogen. This strict diet he enforced for three months and then allowed more liberal concessions. This severe diet was advocated by Naunyn and his school.

Kuelz recommended the use of biscuits made of inulin with the idea of increasing the tolerance and keeping up the nutrition. Then came the special starch diets, among the best known being von Noorden's "oatmeal cure," which is very useful in certain suitable cases, especially in mild cases of recent origin. Von Duhring advocated the use of rice instead of oatmeal. Mosso recommended the "potato cure," asserting that potatoes diminish the sugar and polyuria. Of these special diets, the "oatmeal cure" of von Noorden is best known. He advocates the administration of 200 to 250 grams (six to eight ounces) of well cooked oatmeal, with from 200 to 300 grams (six to ten ounces) of fat in the form of butter, and 100 grams of proteins in the form of three to four eggs and from fifty to 100 grams of vegetable proteins prepared in the form of soup or porridge and given at frequent intervals with an occasional allowance of black coffee or tea with lemon juice, wine, or cognac. Three to four days of this diet are succeeded by two to three days when only green vegetables are allowed. Then the oatmeal form of diet is resumed again.

3. *Organotherapy.* The use of fresh pancreas was advocated by Cowels. This was usually followed by an improvement of health, but there was a recurrence of symptoms on stopping its use. Many others, especially Crofton, advocated the use of pancreas in capsules, stating that the pancreatic preparations were usually destroyed in the stomach. But this only aided in improving symptoms and weight, especially in those cases attended by pancreatic insufficiency. Some observers imagined that if they could give subcutaneous injections, the ferments would not be destroyed by the digestive fluids. But Lesche found that they increased the sugar excretion and were sometimes attended by fatal results.

Minkowski, in 1908, published reports in which he stated that if a portion of a pancreas was engrafted on the wall of the abdomen, the animal pancreas might be removed and no diabetes would ensue. This he did in dogs, but when it was applied to the human diabetic by Watson and Allen, no result was obtained.

Moore and Abram, on the supposition that it stimulated pancreatic secretion, used an acid extract of the duodenal mucous membrane. This they gave by mouth and in some cases the sugar gradually diminished and finally disappeared, but no results were obtained in others. The intravenous use of this agent was likewise of no value and in some cases it was shown by Starling to give rise to inflammation of the intestine and even to gastric ulcers in animals, as there was an absence of gastric juice which usually neutralizes the pancreatic juice.

About three years ago, I accidentally discovered, that by using cultures of *Bacillus bulgaricus* to overcome a severe autointoxication coexisting with diabetes in a member of my own family, that as the autointoxication became less, the percentage of glu-

cose in the urine was reduced; and within a period of ten weeks, a condition which had appeared very serious and grave, was apparently overcome. This condition was not merely a transient glycosuria of alimentary type, but one associated with a high sugar index, of an acidosis, attended by marked loss of weight, a loss of at least thirty pounds, and associated with marked drowsiness, almost verging on stupor. With this were also polydipsia, polyphagia, and polyuria.

The results I obtained in this case led me to experiment further and other cases likewise responded. At the end of about fifteen months, I reported three cases in the *Medical Record* for March 9, 1912, allowing sufficient time to elapse to be assured that the results obtained were not merely transitory. Since then, in a series of 102 cases, fifty-two cases have had the sugar entirely eradicated, and most of the patients are on a fairly normal diet. Four cases have been reduced to traces, and thirty-nine are improved. Some of the latter cases are still under treatment, and many will be cleared up before long. Out of the remaining seven, one did not improve at all no matter what was done; two died of nephritis, as a direct result of the diabetic condition. Two died of pneumonia following grippe, one of cancer of the bladder, and one of tuberculosis of the vertebral column subsequent to an injury. The cases as they appear on the chart are sixty-one males and forty-one females. One is under ten years old, five under twenty years, eight between twenty and thirty years, eleven between thirty and forty years, thirty-five between forty and fifty years, twenty-nine between fifty and sixty years, eleven between sixty and seventy, and two between seventy and eighty years. Five of the cases have a sugar index between three and nine per cent. Forty-seven were complicated by acidosis. Eight had chronic diffuse nephritis, one acromegaly, two neuritis, one perforating ulcer of the foot, one had epilepsy, one had cancer of the bladder, one had gallstones, one cataract of both eyes, three retinitis; one pulmonary tuberculosis; one tuberculosis of the vertebral column; three goitre; one carbuncle, and one cystitis.

In seventy of the cases there was an active auto-intoxication, shown by the presence of indican. The average length of treatment was about three months, but it varied between two weeks and fifteen months. The chart shows the conditions of the various cases from the beginning of the treatment up to the present time.

The treatment as I employ it, consists of two parts: First, the use of cultures of *Bacillus bulgaricus* and, second, a proper and well regulated diet. In order to elicit whether it was the diet or cultures that gave the results obtained, I placed a few of my patients on what I considered a proper diet for their condition, without giving them cultures. To another group, I gave what I thought was the required dose of the culture of *Bacillus bulgaricus* without placing any restriction on diet, excepting the cutting out of sugars. In neither experiment was I successful in obtaining any satisfactory results. Both groups of patients improved somewhat, but no such results were obtained as I

get under proper combination of culture and diet treatment.

DOSE AND USE OF *BACILLUS BULGARICUS*.

Before proceeding with this, let us consider what we hope to obtain. In a series of experiments that I made on *Bacillus bulgaricus* and which I reported in the *Medical Record* for January 25, 1913, I had found that the action of *Bacillus bulgaricus* is twofold, namely, first, that of correcting the auto-intoxication which I believe is almost universally present, whether there are any indigo-forming substances in the urine or not (those cases perhaps excepted where the glycosuria is due to malignant disease of the liver, pancreas, or cerebrospinal system), and, secondly, in correcting and aiding carbohydrate metabolism. This autointoxication is manifested in the various patients in different ways. Some complain of heat flushes or weak feeling, with general vasodilator phenomena, as flushing of the face or a marked congestion of head, face, and neck. In others we have a marked increase in blood pressure which is invariably reduced after the patient has been under treatment for some time, and even in the cases that have a marked arteriosclerosis a reduction of from twenty to sixty mm. occurs. In others we have an arrhythmic, irregular heart action. The nervous system is irritated in a great number, as is manifested by headaches, nervous depression, dizziness, languor, lack of ambition and energy.

Secondly, *Bacillus bulgaricus*, by its power of secretion of lactic acid, interferes with, and slows down the carbohydrate metabolism. I am absolutely convinced that the condition is caused by a protein toxin, or by toxins formed in the intestinal tract, or possibly in the entire alimentary system, which interfere with the proper function of the liver and pancreas and possibly all the organs having an internal secretion, and also have some bearing on the proper combustion of the sugars. Various observers, among whom are Knowlton and Starling, of London, and Murlin and Frankel, in America, in their various researches and experiments in the last few years, have shown that eviscerating an animal in which a pancreatic diabetes has been formed, causes a gradual reduction of the sugars both in the urine and blood; in other words, it removes the receptacle where these toxins are formed so that no toxins can be absorbed to continue to irritate the sugar forming mechanism of the liver and so cause a reduction of the amount of sugar thrown into circulation, or interfere with its proper utilization and combustion in the tissues.

The dose of the culture, therefore, depends, first, on the degree of the autointoxication, and, secondly, on the severity of the diabetic condition. In simple cases of diabetes uncomplicated by acidosis and with a daily output of sixteen grams of glucose or less, I give from five to six c. c. of the culture diluted in a little water, one half hour before meals and on retiring. This culture is prepared to be of a standard of about 300,000,000 to the c. c. To patients who excrete over sixteen grams and under twenty-five grams of glucose in twenty-four hours, I give from eight to ten c. c. three times a day, one half hour before meals and on retiring. In cases

excreting more than twenty-five grams or having a sugar index of 1.5 per cent. or over, I give sixteen c. c. three times a day one half hour before meals and on retiring. So also where the output of sugar is low, but complicated by acidosis, I immediately put the patients on large doses of the culture, as lactic acid to a certain extent prevents the formation of acetone (von Noorden).

In cases where we have a marked autointoxication with marked indicanuria, much better results are obtained by giving, instead of cultures of *Bacillus bulgaricus* alone, a culture containing both that and the *glycobacter peptolyticus* of Metchnikoff, for while *Bacillus bulgaricus* alone may be sufficient, we obtain very much more rapid results with the combined cultures.

Some cases, in spite of receiving large doses of the culture, do not clear up or respond at all, the indican remains very decided, and the sugar output and other symptoms are unchanged. This is especially true where we have an infection with some of the gas formers mostly with the acidophilic germ, like *Bacillus welchii* or *Bacillus aerogenes capsulatus*. Under these conditions I supplement the dose given by mouth by colonic inoculations. This is accomplished in the following manner: The patient first receives a cleansing enema, preferably of normal saline. After that he is put on his left side, with the hips somewhat elevated, and through a rectal tube and funnel thirty-two to sixty-four c. c. of the culture, which has been previously warmed to about 100° F., is poured into the colon, care being taken to get it up as high as possible. This is followed with a few ounces of lukewarm water to wash out the tube, and the tube is then withdrawn. The patient is then turned over on the right side and kept in that position from twenty to thirty minutes. This will permit the fluid to remain in the bowel from six to eight hours. In this way we get up a growth from below as well as from above, and stubborn cases that do not seem to respond when cultures are given by mouth alone, usually begin to clear up after colonic inoculations are given.

Full doses of the cultures must be continued for some time after the sugar has disappeared from the urine. I have found that it is not safe to reduce the dose for at least four to six weeks after repeated analysis shows no sugar in the urine. Then one dose is cut out and three doses are given a day instead of the four. Then if no sugar recurs a second dose is withdrawn and only two are given, one before breakfast and one on retiring. If sugar is still absent after a few weeks on two doses a day, those that were receiving sixteen c. c. doses are given four doses of only four c. c. to be taken in the same manner as the four original doses were given. Those that were getting the four c. c. doses take only one dose a day and that before retiring. In this manner the culture is gradually withdrawn until finally it is entirely discontinued.

DIET.

Every man who has had experience in the treatment of diabetes will concede that strict carbohydrate free diet is a thing of the past. More diabetics die from acidosis and coma brought on by

a too strict diet than from the ravages of the disease itself.

There is no definite stereotyped diet that is applicable in any case. It varies with each individual case and we must keep in mind that each case is a case by itself. What appears to be the proper diet and regimen in one case may be found to be harmful in another, and great care and thorough study are necessary to formulate the proper dietary for each individual. We must consider the severity of the diabetic process and the amount of emaciation. We must be careful that the diet we decide upon will not aggravate a complicating Bright's disease, and if the individual has an acidosis, we must consider how severe is this acidosis, and make provision accordingly.

The following diet is set forth only in a general way and must not be considered proper for every case: All cases should receive some form of carbohydrate. Every case of mine receives either rice, oatmeal, or wheatena, the specific cereal depending upon the idiosyncrasy of the patient. The cereal must be well cooked. Rice or oatmeal must be cooked for at least three hours and wheatena for at least one and a half hour. From forty-five to ninety grams of the cereal are given once a day, preferably for breakfast, unless the patient is suffering from a very severe and grave acidosis, and then it is given with every meal.

I also start patients with from sixty to ninety grams of toasted white bread, which is equal to about four slices, 3 x 3 inches x 1/2 inch. This is toasted very dry to eliminate as much of the moisture as possible. I find that this will agree with most diabetics and is certainly to be preferred to many so called diabetic foods which contain as much and in some cases more carbohydrates than the ordinary white bread before it is toasted. Ordinary wheat bread contains about 51.3 per cent. carbohydrate according to the analysis reported by the U. S. Department of Agriculture. White bread, toasted very dry, contains almost the same amount, except that in the process of toasting the carbohydrates seem to be changed into a form that is very much more easily tolerated than fresh bread with a like percentage of carbohydrate. Care, however, must be exercised in the selection of bread, inasmuch as most bakers add sugar to the dough in making bread. It is much better to have the bread baked at home, using only the wheat flour, yeast, and a little salt.

As the percentage of sugar begins to decrease or disappear, the amount of bread is increased. This must be done very gradually and carefully and we must be guided by the tolerance of each individual case. In one case we may be able to increase the toast from 240 to 300 grams or from eight to ten ounces in twenty-four hours, while in others any increase over from ninety to 120 grams or from three to four ounces will cause an increase or recurrence of sugar in the urine. This inability to tolerate bread or starch may, however, be overcome if sufficient time is allowed to elapse for the cultures to overcome the existing hyperglycemia, and then if the bread is carefully and slowly increased, more may be tolerated.

I permit from four to six eggs a day, the prepa-

ration of which depends on the urinary findings. In cases where there is little or no indican present and no complicating acidosis, the eggs may be prepared in any form, either soft boiled, poached, scrambled, or hard boiled. In cases with a marked indicanuria, it is best to have them boiled for at least twenty minutes or poached hard. The reason for this is not to add any of the partially coagulated albumin to the putrefactive condition existing in the bowels, as it is the albuminous substances which easily undergo putrefaction, whereas thoroughly coagulated albumin does not readily undergo putrefaction by the action of the proteolytic bacteria. In cases complicated by acidosis with the presence of acetone and acetoacetic acid in the urine, fried or scrambled eggs are not permitted, as I do not permit butter or fats of any sort.

Milk is permitted in only such quantity as is needed to whiten tea or coffee, and to loosen up the cereal, but then not over four ounces a day in all. In severe cases with high percentages of sugar even that is done away with, the yolk of the eggs being used to whiten the tea and coffee, and the albumin for the cereal.

In mild cases without acidosis, or severe cases with marked emaciation, but not complicated by an acidosis, and cases that are improving with a daily output of ten grams of sugar or less, a little sweet cream is substituted. I do not permit butter or fats of any form in cases complicated by an acidosis. All cases that excrete acetone and acetoacetic or diacetic acid are made worse by use of fats, especially butter and cream, as these are broken up into betaoxybutyric acid and acetone. This I have proved experimentally in many of my cases which had a complicating acidosis. Even when small amounts of butter were used for the toast, the acetone and diacetic acid were increased, although the butter had been previously washed to eliminate the lower fatty acids, as has been advised by many observers.

Then it is apparent that the liver cannot carry on its glycogenic function properly, and from the examination of the numerous cases under my care, I find that with few exceptions, almost all diabetic cases have large swollen livers. In other words, beside having an interference with the glycogenic functions, we also have an interference with the output of bile due to this swelling and congestion of the liver cells.

Bile, as we know, has for its most important function that of assisting the lipase of the pancreatic juice in breaking up fats into fatty acids and glycerin and, secondly, in aiding the absorption of fats by saponifying them, and also making more soluble some of the soaps that are combined with calcium salts. Now when the output of bile is diminished, a considerable amount of fats and fatty acids is not absorbed but undergoes putrefaction, thereby adding to the toxic condition already existing.

It has been shown by von Noorden and others that it is in the liver that acetone is formed. When the glycogen is present in the liver cells, the fatty acids are decomposed normally, but with swelling of the liver cells and a deficiency of glycogen, proper decomposition of the fatty acids does not

take place, as a result of which the intermediary or acetone is formed. Therefore the increase of fats is not only an added source of putrefaction, but a source of danger in the increased formation of betaoxybutyric acid and acetone.

I permit meats in some form, unless there is an especial contraindication for its use, such as a diffuse nephritis. I allow at the beginning about 250 grams of either broiled steak, broiled lamb, or mutton chops, broiled chicken, turkey, or squab, also stewed chicken, lamb, or beef, without any vegetables or seasoning. I do not, however, permit any fried or roasted meats or rich gravies. In cases complicated by a chronic diffuse nephritis, only the white meat of chicken is allowed. As the patient improves, the meat may be increased very slowly, but it is not advisable to allow over 360 grams in twenty-four hours. I have found that it is also much better to take the meats with the noon meal. Only plain simple broths are permitted, as that of beef, chicken, or mutton, and only parsley or celery is used in their preparation.

When we come to vegetables, we must be very careful what we recommend. In determining what vegetables would be proper, we must consider both the carbohydrate content and digestibility. Some vegetables have a low carbohydrate content, but are not easily taken care of by all patients, for example, cucumbers, radishes, cabbage, and many others. Anything that upsets digestion will increase the sugar.

There are other vegetables again which may be tolerated by the majority of patients, but have a carbohydrate content that is entirely too high to give to a diabetic patient, for example, onions, which have according to various reports, including the U. S. Government report, from nine to twelve per cent. carbohydrate. The diabetic has an affinity for sugars like a sponge for water, and it requires very little effort on his part to absorb the sugar. What is the use of adding such vegetables to his diet, which will certainly not aid him to cut down the sugar output? Still onions appear almost universally on all diet slips, also artichokes, mushrooms, sprouts, etc., etc. It is for this reason also that onions, carrots, and many other vegetables which are universally used in the preparation of broths are not to be permitted, for while they may be strained out, the sugars are dissolved and remain in the soups.

The vegetables I permit are spinach, string beans, celery raw and stewed, lettuce without any dressing, asparagus with a small amount of butter (sauce), unless the case is complicated by an acidosis, and water cress.

I do not permit any vinegar or other acids to be used, as I have found that acids increase the sugar output. Hydrochloric acid given in suspected cases of achylia has always increased the sugar output in my cases, as I reported in my last article, and so has the use of vinegar as a dressing on lettuce, etc. Furthermore, many diabetics suffer from a hyperacidity which must be overcome before we can hope to get a material reduction in the excretion of glucose.

As the patient improves, we may add a small amount of cauliflower, endives, kale, and a very

small amount of green peas. Also when the urine has been sugar free for some time, one half of a small baked potato may be added, and if after a few weeks' use no sugar appears, a whole baked potato may be given daily. In this way the vegetables are increased until a fair number are given.

Of fruits, grapefruit alone is given at first, and as the case clears up, sour oranges may be added, but very cautiously, and on the slightest increase of sugar they are to be immediately discontinued. As for apples, I do not believe that it is advisable to allow them until the urine is sugar free for some time. Apples average between twelve and fifteen per cent. carbohydrates, and while some diabetics may tolerate these, the majority do not. I have tried them quite often and finally had to discontinue them until the urine was sugar free for at least two weeks. Apples, when permissible, may be taken then in any form, raw, stewed, or baked.

I have left fish entirely out of my dietary. I consider that in the vast majority of cases, if not in all, we have a putrefactive condition of the bowels, and I do not consider fish a very suitable article of food to put into an intestinal tract that is already the seat of putrefaction. Of course, there are some in whom the nutrition is very low and who do not do well on the regular diet formulated. In those cases, fish may be tried, but those cases are few and far between. However, when the case has been cleared up, a little plain broiled or baked fish may be added. Shellfish are never advised and in my experience I find them harmful. The indican is almost always increased and the putrefactive condition when increased *and continued for any length of time*, will raise the output of sugar.

Alcohol or alcoholic liquors of any sort are not permitted at the beginning. Every case that I have seen go to a fatal termination has been hastened by the use of some form of liquor, in spite of the fact that alcohol is strongly advocated in severe cases of acidosis with impending coma. If stimulation is indicated, the pharmacopœia offers us many drugs which are not attended by any such danger. As the case clears up, a little Scotch whiskey or dry sherry or claret may be given. Any good mineral water may be permitted, such as Célestin Vichy, White Rock, Poland water, and many others.

As for drugs, very few are used and then only those that may be indicated in the particular case under treatment. In cases of acidosis, full doses of bicarbonate of sodium are given. From one to two drams, four to six times a day are prescribed with beneficial results, the acetone and diacetic acid disappearing within a month or two. I believe it is much better to get the patient saturated with the sodium before any signs of impending coma appear, for then it is usually too late. I have still to see any bad results follow the use of the large doses of sodium. In cases of impending coma, colonic irrigation with bicarbonate of sodium water, and the use of intravenous injection of at least a quart of a four per cent. sterile bicarbonate of sodium solution, may be of value and may ward off the coma. When coma has already ensued the chance of a complete recovery is usually slight; the most that can be hoped for is a regaining of consciousness for a few hours.

Another very important thing is attention to the

bowels, especially where there are any symptoms of autointoxication or a complicating acidemia. In almost ninety per cent. there is a history of a chronic constipation which must be attended to with the same amount of care as the diet and administration of cultures. In the examination of the various patients, we almost always find a thickening of the bowels, especially around the region of the cecum, and it is this stasis and caking of fecal matter that causes the putrefaction to go on, and in itself might be the cause of all the trouble. Frequent and complete evacuations are essential. The drugs I believe to be indicated and that will give best results are those that have cholagogue action and stimulate liver function, such as the salines, sodium phosphate, sodium sulphate, calcined magnesia, and Carlsbad salts. I prefer calcined magnesia to the others and find that I get better results with it. However, after trying it for some time and the patient gets used to it, I alternate with the other salines or else some of the mineral waters.

I give a heaping teaspoonful of the calcined magnesia in one half glass of water about one and one half hour before meals, three times a day. If its action is too severe, the dose is cut down to meet the exigencies of each case, and it is best to get it in before the cultures so as not to wash the latter out. When this alone is not sufficient, and where the thickening and caking of fecal matter still exists, we must resort to some other means of breaking this up and cleaning out the cecum. In cases like this, colonic inoculation would be useless. I believe the best results will be obtained by using retention enemas of olive or Russian oil to loosen up this caking. This is done in the manner I explained for colonic inoculation, except that we use eight ounces of lukewarm oil at about 100° F. instead of the culture. Sometimes we find that the intrainstestinal pressure is very great and the oil will not flow through the funnel and we have to substitute an eight ounce syringe for the funnel to force the oil in.

These enemas are best given at night before retiring and will remain in the bowel until morning. At times the continued use of the oil nightly will cause some irritation of the rectum. Under those conditions it is best to discontinue its use for a few days or a week and go back to it later.

(To be continued.)

FRACTURES OF THE UPPER END OF THE HUMERUS.*

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Fractures of the upper end of the humerus present a great variety of lesions. In this paper an attempt will be made to analyze 393 cases of fracture involving that region which have come under the writer's observation between January, 1904, and January, 1914. Fractures of the upper humeral end represent eight per cent. of the fractures of the upper extremity and 52.3 per cent. of the fractures of the humerus, as the writer has seen them.

For surgical purposes the upper end of the humerus

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is divided into the head, the anatomical neck, the greater and lesser tuberosities, and the surgical neck. The extent of this latter region is variously described, and I have included a larger area of the bone under the fractures of the surgical neck than usual. In children the epiphyseal line is situated below the level of the tuberosities, and in the adult this line of epiphyseodiaphyseal junction may still be seen in a longitudinal section of the bone. That is, the epiphysis in the child includes all the region described as the head, the anatomical neck, and the tuberosities. The joint capsule with its various reinforcing ligaments is attached along the line of demarcation ascribed to the anatomical neck. Hence the tuberosities, the epiphyseal line, and the surgical neck lie outside the joint, that is, are extra-articular, while the head and the anatomical neck lie within the joint capsule, that is, are intra-articular.

Attached to the various portions of the bone are muscle groups which move the shoulder through its free arc of motion. Briefly, since they concern us in our study of the injuries of the upper humeral region, they are: External rotators—*infraspinatus*, *teres minor*, *supraspinatus*, *coracobrachialis*, all except the latter attached to the greater tuberosity. Internal rotators—*subscapularis*, *teres major*, *pectoralis major*, *latissimus dorsi*, the first named attached to the lesser tuberosity and to the shaft immediately below that process, while the others are attached further down upon the shaft, leaving a well defined area of bone, free from muscular attachments, between the *subscapularis* attachments and the insertions of the other three muscles. Adductors—*pectoralis major*, *teres major*, *latissimus dorsi*, *subscapularis*, *triceps*. Abductors—*deltoid*, *supraspinatus*. Flexors (elevate the arm in front of the body)—*biceps*, *coracobrachialis*, *deltoid*, *pectoralis major*. Extensors (draw the arm back parallel to the body)—*triceps*, *latissimus*, *teres major*. Later, when we come to study the direction of the various forms of displacement, the action of these muscle groups in producing the displacement and maintaining it once produced, and the necessity for overcoming the pull of the different muscles involved in the displacement, will become more evident.

In a paper read before the New York Surgical Society (*Annals of Surgery*, March, 1912), the end results of a group of these cases, 145 in number, were analyzed for the purpose of presenting the results obtained in the treatment of certain types of injury at the upper end of the humerus. The additional 248 cases added for discussion here have not been so closely followed, but can be used to collect the types as the writer has seen them, and the result of the treatment in the cases observed for a time long enough to show a permanent result.

Adults.	No. of
Region involved.	cases.
Fracture of the head	0
Fracture of anatomical neck	0
(associated with dislocation of the head).....	4
Fracture at the epiphyseodiaphyseal junction (through the tuberosities)	101
Fracture through the surgical neck	268
(associated with dislocation of head).....	2
Fracture of greater tuberosity.....	6
(associated with dislocation of the head)....	11
Fracture of lesser tuberosity	0

Children.

Region involved.	No. of cases.
Epiphyseal separation	3
Fracture of surgical neck—	
Subperiosteal	1
Complete	3
	393
Age incidence; years.	Male.
1 to 10	4
10 to 20	2
20 to 30	
30 to 40	16
40 to 50	99
50 to 60	101
60 up	66
	288
	Female.
	1
	11
	23
	35
	34
	105

The vast majority, as shown above, occur after forty years and the proportion of men to women is 2.74 to 1.

It is not pertinent to this paper to discuss such of the above mentioned types as do not occur in my series; for that reason fractures of the head and of the lesser tuberosity will not appear.

Fracture of the anatomical neck (fractura subcapitalis, of Kocher,)—This type must be extremely rare, contrary to the statement of Scudder and others. It does not occur in this series, except in association with anterior dislocation of the head. The x ray pictures of the so called fractures in this region, are, I believe, types of the next variety. The line of fracture followed the line of the anatomical neck in three of my cases, and in the fourth the greater tuberosity was split off as a separate fragment.

The mechanism which causes the fracture is not clear. The injury in all of the cases here cited was received with the arm in abduction to the horizontal or a little beyond it. If the dislocation occurred first, it would be easy to understand how the head might be pried off by leverage against the edge of the glenoid fossa. All were manipulated for dislocations of the shoulder, but all the doctors who performed these manipulations were positive that there was no crack felt during the manipulation which might suggest the possibility of the fracture resulting from the attempt at reduction.

The symptoms, treatment, etc., will be discussed later.

In separating the clinical types into the two main divisions which follow, I have been governed by the constant appearance of the line of fracture in the first group at the epiphyseodiaphyseal junction as seen in the longitudinal section of the bone and, in the second group, by the line of fracture at an area in the bone where the cylindrical shaft joins the expansion into the cancellous end. At this area, also, is situated the small section of bone which is free from muscle attachments as before mentioned.

Fractures through the epiphyseodiaphyseal junction (fractura per tuberositatem of Kocher,)—This type is quite common and occurs 101 times in this series. The line of fracture begins at the level of, or a little below the anatomical neck in front, and extends outward in the direction of the epiphyseal line. This outer limb of the line of fracture either follows the line of ossification at the base of the tuberosities or passes above it through the greater tuberosity. Occasionally the greater tuberosity is split off as a separate fragment. Impaction is common. Except in the cases associated with disloca-

tion, displacement is slight or entirely absent. Such displacement as does occur exists as displacement of the upper end of the lower fragment forward with angulation in the anteroposterior plane at the line of fracture. More frequently the lower fragment penetrates the upper, and the crushing which results renders it difficult to determine the exact place at which the bone broke. Rotation outward with some abduction of the upper fragment is probably always present, but is difficult to estimate.

The age incidence for the type is constant in this series. All except nine of the 101 cases occurred in individuals past fifty-five years. The mechanism of this form is not clear. From the individual who has been injured, it is difficult, often impossible, to obtain any clear statement of what happened when the fracture occurred. In this series eighteen patients struck the shoulder in falling, thirty-one fell forward on the outstretched hand, eleven fell backward on the elbow, and in the remaining forty-one no definite statement or too many points of contact were elicited to prove satisfactory for analysis. The similarity of the lesions as shown by the x ray were so striking as to indicate a common cause. If one inspects the longitudinal section of the bone, one is impressed by the thinness at the inner aspect of the ossified epiphyseal line and the change in the direction of the bone trabeculae on the diaphyseal side. It seems most likely that that impact which would drive the shaft of the bone upward, would, by virtue of the compression between the shaft and the more densely trabeculated head, fracture the bone at the inner aspect of the head near the epiphyseal line by compression (buckling) and the impact, acting further, would cause the fracture to follow a line across the bone just below the ossified epiphyseal line or through the weakest portion of the junction of the epiphysis with the diaphysis.

Were the impact received on the shoulder, that is over the tuberosity or lower, the displacement should, theoretically at least, cause internal displacement of the lower portion of the bone, a condition which seems to be entirely opposite to that shown by the x rays of this type.

Stimson (Fig. 109, case of R. W. Smith)¹ gives an illustration of an impacted fracture through the tuberosities in which the lesion would undoubtedly indicate an impact against the outer portion of the humeral shaft at the shoulder (that is, the greater tuberosity), driving it in upon the head, that is impacting the head into the cancellous tissue at the upper end of the bone. My series contains no case of this type.

It therefore seems most likely that the impact which produces the most common form of this fracture must come from below upward through the shaft of the bone.

Fracture of the surgical neck.—The anatomical description of this region locates it at the level of the lower end of the tuberosities as they blend more or less with the circular shaft. At this region we find a small area of the bone free from muscle attachments. Longitudinal section of the bone through this area shows the gradual disappearance of the trabeculae of the cancellous area and a gradual thickening of the cortical layer, until we reach the

natural thickness of the cortex surrounding the medullary canal. The majority of the fractures of this type are found at a level which one might say is the intermediate zone, that is, the zone at the junction of the more or less elliptical extremity with the tubular shaft, in which the cancellous bone is scant in amount and the cortex has not yet assumed its normal thickness, hence an area of physiological weakness due to the structural composition of the bone in that area. Attached to the shaft, below this structurally weaker area, are powerful muscles, which, when abduction is made against their pull with the head of the bone in the glenoid cavity, produce a point of maximum strain at this weakened zone. In this group are found the most frequent forms of injury at the upper end of the humerus, 270 cases in this series. This line of fracture was transverse or so nearly so as to be included under that term, in 261 cases; short oblique, in four cases; long oblique, in two cases; spiral and irregular forms in three cases. In eleven of the transverse type there was an additional line of fracture, which split off the greater tuberosity as a separate fragment. In one of the irregular forms the line of fracture ran upward through the tuberosity.

VARIETIES OF DISPLACEMENT.

In sixty-four of the cases with a transverse line of fracture, there was so little displacement in the transverse and longitudinal axes, that one might say that none existed. Naturally it is difficult to determine the degree of external rotation of the upper, and internal rotation of the lower fragment in this type, and the x ray gives little information on this point. That rotation of these two fragments is a constant factor is most likely when one takes into consideration the muscle traction on the fragments. Two of the foregoing cases were lightly impacted, but the impaction was easily overcome by manipulation.

In fifty-one cases there was displacement in the longitudinal axis with the lower fragment displaced upward in front of the upper in degrees varying from slight overriding to such marked displacement that the upper end of the lower fragment completely penetrated the deltoid and lay beneath the skin just in front of the acromion. In 114 cases displacement occurred in the transverse axis. The degree of displacement varied from slight inward displacement of the lower fragment to the complete displacement of the upper end of the lower fragment into the axilla beneath the coracoid. In this latter form there was likewise an upward displacement of the lower fragment in that the broken end of the lower fragment lay at a slightly higher level than the lower end of the upper one.

Displacement in rotation and abduction is practically constant in all the types at this level and occurs as external rotation and abduction of the upper fragment and internal rotation of the lower fragment. In thirty-nine cases rotation and abduction existed in the upper fragment without discernible displacement in the other two planes, so that the internal line of the fractured ends made an obtuse angle without any discernible lateral or longitudinal displacement. In three of these cases so much rotation and abduction occurred in the upper fragment,

¹Stimson, *Fractures and Dislocations*, 1912.

that no contact existed at the fractured ends. In this group are included many complex and irregular forms of displacement which do not permit of analysis.

Two cases were associated with dislocation of the head. One resulted from a fall between the girders of a building and one was the result of an attempt to reduce a forward dislocation.

MECHANISM OF PRODUCTION.

In this type one finds it difficult to determine the exact action of a given form of violence upon the region in question. Direct violence may act in producing a fracture in this region, but direct evidence on the skin was present in only seven out of seventy-six cases in which the patient stated that the shoulder struck first. All of the seven showed marked displacement of the upper end of the lower fragment into the axilla. In all of the remaining sixty-nine cases, with two exceptions, the lower fragment was displaced inward to a varying degree.

In eleven cases abduction may be considered as entering into the mechanism of production, in that the arm was in the half horizontal to full horizontal position, during the time the impact was received at right angles to the external surface of the line of the shaft.

In one case, the arm was fixed in abduction beneath a case of goods, and the violent effort on the part of the patient and his friends to lift him up without removing the case, caused the bone to snap. In fifty-seven cases the patient stated that the fall was received on the hand or elbow, with arm forward in thirty-four cases, with the arm behind the body in thirty-three cases. In the remaining 130 cases, the history of the nature of the violence received was too indefinite or too complex to permit of analysis. One patient, struck by an automobile, stated that the mudguard struck him on the hip and he felt the arm break as he fell forward.

Undoubtedly muscular pull, acting by the mechanism of cross strain, produces a certain number of these fractures, but so far it has been impossible for me so to correlate the facts as to make evident that nature of the muscular action in any given case in which this seemed the likely mechanism. One case suggested the possibility very strongly. A piano mover, while holding the end of a piano, had the whole weight come against the pull of his arms, and as he attempted to hold the weight of the box which, by virtue of the sliding of the piano to the left, threw strain upon his left arm, a sudden movement of the piano jerked his left arm outward against his straining muscles so that he suffered a fracture of the surgical neck of the left humerus. He was fifty-seven years old, muscular, and was positive, as was a friend, that the piano did not strike his arm at any time.

Fractures in children.—Epiphyseal separation may occur at birth, and from that time up to the nineteenth year. My series contains three children, aged six, eight, and eleven years. The displacement was the characteristic one, that is of the upper end of the lower fragment forward and inward. All injuries were over eight days old (eight, nine, fourteen days after the injury) and the stripped up periosteum on the posterior aspect showed new bone deposit and prevented the reduction.

Fractures of surgical neck.—Four cases: Subperiosteal, one child, six years old; transverse, three patients nine, eleven, fourteen years old; displacement, overriding with penetration of deltoid, one case; overriding without the foregoing, one case; angular displacement without displacement in any other place, one case.

FRACTURE OF THE TUBEROSITIES.

Fracture of the lesser tuberosity, I have not seen.

Fracture of the greater tuberosity, eleven cases. Five occurred in conjunction with dislocations of the shoulder, and in all, reduction was more difficult than usual in recent dislocation. After reduction, the broken fragment was displaced backward and pulled away from the bone. Six resulted from blows received upon the point of the shoulder, and in all there was comminution without any great degree of displacement.

Injuries to the soft parts.—Coincident injuries to the soft parts are rare. In none of this series were there any cases of open (compound) fractures. In three cases the upper end of the lower fragment penetrated the deltoid muscle, in one passing completely through. In two cases there was contusion of the circumflex nerve with the resulting deltoid paralysis and anesthesia, which disappeared under appropriate treatment, although the atrophy of the deltoid persisted for a long period, six years in one case. In one case, in which the marked internal displacement of the lower end of the upper fragment was overcome with considerable difficulty by manipulation under an anesthetic, there was pain and tingling in the hand and fingers, with irregular areas of diminished sensation over the distribution of the radial, median, and ulnar nerves, slight muscular atrophy and loss of muscle power in the hand and forearm, which was not discovered until two week after the injury and may have been due to the injury or to the attempts at reduction. The lesion, whatever its cause, was transitory and had disappeared at the end of the eighth week. In none of my cases was there any direct evidence of vascular injury. In one case the resulting ecchymosis was extreme; the whole upper arm, a part of the forearm, the pectoral region, and the thoracic wall to the level of the costal margin became black and blue. The radial and ulnar pulsation and the venous return did not show the signs of any lesion to the great vessels.

Complications and intercurrent conditions.—One patient, eighty-six years of age, died of pneumonia on the seventh day after the injury. Six cases showed definite signs of arthritis, with painful shoulder joints and marked limitation in movement with muscular spasms at the joint on passive movements, joint crepitation, and exudation. All these patients were positive in their statements that no joint lesion existed prior to the injury. One patient had a Dupuytren's contraction of the little and ring fingers setting in on the sixth day after the fracture without any explainable cause. In one case acute articular rheumatism developed with its characteristic phenomena with involvement of the shoulder joint on the affected side. The disease ran a normal course and produced no change at the site of fracture.

In one case, without previous tabetic symptoms,

gastric crises developed, bladder symptoms, lighting pain in the legs and a tabetic gait during the second week after the injury. The broken humerus healed promptly. This patient denied any previous luetic condition, any previous tabetic symptoms, and attempted to ascribe all the difficulties besetting him to his injury.

SYMPTOMS AND DIAGNOSIS.

Fracture of the anatomical neck associated with dislocation of the head.—Following the injury, swelling, pain, and inability to use the arm were constant. The arm was supported and the elbow held away from the chest with lowering of the pectoral fold and change in the axis of the arm. The characteristic rigidity of a fresh dislocation was absent. Pain, on direct and indirect pressure and on cross strain, was evident. Beneath the pectoralis major, high up in the axilla, a hard rounded body could be readily felt which did not rotate with the shaft. The normal fullness of the head was absent beneath the acromion.

Fractures through the epiphyseodiaphyseal junction and of the surgical neck.—Following the injury, swelling and disability with pain at the shoulder joint were constant. The shoulder was flattened, with depression below the fullness of the head. Pain was present over the upper end of the humerus on direct pressure and especially on pressing the arm upward. The head did not rotate with the shaft, and movements in rotation gave crepitus when there was any contact between the fractured ends. In the high cases, with impaction, an irregularity in contour on the anterior surface of the bone was quite evident. Rotation of the head occurred with the shaft, but pressure over the head during this rotation gave the characteristic pain along the line of fractures.

In cases in which the lower fragment was displaced into the axilla, the head could be felt in normal relation to the acromion and coracoid and did not rotate with the shaft. The axis of the shaft could be felt crossing the axilla, and pressure upward or traction downward caused it to move in the direction of the force used. Measurement from acromion to tip of olecranon showed shortening. Movements were all freer than one would expect with a fresh dislocation. In the cases with overriding, the upper end of the lower fragment could easily be felt to rotate with the shaft in front of the head, and there was a definite increase in the width of the shaft. In three of the cases, in one especially, a sharp point of the fractured end was readily felt beneath the skin. The cases with dislocation of the head were old when seen, and the lesion obvious, as the head could be felt beneath the coracoid and did not rotate with shaft. The subacromial space was empty and flattened.

Fracture of the greater tuberosity gave pain and swelling which came on usually from twenty-four to thirty-six hours after the injury. The contour of the shaft and head, and the simultaneous rotation of the shaft with the head were normal. Tenderness was marked over the greater tuberosity. There was pain over the upper end of the humerus on outward rotation against resistance, and the tenderness was made more acute by pressure over the tuberos-

ity during this movement. Associated with dislocation there was tenderness over the greater tuberosity, especially well developed when the acute joint symptoms were disappearing.

Epiphyseal separation was readily recognized in children by the disability, the forward projection of the upper end of the lower fragment and the normal relationship of the head to the acromion, and the absence of rotation of the head with the shaft. Soft crepitation may be present or absent. Tenderness was present by direct and indirect pressure. The youngest of my patients played about for days without complaining, although the affected arm was not used. The other types in children gave symptoms quite similar to those of the surgical neck in the adult. The diagnosis is usually obvious, since the lesions present all the characteristic signs of fracture. In the cases with impaction the history, the disability, and pain over the upper end are so strongly suggestive that fracture should be diagnosed. It is far safer to find no fracture than have one pass unrecognized. From dislocation the lesion is so readily recognized that it seems strange that the mistake should occur. Faulty examination and a preconceived diagnosis must be the explanation. The complicated forms offer many difficulties in the determination of their character. That a fracture is present is evident, what its character is, is not often determinable.

An x ray negative is an essential in the treatment of the lesions under discussion. If the case is recent, manipulation and fixation should be the first step after the examination, and the result should be controlled by a suitable x ray picture. The diagnosis should not wait for the x ray. When swelling, etc., have set in, a careful examination is more difficult and an x ray negative then takes precedence because the information is gained with a minimum of pain to the patient. To be of use, the negative should be a good one and its proper interpretation must be made by the surgeon. He who cannot interpret the aid thus given should avoid the care of fractures. Since a negative in one plane may furnish erroneous information, stereoscopic views are desirable in doubtful cases.

TREATMENT.

Reduction.—When there is any gross displacement, it must be corrected. Since the upper fragment cannot be controlled, the lower fragment should be carried into abduction and rotated outward to a degree sufficient to correct the displacements existing in these two directions. When there is overriding, traction, either ambulatory with weight and modified Stromeier cushion or traction in the recumbent position may be used. When the overriding has been overcome, the broken ends of the bone may be brought into apposition by appropriate manipulation. Should these methods fail, the displacement may be corrected under an anesthetic. In children and robust adults, this latter type of correction will be found to be the most satisfactory. Anesthesia should be used with caution in elderly individuals, and then only to correct marked deformity. Minor degrees of deformity should not induce ill advised attempt at correction under anesthesia without carefully weighing the dangers. The foregoing methods

of reduction will suffice for the vast majority of cases. The result of such reduction should always be controlled by suitable x ray pictures taken after the fixation apparatus (*vide infra*) has been applied.

An open operation is indicated in: 1. Fractures with dislocations of the head. The head may be removed, or, if it can be replaced in the joint, it may be fastened to the shaft by a suitable screw or nail. When the line of fracture involves the surgical neck, replacement of the dislocated head by means of the McBurney hook is the method of election. Should this be impossible, removal of the head and the reattachment of the external rotator tendons to the shaft, is indicated. In the fractures through the anatomical neck or the tuberosity with dislocation of the head, one must be guided in the selection of the operative procedure by the patient's condition, inasmuch as removal of the head is a far simpler procedure, and the resulting motion after its replacement has not proved sufficient to warrant the increased danger of the more complicated operation.

2. Epiphyseal separations in which absolutely accurate replacement is not obtained by other means. Since proper replacement is synonymous with complete function, anything short of accurate anatomical replacement is to be avoided. All my cases were operative because the ossified periosteal bridge made replacement impossible by any other means. No internal fixation is required to maintain the replacement. If reduction is perfect, it will remain so if the arm is carried into abduction by external rotation, and pressure is exerted upward on the arm to engage the jagged cancellous ends of the two fragments.

3. All fractures in which the reduction is imperfect and in which a bad result seems likely. Experience alone will determine how frequently open operation will occur in this type. Many factors must be considered. Penetration of the deltoid by the lower fragment, cases with marked rotation and abduction of the upper fragment, and irreducible forms of dislocation of the lower fragment into the axilla should be submitted to operation.

In this series, the cases submitted to operation were: Three cases with fracture dislocation; three cases with penetration of the deltoid; three cases with marked rotation and abduction of the upper fragment; one case with complicated line of fracture (marked comminution with irregular displacement of the head); two cases with marked axillary displacement which were ten and fourteen days old when seen and could not be reduced otherwise; one case with long oblique line of fracture; one case with a villous arthritis which has been mentioned before. The foregoing give a total of fourteen cases or 3.5 per cent. of this series which were submitted to open operation.

For the open operation local anesthesia can be used most satisfactorily, supplemented by gas and oxygen, during the short period of painful manipulation which ensues while the lower fragment is brought into position. The dangers incident to a general anesthetic may thus be obviated. Five cases in this series were treated by this method. In children, in robust adults, and in properly selected cases, ether has been the anesthetic preferred.

Except in the long oblique type no internal fixa-

tion is required. When the broken ends are properly brought into apposition, posture (abduction, external rotation, and pressure upward) is sufficient to retain them. Whitman (*Annals of Surgery*, May, 1908) gives an illustration of a most satisfactory position with the arm raised over the head in external rotation to use the force of gravity to fix the fragments. This method was used in one of the adult cases with marked rotation and abduction of the upper fragments, but the reduction was incomplete and open operation was resorted to. The absurdity of using metal splints external or internal, and intramedullary splints is so obvious that it is scarcely deserving of mention. In the long oblique and in the spiral forms, absorbable ligature material (plain catgut) through drill holes has given sufficient fixation.

No case suitable for fixation of the displaced tuberosity occurred in this series. The displacement was suitable, but operation was refused when proposed to the patients. In recent cases suture to the shaft by absorbable ligature would seem preferable to metal screws. If such ligature was passed through the infraspinatus tendon and through drill holes through the shaft, the fragment should be most satisfactorily held in apposition along its fracture surface, especially when the arm is fixed externally in full external rotation.

Types of fixation after reduction.—When there is little or no displacement, the arms may simply be bandaged to the side, either with or without an axillary pad. The pad has given the most comfort in my experience, and was the method used in 117 cases. When it is necessary to fix the arm in a position of greater abduction than can be obtained in the foregoing manner, and likewise essential to maintain varying degrees of external rotation, moulded plaster splints have proved very efficacious. Two are made, a posterior splint, which begins at the root of the neck and extends down over the posterior surface of the arm to the wrist, leaving the latter joint free; and an anterior splint which begins at the vertebral border of the scapula below the spine, passes up over the shoulder capping the shoulder limb of the posterior splint, and then passes down the anterior surface of the arm to the wrist. These are bound in place by gauze bandages and are quite effective in maintaining the reduction obtained.

When abduction to the horizontal or to a distance beyond forty-five degrees is desired, a thoracohumeral moulded splint will prove more serviceable than the above. The splint is made with one side against the chest with an arching dome in the axilla and then down the arm to the elbow. This is further supported by a posterior splint to the wrist, and this combined moulded plaster splint has been more satisfactory than the circular plaster cast splint usually advised to maintain abduction and external rotation such as is required in epiphyseal separations, etc. The arm over the head position recommended by Whitman may be maintained by modifications of the foregoing.

The Middeldorpf triangle, the triangular board splint from von Hacker's clinic, and the Osgood and Penhallow splint all fail to obtain the necessary external rotation. In fact, the first named turns

the lower fragment into marked internal rotation, a position which is absolutely the opposite of the desired one. The short internal angular splint, Gootch splints, and various other plastic splints which do not cap the shoulder and which are so frequently pictured in conjunction with an axillary pad, are valueless except for decorative purposes in high fractures of the humerus.

My object after experimenting with the various types of retention apparatus was to obtain a standard type which was plastic enough to fit the variations met with in practice. The foregoing describes the type of support which for ease of application, service, comfort, and ease of removal has given me the most satisfaction. Circular plaster does not permit of easy removal no matter when or how it is cut; while it may be satisfactory in children to whom long fixation is relatively unimportant, it is contraindicated in adults by virtue of the interference with the proper aftertreatment, interference which ensues because of its difficult removal and replacement. Fixation should be removed between the fourteenth and twenty-eighth day. The average time of removal in my cases lay between the eighteenth and twenty-first day. It is a rare case which requires more than the support to be obtained by a good sling beyond the twenty-first day.

AFTERTREATMENT.

One is tempted to speculate how long it will be before the intelligent aftertreatment of fracture will become an integral part of the treatment of broken bones. At the shoulder joint, neglect of this very essential part of the proper care delays the return of function and may result in the loss, to a very large extent, of what should be the standard result; that is, abduction beyond the horizontal, external rotation sufficient to reach the spine of the seventh cervical vertebra (the collar button is my indicator in the male), and internal rotation sufficient to place the dorsum of the hand against the midlumbar region. Anything better may be considered an excellent result; anything less is a bad result.

Massage and baking should be begun from the seventh to the ninth day and used daily. The massage should be gentle, should cause no pain, should include the whole shoulder girdle, and its earlier efforts should be devoted to hastening the absorption of the exudate. Heat is best applied by the Bier or Sprague hot air apparatus, but the heat of an electrotherapeutic lamp or hot moist compresses may be substituted should the first named not be available. Motion at the elbow should be begun with the massage; at the shoulder on the fourteenth to the eighteenth day, first as fore and aft motion, then slight passive abduction. Movements in rotation should be begun on the twenty-first to the twenty-eighth day. Active motion within the limit of pain should be encouraged as soon as the splints are removed. Abduction can be encouraged by placing the patient, side on to the wall, at a distance sufficient to allow the finger tips to rest against the wall. Then the patient moves his finger in a crawling motion upward along the wall, carrying the arm into abduction. The same mechanism suffices to aid in extending the arm in front of the body.

Rotation is practised by means of a broom stick, by a curtain pole, baseball bat, or section of iron pipe. The patient should grasp the stick a few inches away from its centre and rotate it out and in, in front of the body. This movement at first is entirely executed at the elbow by the rotation of the radius. As the grasp approaches the end of stick, the weight of the long end begins rotation at the shoulder and, as the heavier object is used, the degree of this rotation becomes more pronounced. There is no necessity for violent effort. Gentle movements frequently repeated increase muscle circulation and tone and keep the lubricating fluid in the shoulder joint in proper condition. Ability to perform little movements begets confidence and once that stage is reached, progress is rapid. Gentleness, perseverance, and close attention to detail are the *sine qua non* of success.

In cases with injury to the nerves or when muscular atrophy threatens to become extreme, owing to the unwillingness of the patient to exercise the arm, electrical stimulation is useful in maintaining the muscle circulation and tone.

Result—functional.—All the patients under forty years of age had an excellent result. In the children no difference in function was apparent. Two cases showed shortening of one sixteenth of an inch. After forty years the result is not so good and, other things being equal, becomes worse as the age incidence increases. Unwillingness to move the arm and to submit to the proper aftertreatment was responsible for twenty-seven bad results in this series. One of these patients, by the way, was a member of the profession, who outlined his own aftertreatment. The result was bad enough to please anybody.

In the fractures with dislocation of the head, the results were motion to the horizontal in abduction, with external rotation to one third normal and internal rotation to one half normal. That is restricted motion in all directions. In the 369 cases allotted to the two regions of the bone most frequently involved, seventy cases were seen for too short a period to determine the result. Twenty-seven cases had bad results. One of these was an operative case in which perfect reduction was obtained. Fifty-two had a fair result; the greatest disturbance existed in the loss of external rotation and the cases were about equally distributed as to the type. All the patients were over fifty-seven years of age, more than half had passed sixty-four years. These include many of the cases seen before the importance of a rigid aftertreatment had impressed itself upon me.

One hundred and sixty-three had a good result, that is, abduction to the horizontal or a little beyond, external rotation to permit touching the seventh cervical spine, internal rotation sufficient to place dorsum of hand in the midlumbar region, and elevation forward to horizontal was obtained. Fifty-seven had an excellent functional result, and in many of these, the loss of function on the affected side was so slight as to be difficult of determination. All were vigorous patients who faithfully followed out the aftertreatment. The age incidence ran from forty-one to sixty-five years, although the

greater number occurred between forty and fifty years.

Fracture of greater tuberosity.—Loss of external rotation was constant in all. In three cases associated with dislocation, it was practically complete. In the remaining cases, it was one half to one third that on the normal side. Abduction to the horizontal or a little beyond was the range of that motion, which resulted in all these cases. Pain on attempted external rotation was present for as long as five months in two of the cases, and was present in the remainder longer than the extent of the lesion would justify.²

PROGNOSIS.

The prognosis depends upon the age of the patient, the character of the treatment, the type of the injury, and the associated lesions. The results tabulated above explain the results sufficiently to obviate any further statement on that score. The functional use of the arm is complete at the end of three months (twelve to fourteen weeks), and in my experience, the result existing at the end of that period of proper aftertreatment is permanent. In three of the cases, with arthritis at the shoulder joint, the joint symptoms began five months, six months, and eight months after the injury, and in these three the functions diminished progressively, despite treatment. One case was operated in with relief from pain, but no gain in function. In the other three cases (*vide supra*) arthritic changes developed during the first few weeks after the injury, which gradually improved with the treatment, although pain and stiffness never entirely disappeared.

The disability is complete for three months for any class of manual labor, i. e., the workman would be unable to carry on his occupation during that period. Partial permanent disturbance in the normal range of motion is present in practically all of the patients over forty years old, and labor requiring complete freedom of motion in overhead movements of the arm would be distinctly interfered with.

126 EAST THIRTY-SEVENTH STREET.

THE AUTOSERUM TREATMENT OF DERMATOSES.*

A Second Report.

By WILLIAM S. GOTTHEIL, M. D.,
New York.

Some time ago I published a report of the results obtained in patients treated in the City Hospital with injections of their own blood serum in the manner that Linser, Ulmann, Heuck, Spiethoff and others have recently introduced in Germany.¹ The cases were twelve in number, six of extensive psoriasis of long standing, three generalized and recurrent eczemas, two of pemphigus, and one of leprosy. The results were sufficiently satisfactory to convince me that the method of treatment

was distinctly valuable, and that it opened up therapeutic possibilities in a new direction that were worthy of careful study. The pemphigus cases were indeed in hopeless condition when the treatment was begun; one of them improved for a time, but both died a little later; the leprosy case was very greatly improved, more so than by any other of the various forms of treatment that had been previously employed; the eczemas were markedly benefited without change in the local measures, though the observations could not be continued long enough for a definitive judgment; while the psoriasis were all cleared up in from three to fourteen days under a local treatment of the very mildest kind.

Since my term of service in the hospital ended, the cases treated with the serum have been almost entirely private ones; a few have been treated with the serum at the hospital through the courtesy of my successor on the service, Doctor Fordyce, and the records of one or two of these are at my disposal. The exigencies of office work, of course, rendered it impossible to treat any very large number of patients with the serum. The process is somewhat lengthy, taking an hour at least for each injection; the services of a nurse and an assistant, while not absolutely necessary, are desirable for the instrument sterilization, centrifugation, etc.; and the various factors of personal convenience, expense, and individual possibilities and idiosyncrasies enter into account. One patient is obliged to leave town on business before the course is concluded; another finds it too costly; a third is disgusted at the sight of his own blood; and one turns out to be an epileptic, and promptly has a seizure each time his blood is drawn.

The number of cases treated since January 15th is therefore not large. As in the first series, the most noteworthy were of psoriasis, of which there were five. One of these was in a physician with the affection chiefly on the palms. He had had x ray treatment at other hands, which had indeed caused the psoriatic efflorescences to disappear, but at the expense of a consecutive radiodermatitis which was very obstinate, disabled him entirely for months, and left the characteristic telangiectases and the skin of his hands in so sensitive a condition that the least irritation, such as the use of the mildest antiseptics in his work, caused immediate recrudescence. This patient seemed entirely unable to avoid occasional contact with irritating substances; and he withdrew from observation after getting several serum injections, and before the treatment was concluded.

Of the other psoriasis cases two were private ones, and two were treated in the hospital. They were so much alike, and so similar in their course to the six psoriasis cases previously reported, that I need not give the details of their histories. All were old psoriatics, with extensive lesions, and with much personal experience of the results of the treatment formerly employed. One case is here at the moment of this writing; he has been just two days on a very mild (2.5 per cent.) chrysarobin ointment; most of his lesions are cured, and even a greatly thickened and usually very obstinate plaque on the small of his back is disappearing rapidly. In

²The cases reported were from the surgical service of the New York and Hudson Street Hospitals.

*Read before the Medical Association of the Greater City of New York, May 18, 1914.

¹Medical Record, April 4, 1914.

previous attacks it has taken four weeks of most vigorous local and general treatment, chrysarobin up to forty per cent. with all its disagreeable properties, and arsenic injected daily up to saturation, to bring him where he is now. And he has none of the troublesome general dermatitis that was formerly so much in evidence during the cures. The hospital patients were especially enthusiastic over the treatment. They improved greatly under the serum alone; they needed but a few days of local treatment with mild ointments. One of them said that he had never been cured so "good" and quick before; previous attacks had taken four to six weeks instead of a few days, and his skin had never been put in such good condition when formerly discharged. The other one had been two and one half months in the Metropolitan Hospital and two months in Kings County Hospital for previous attacks, and had not been "cured" anything like so well.

To summarize my experiences with the autoserum treatment in psoriasis, of which I now have ten cases, excluding that of the physician above mentioned, who had a radiodermatitis also, there is no doubt in my mind, and in the minds of others who have witnessed these cases, that it has a peculiar influence for good which enables us to clear off the skin in one tenth the usual time, with very weak and innocuous local medication, and without any internal treatment at all.

Another remarkable case was one of delayed ulcerative radiodermatitis. The patient had had prolonged x ray treatment for some abdominal disorder six years before; this had resulted in the formation of a large area, eight by ten inches in size, on the skin of the anterior abdominal wall, which was atrophic and covered with telangiectases in the usual manner. It had always given him more or less trouble; but in the fall of last year it began to get worse and show distinct signs of active inflammation. When I saw him a little later the entire skin area was necrotic, and the picture of a chronic gangrenous radiodermatitis was complete. His condition became so bad that he was confined to bed for six weeks. Local treatment was almost impossible on account of the exquisite tenderness of the lesion; and we were compelled at last to have recourse to morphine, which was the only thing that would at all control the intolerable pain. At one time during this period he lost hope completely, and both he and his family expected death. He began to improve a little, however; the sloughs commenced to separate very slowly indeed, and a minute line of epidermization began to appear at the margins of the ulceration. His pains, however, had diminished but little; he still needed narcotics in full doses; and the sensitiveness of the lesion was yet so great that a one per cent. balsam of Peru cold cream was the limit of the local applications. I proposed autoserum injections, and with great difficulty he was brought down to the office for that purpose. About 150 c. c. of blood was drawn, and seventy c. c. of serum was administered; neither operation causing him any trouble at all.

When he reappeared one week later he was a changed man. He walked in alone, his face was bright, and he volunteered the statement that he was

very much better, that for the first time since he had been sick he had several hours' continuous sleep every night, that his pains were very much less, and that he was getting some taste for food again. He asked that the strength of the local application be doubled, since the ulceration was not nearly so sensitive as it had been. Doctor Manisoff, the physician who had been caring for him with me, and who came to the office with him, confirmed these statements, and added that he had only once given him a small dose of morphine during the week, and that was on the evening of the day of the serum injection. An examination of the lesion showed an equally remarkably local change. The gray black sloughs were loosening rapidly; the patient permitted the free removal of large masses of necrotic tissue with the forceps and scissors, which caused some bleeding but very little pain; and there was a half inch zone of new epithelium all around the margins of the ulceration, with epithelial islands beginning to appear at other spots.

During the first month following there was a steady and equally rapid betterment. He took four serum injections of nearly 100 c. c. each, and had gained at least fifteen pounds in weight. He went to business every day, and, though naturally weak at first, could do a large part of his usual day's work at the end of that time. He slept six or seven hours a night, and took no medicine at all. The ulceration was clean, all necrotic tissue having been removed, and it was two thirds healed. There was practically no pain or tenderness in the lesion, and a vigorous stimulant local treatment was instituted.

As the patient had improved so remarkably under the injections I purposed to give him eight of them, by which time, I estimated, the ulceration would be healed. He took five of them, given a week apart, with steady benefit; after the sixth, however, he had a chill, followed by fever and sweating, and even severer phenomena of the same kind after the seventh. I have therefore given him no more. I cannot regard this phenomenon as anaphylaxis, since no heterologous serum was employed; it was rather of the nature of the "serum sickness," due to the sensitizing of the organism by the previous injections. At the present time his ulceration is one quarter of its original size, and is healing slowly under local treatment alone. Of course, in therapeutic work of this kind, which is as yet experimental and without data, it is entirely possible that the injections given were too many, or the doses too large. I give the history of the case without further comment, and without attempting to explain the action of the procedure. Certain it is that the first injections pulled the patient at once out of the slough of despond and effected a change both physical and psychic that was a marvel to all who observed it.

One case of chronic furunculosis of the nape of the neck of four years' standing was treated with the serum. This case was a very bad one, the infections extending on the scalp half way up to the vertex and on the temples on each side. He received six serum injections ranging from twenty-eight to seventy-five c. c. of the fluid. He improved very much indeed, the infections becoming fewer

and more superficial, and those already present drying up quickly under the treatment. He refused, however, to take the necessary local measures, which in this case necessarily included shaving of the back of the scalp and bandaging of the head; he persisted in wearing a collar and generally neglected himself. When, therefore, I refused further treatment under these conditions, he was greatly improved, but not cured; the furuncles were smaller, more superficial, and fewer in number, yet he was not cured. Another patient had had an axillary adenitis for two months; he had had numerous incisions and other local treatment, but the abscesses continually reappeared. After a single injection of thirty-eight c. c. the large abscesses healed fairly promptly under local treatment, and he had no more for two weeks, when a superficial reinfection appeared. This patient refused further injection treatment because of the psychic effect of the sight of his own blood.

A few cases, including a chronic urticaria, a generalized lichen planus, a very bad pustular acne with large abscesses, etc., are still under treatment; I am not prepared to report upon them as yet, save to say that they look encouraging. These cases are of such long duration, so recalcitrant to ordinary treatment, and so prone to show exacerbations and remissions, that I feel that great caution is to be exercised in reporting results. I prefer to base my present remarks on what I have observed in psoriasis, where the effects of the injections have been uniform and successful.

Excluding the one instance in the physician, I have the record of ten cases, all of them old, extensive, and recurrent instances of the disease. In every case the serum treatment has been well borne; in no case did it cause any inconvenience. In every case we observed the following results: Cessation of the appearance of new lesions, diminution in the elevation, redness, and scaling of old ones with no local treatment other than ordinary baths; very rapid disappearance of the disease in from three to seven days under the very mildest kind of local treatment, in no case exceeding five per cent. chrysarobin petrolatum, and usually with 2.5 per cent.; and all this without any of the very troublesome and annoying general dermatitis that usually accompanies the full strength chrysarobin medication. This is to be contrasted with the four to six weeks' treatment with ointments ranging up to forty per cent. of chrysarobin, the daily arsenical injections up to the very point of toleration, and the daily scrubbings with detergent soaps, etc., that constituted my former plan.

The evidence seems conclusive that the blood withdrawal and subsequent serum injection, one or both, exercise a marked influence on the skin of psoriatics, modifying and ameliorating the disease, rendering the skin less susceptible to the irritant effects of local medication, and at the same time more responsive to its medicinal effects. Whether it has any influence in preventing or postponing relapses or on the general course of the disease, it remains for the future to show.

154 WEST SEVENTY-SEVENTH STREET.

A GRAM NEGATIVE STREPTOCOCCUS PATHOGENIC FOR GUINEAPIGS.

By JENNIE G. DRENNAN, M. D., C. M.,

Rosebank, S. I., N. Y.

During the summer and the autumn of 1912 some of the guineapigs in this laboratory manifested suppurative in lymph glands and other structures. The process was a slow one and seemed to cause but little inconvenience; for aside from the enlarged glands the animals appeared to be in good condition until they would suddenly die. This infection occurred at intervals for some time. Examined during life the glands were found to contain a thick, white, cream cheesy pus in which was a short chained diplostreptococcus, which did not stain by Gram's method. As comparatively few of all the guineapigs in the laboratory were affected and as all received the same food, it does not seem likely that the infection occurred through this medium. A number of animals were examined carefully after death and as practically the same results were obtained in all, it will be sufficient to give the observation made in one case only.

Guineapig No. 30 died spontaneously. The cervical glands were large and contained a creamy, white pus resembling cream cheese, which consisted of disintegrating cells and contained a Gram negative streptococcus occurring in short chains. There was also acute endocarditis, myocarditis, and pericarditis, edema and congestion of the lungs and bronchopneumonia, acute suppurative hepatitis and nephritis. Cultures from the glands, the pericardial fluid, and the blood, when grown on slightly acid agar, gave a pure growth of a streptococcus, forming short chains and not staining by the Gram method. In dextrose alkaline broth and on alkaline agar, and when grown in the ice chest for twelve days, somewhat longer chains were formed. There was no growth in plain acid nor in plain alkaline broth. Acid was produced in dextrose, saccharose, and lactose broth. The streptococcus was facultatively anaerobic and hemolytic. It was nonpathogenic for rabbits and white rats, but injected subcutaneously in a guineapig, it produced a local abscess followed by death, the streptococcus being present in the abscess and in the blood.

In other animals dying spontaneously there were abscesses in the inguinal glands and the liver, suppurative peritonitis, pleuritis with septic pulmonary embolism, and bronchopneumonia, all yielding the same streptococcus.

The distinguishing features of this streptococcus are that it is Gram negative; pathogenic for guineapigs; produces a creamy, white, cheesy pus unlike that usually produced by a streptococcus; is slow to produce its lesions; the severity of the lesions and their occurrence in so many organs and its non-growth in plain acid and plain alkaline bouillon, but only on the addition of one of the sugars, notably dextrose.

HEALTH OFFICER'S DEPARTMENT.

Urinary Retention.—Dr. Bransford Lewis, of St. Louis, maintains that there is no incurable vesical atony except when caused by some nerve degenerating process.

SOME SIGNS OF DANGER IN LABOR, AND HOW TO MEET THEM.*

By J. O. ARNOLD, M. D.,
Philadelphia,

Associate Professor of Obstetrics, Temple University, Philadelphia.

The detection of signs of danger in labor is not the simple matter that it might at first appear to be. It is often a question of fine judgment to say when a departure from the normal has gone so far as to threaten serious injury to mother or child. It is a problem of measuring or estimating values, and the personal equation enters so largely into all questions of this kind that no fixed standards or rules can be established whereby we may all agree as to what constitutes a real danger sign.

Broadly speaking, the signs of danger in labor are equivalent to the indications for interference or assistance on the part of the accoucheur, and this, as will be readily seen, opens up such a large field that I can hope to cover only a comparatively small part of the subject.

I will briefly speak, first, of the most constantly present factor in labor that is capable of becoming a positive danger to the mother and child, namely, excessive pain. There is no doubt that the prolonged severe pain of labor, in highly nervous individuals, is capable of producing most serious injury, and therefore the failure to bear pain well is a sign of danger that should always be looked for, and far more frequently heeded than is the prevailing custom. Among the more serious, though less frequent results from this cause, I may only mention puerperal insanity and profound neurasthenia; while post partum bleeding, puerperal infection, failure of lactation, delayed involution, and prolonged convalescence are all made more probable by that type of labor which leaves the nervous system racked and prostrated, and the entire energies of the patient in a state of almost complete exhaustion. These are some of the direct effects of unnecessarily severe suffering, while indirectly it may be charged that ill advised and untimely attempts on the part of physicians to terminate labor artificially because of this suffering, have been responsible for large numbers of dead or seriously injured babies, and hundreds of lacerations that should never have occurred. It is therefore a matter of the utmost importance, requiring experience and judgment, properly to deal with this element of suffering in labor. It is often very difficult to say when the danger point has been reached. Each case is a study in itself, and must be handled according to its own peculiar conditions and surroundings. Much relief can be given, and the process of dilatation greatly facilitated in many cases, by the judicious use of morphine, either alone or combined with hyoscine or scopolamine. My own experience would lead me to recommend a more general use of these drugs. Brief reference to a case or two will illustrate my point. Not long ago I was called upon to terminate labor in a young, extremely nervous primipara whose pains had become so severe in the last four or five hours of labor, that she and the family friends were frantic, and insisted that the doctor

must use instruments and end her suffering. I found dilatation not more than one third complete, and advised a quarter grain of morphine, to be repeated when necessary, and the packing of sterile gauze against the undilated os. The doctor reported later that after six or seven hours of comparative rest, the packing was removed, dilatation found to be complete, and in a short time an easy delivery took place, with no ill effects on the child, and certainly with greatly conserved strength and nerve energy on the part of the mother. I have seen the same happy results in many similar cases, as no doubt most of us have, and only pause in passing to emphasize the fact that with these drugs in the first stage of labor, and preferably chloroform in the second, we may successfully meet and control most of the danger arising from excessive pain.

The second most frequent source of danger to the woman in labor, and perhaps the first in point of serious after effects, is that of lacerations of the birth canal. Comparatively few, if any, primiparæ escape these injuries. In multiparæ, of course, the percentage of tears is not so high. It has been estimated that some degree of laceration takes place in fully ninety per cent. of all full time deliveries. It is unnecessary, I am sure, to do more than remind you of the very serious and far reaching injuries that may arise from this source. More mothers are suffering from the direct or indirect effects of lacerations than from all other complications of childbirth combined. Lea, in his most valuable work on puerperal infection, estimates that lacerations of the cervix and vagina are the starting points of infection in sixty per cent. of all cases. This alone is enough to make us look upon an impending laceration as a sign of danger of the gravest import, that should call forth our every resource to prevent it. Of course, we all realize that in many cases it is utterly impossible to prevent lacerations, even though we do foresee the threatening danger. A paper on this subject which I have not yet published, based on replies from 150 physicians in Philadelphia and surrounding towns, shows that the old time obstetrician who never had any tears, is not yet an entirely extinct species in this latitude, as three such individuals were found in my list.

The percentage of cases requiring repairs after labor, according to my replies, ranged from zero to ninety, with a general average of thirty-five.

Nearly half of those answering gave as the cause of these tears, "too short a time in labor," while a large part of the remaining half assigned the cause to "too great a disproportion between mother and child." About fifty per cent. of physicians, according to my canvass, are using no other method to prevent lacerations, than the so called "protection of the perineum" with the hand, and this should probably be named as a third large factor in the production of tears. My own opinion is that the support or pressure of the hand on the perineum has never prevented many tears, and there are good obstetricians who go further than this, and say that such pressure predisposes to tears. If too rapid labor is a large factor in producing lacerations, then we must meet this sign of danger by anesthesia and such other methods as will give the soft parts

*Read before the West Branch of the Philadelphia County Medical Society, February 17, 1914.

time to dilate. This means that in practically all difficult labors, if the obstetrician is to give his patient the benefit of the kind of service to which the seriousness of her case entitles her, he must have some one to help him. DeLee's words on this subject are so entirely apropos that I want to quote them. He starts out by saying that "every labor case should have two physicians," then after pointing out the many ways in which the assistant can help the obstetrician to give his patient the full benefit of his art, he concludes by saying, "if obstetrics is ever to attain the dignity of surgery—and it should—if the parturient woman is ever to enjoy the same benefits as the surgical patient—and she deserves them—then the accoucheur must be given sufficient help, and the makeshift policies of obstetric practice must be abolished."

I am sure no one will question the fact that the number of torn vaginas and perineums could be very greatly lessened in private practice, as in hospitals, by the aid of a good anesthetist, and the family physician is as fully justified in calling an assistant to help him prevent a serious laceration as he is in asking for help in the repair of such an injury. More time, more anesthesia; more careful study of the conditions present, with a view to correcting malpositions, etc.; all of which means the more frequent employment of an assistant, constitute the accepted methods of preventing lacerations after labor has begun. Many otherwise unavoidable lacerations, and many unnecessarily hard labors, must be foreseen and treated long before this, however, by the induction of premature labor, for instance, or by other operative procedures. But the consideration of such points is not within the scope of this paper.

One should not dismiss this subject, perhaps, without a word of warning as to the dangers to the child that may come from overzealous efforts at preventing tears; especially from taking too much time for the outlet to dilate when for any reason the condition of the child demands haste. In such cases, as in many other cases where tears are seen to be inevitable, episiotomy is undoubtedly indicated, as, for instance, in a recent case quite near this meeting place. A primipara, twenty-eight years old, and supposed to be two or three weeks overdue, had been in labor about thirty-six hours, with extremely hard pains a greater part of this time, when her physician detected an alarming weakness of the fetal heart sounds and called for help. When I saw her, dilatation was about complete, the head was well engaged, but high, and the condition of the child called for immediate action. Ether was given at once, forceps applied, and the head brought down to the outlet without difficulty, then a good free unilateral episiotomy was done. The delivery was easily and quickly completed, the child was saved, and the mother's soft parts sustained no other injury than the clean posterolateral incision, which was easily sutured.

Another sign of danger to be looked for in protracted labor with severe pains and little or no progress, is that of a high contraction ring and consequently a dangerous thinning of the lower uterine segment. Not only is the child's life in jeopardy

in such a case, but as we well know, there is imminent danger of rupture of the uterus with all that that means, especially if any manipulative or instrumental assistance is undertaken.

The brief report of a case or two will show how such danger may be met. Some years ago I was called to do a forceps delivery on a very large, strong woman who had failed to deliver herself after many hours of hard labor. The head was in normal position, but was scarcely more than engaged, and dilatation was complete. On examination, Bandl's ring was found to be high and tightly contracted. Fully aware of the danger, I introduced my hand as carefully as I could to determine more about the condition, and in doing so ruptured the extremely thin uterus below the contraction ring. Without further manipulation, the patient was at once removed to a nearby hospital, where I opened the abdomen, removed the dead child from the abdominal cavity into which it had escaped, and sutured the ragged rent in the uterus. Fortunately the patient made a perfectly normal recovery. What might have been practically a repetition of such a case came under my care in the service of Doctor Applegate, at the Samaritan Hospital, some six weeks ago. A small, frail woman, aged twenty-six years, who had had one difficult forceps delivery, and who had gone from three to four weeks over her time, was brought to the hospital after she had been in labor for more than forty-eight hours, and after two attempts at forceps delivery. Examination revealed a comparatively large, firm head, only partially engaged. It was also easy to discover through the thin abdominal wall that Bandl's ring was unusually high, and therefore the lower uterus unusually thin, and while there was little hope of saving the child, I had no hesitation in deciding that the only safe delivery for the mother was by the abdominal route. More than a half hour of valuable time was lost, however, before permission to operate was obtained, and by this time the fetal heart could not be heard; but the threatened rupture of the uterus was still a positive indication for Cæsarean operation, which I proceeded to do. We were unable to resuscitate the child, but the mother made a remarkably rapid recovery. These two cases will serve to illustrate a not uncommon danger in difficult labors, and perhaps may point a useful lesson in the value of promptly meeting such danger. Both of these mothers were saved, but both babies were lost—the operation that saved the mothers would have saved the babies, if it had been done in time.

A word as to the anesthetic used in the latter case may be of interest. Here was a frail, weak woman, who had vomited almost daily throughout the course of pregnancy; who had been nearly three days in labor, with two or three attempts at forceps delivery. It was evident that her failing strength should be conserved to the utmost in the operation about to be performed. In such cases spinal anesthesia by the Babcock method is a veritable god-send. Whatever else may be said of it, I believe this form of anesthesia has a special field of usefulness in obstetrics. It can be easily given by turning the patient on one side, is promptly effective, greatly

lessens the operative shock, does not interfere with uterine contractions, lessens hemorrhage, and favors early convalescence by the almost entire absence of postoperative gastrointestinal disturbances. In all these respects, it worked beautifully in this case, as it has in many similar cases. In the past four or five years I have used it or have seen it used, in all kinds of emergency or other obstetric cases, and have come to look upon it as the anesthesia of choice in most operative work in hospital obstetrics, at least. In the operative measures in eclampsia, especially, I have found it to be well nigh ideal.

Hemorrhage of any considerable amount occurring in the course of labor is another sign of danger that usually must be met promptly and wisely if the life of the child, to say nothing of the welfare of the mother, is to be safeguarded. Such hemorrhage practically always comes from a premature separation of the placenta. The important question is to decide if possible whether the placenta that is being prematurely detached, is high or low in the uterus. The treatment may depend in large measure upon this knowledge. Here again the report of a case or two may be more practical than the recital of abstract methods. For instance, some two months ago I had an elderly primipara, who, when she had almost completed the second stage of labor, began to have rather alarming hemorrhage. As it was a case in which the saving of the life of the child was of the utmost importance, I need not tell you I had a few very anxious moments. It was quite evident that the placenta was being prematurely separated, and that it would be necessary greatly to hasten the birth of the child if the bleeding continued. The hemorrhage was more profuse when the uterus was relaxed between pains. Stimulation of contractions, therefore, was the first and easiest thing to do. This failing, quick forceps delivery was the alternative. Fortunately the hemorrhage was controlled by massaging the uterus into more rapid contractions, which at the same time hastened the delivery—so much so that it was impossible to prevent a perineal tear which might not otherwise have occurred. Illustrating another type of bleeding in labor, I recall the case of a woman brought to the hospital a few months ago with the history of having bled rather freely with the onset of labor. This was a multipara with considerable dilatation through which I could with difficulty barely reach the abnormally situated placenta. Under the circumstances, rupture of the membranes was the treatment indicated, thus permitting the placenta to retract with the uterine wall, which effectually controlled the bleeding, and spontaneous delivery occurred some four or five hours later. In another case seen in consultation in a private house, the margin of the placenta could be easily felt projecting into the half dilated os. Here careful packing of the vaginal vault tightly against the lower uterine segment, with counterpressure over the fundus, controlled the hemorrhage, and in three or four hours so softened and dilated the os that I was easily able to do podalic version and deliver a living child without excessive bleeding.

Still another patient with a much more alarming sign of danger from this source was operated upon

at the Samaritan Hospital only a few weeks ago, by Dr. J. C. Applegate, with whose permission I use the case for illustration. This was a large, stout multipara, who, shortly after the beginning of labor, bled so profusely that her physician, acting wisely and well, securely packed the vagina and sent her to the hospital with a diagnosis of placenta prævia centralis. Under spinal anesthesia Doctor Applegate did a Cæsarean operation, and found the placenta completely covering the internal os—a condition that under any other method of treatment means the death of the child in at least seventy-five per cent. of cases, and an extremely great risk to the mother. With the aid of pituitrin given some fifteen or twenty minutes before the operation, the mother lost very little blood, suffered practically no additional shock from the operation, and made an entirely satisfactory recovery. A few words as to the child may be of interest, though not an essential part of my illustration. While perhaps two or three weeks premature, yet the child appeared to be well developed, and breathed and cried as soon as born, but gradually weakened and died about twelve hours after birth. Doctor Applegate and those of us who assisted him have speculated as to the probable cause of death. There certainly was no traumatism. The mother had bled freely, but this was forty-eight hours before, and her condition was good at the time of operation. The long interval of no bleeding had presumably restored the child's losses, in part at least, and its heart sounds were well heard before the operation. Having had pointed out to me in the Wertheim clinic of Vienna, the fact that pituitary extract absorbed from the mother may have a fatal effect on the child, under certain conditions, causing it, even when apparently normal at birth, gradually to weaken and die some hours later, I submit that in this particular instance, the most probable cause of death was the administration of pituitrin to the mother long enough before delivery for a previously weakened child to have received a fatally toxic dose. While, of course, this is but a theoretical suggestion in this case, yet I have recently collected enough reports of otherwise inexplicable deaths of the newborn where pituitrin had been used on the mothers, to make me quite careful to know the condition of the child before I employ this very useful and at the same time very dangerous obstetric aid.

Protracted labor, with that peculiar type of suffering, both mental and physical, so often seen when the efforts of hard labor are unavailing, is always a sign of danger, and should be met by the most careful study of the conditions present. Here, I am quite sure, is where many grievous obstetric sins are committed. Either there is no attempt to find the cause, or the attempt is a failure for want of an assistant and anesthesia. A hopeless disproportion recognized at the earliest moment after a fair test of labor, and met according to the indications; or a faulty presentation or position corrected, as it so often can be corrected under an anesthetic, means all the difference between success and failure in scores of cases that otherwise bring but reproach upon our boasted obstetric art. The following brief case reports may be of interest:

CASE I. Mrs. O., aged thirty-seven years, with a history of one most difficult instrumental delivery and dead child, had been in hard labor for many hours with one attempt at forceps delivery. On examination, I found a large head still freely movable and a promontory that could be reached with the greatest ease. Trying the head in the inlet bimanually, which is often the only practical form of pelvimetry, left no doubt of the impossibility of safe delivery by the vaginal route. These facts could just as easily have been learned in time for a life saving Cæsarean operation, but now the child was dead, and craniotomy was the only resort.

CASE II. Mrs. F., a primipara, aged thirty years, a large strong woman, had been in labor twenty-four hours. The head had descended well at first, but in spite of extremely hard pains, there had been no further progress for four or five hours. Two physicians had made examinations without anesthesia, and finding the head well down in the pelvis in what appeared to be normal position, saw no indications for interference. Upon being asked to see the patient I had chloroform given at once, for the peculiarly aggravating noneffective pains, with the head for several hours almost on the pelvic floor, indicated beyond a reasonable doubt that the condition was one of malposition, and would therefore require anesthesia to correct it, if not to make the diagnosis. I found, of course, what any one would have expected to find under such circumstances, the occiput in the hollow of the sacrum. Bimanual rotation was quickly and easily done, and upon removal of the anesthetic the patient required no further assistance. Hours of suffering, the possibilities of great danger to the child, and extensive lacerations, were thus easily removed with the aid of a small quantity of chloroform.

CASE III. Mrs. M., primipara, aged eighteen years, had been in labor fourteen hours. Strong contractions with severe suffering for four or five hours had failed to move the head from its position in the superior strait. A diagnosis of right occipitoposterior position was easily made by palpation and the history of the labor. Vaginal examination under chloroform verified this diagnosis. As it is not so easy or so desirable to rotate the head when it is yet high in the pelvis, I applied forceps and brought the head down to the pelvic floor in the course of least resistance, namely, with the occiput posterior. The forceps were then removed, a perfectly easy bimanual rotation done, and under light anesthesia the child was born without further aid and in good condition. It would be easy to multiply examples of a similar type, where timely examination under anesthesia has revealed the signs of danger and indicated the methods of meeting them, long before they would otherwise have been known, and, what is far more important, before irreparable damage has been done to mother or child.

The time at my disposal will not permit me to describe in detail the method of bimanual rotation of the persistent occiput posterior to which I have just referred. In closing, I shall outline its essential points, however, because I believe it to be such a valuable procedure, that every physician doing obstetric work should be familiar with it. It is a method first suggested by Tarnier, further worked out and elaborated in this country some years ago by Porter, of Cincinnati, and described in detail with my own modification, which I feel has made it an entirely satisfactory manœuvre, in a paper published in this city three years ago.

Briefly stated, it consists of introducing the over-supinated left hand, or half hand as the case may require, into the vagina, with the ulnar border pointing upward toward the mother's left, the thumb pointing downward and toward the mother's right, and the palmar surface of the fingers against the right side of the child's head. With the external hand, pressure is made through the abdominal wall above the symphysis, against the left frontal region of the child's head, downward and towards the mother's left; thus holding the head in

the pelvis, keeping it in a state of flexion, and combined with the action of the internal hand pressing the occiput forward from the right, quickly and easily produces the desired rotation. At the same time the assistant, who is usually the anesthetist, greatly facilitates the manœuvre and prevents the tendency of the head to return to its former position by swinging the body of the child from the mother's right side toward the median line, and holding it there by pressure of the hand on the abdomen.

2503 NORTH EIGHTEENTH STREET.

FREDERICK FORCHHEIMER.*

BY OTTO JUETTNER, M. D.,
Cincinnati.

It is my desire to say a few words in memory and appreciation of my townsman, Frederick Forchheimer, a distinguished member of the American Therapeutic Society, whose demise occurred at a time when his career was full of promise to his profession, to his home town, and—above all—to the school over which he presided with signal force and distinction. That he should have been struck down in the fullness of his prowess seemed like a tragedy, an ineffably cruel dispensation of destiny. Yet the end was not without an element of the heroic in that it literally embodied the Solonic ideal of greatness and happiness so beautifully exemplified by the wise Athenian when he told the story which reached the heart of the Asiatic despot, Croesus. Forchheimer had much to live for. Cincinnati, once the proud queen of western medicine and now struggling to regain the laurels of the past, needed a master to tread in the footsteps of James T. Whittaker and P. S. Conner. Forchheimer had begun to loom up as the exponent of a new era in Cincinnati, of new thought in medical practice and medical teaching in the old town where western medicine was born and was reared by at least three generations of giants. Forchheimer embodied the full maturity of latter day medical science. He was a ripe product of his time. He was eminently fit to live; on the other hand, in harmony with the Hellenic ideal of heroic dissolutions, fully prepared to terminate his career in the very hour of his greatest strength and achievement.

Forchheimer received his degree in medicine at the New York College of Physicians and Surgeons in 1873, when he was twenty years of age. After a few years of study in Europe, especially in Vienna, he settled in his home town, Cincinnati. In 1876 he began his career as a medical teacher in the capacity of demonstrator of morbid anatomy and histology at the old Medical College of Ohio. The following year he became professor of chemistry. Three years later he was made professor of physiology and clinical pediatrics. During his incumbency of the chair of physiology he published an excellent American edition of Hofmann and Ultzmann's *Guide to the Examination of Urine*. In 1900, upon the demise of the distinguished James T. Whittaker, Forchheimer became the professor of practice. When P. S. Conner retired from ac-

*Read at the Fifteenth Annual Meeting of the American Therapeutic Society, Albany, N. Y., May 29 and 30, 1914.

tive work, Forchheimer was elected dean of the faculty. In 1907 he gave to the profession the results of his ripe scholarship and vast experience in the form of an encyclopedic textbook of practice under the title of *Prophylaxis and Treatment of Internal Diseases*. It was followed by a still larger work prepared with the collaboration of many special contributors and published under the collective title of *Forchheimer's Therapeutics of Internal Diseases*. This work is without a doubt *Monumentum ære perennius* to its author. Since 1860 Cincinnati has contributed at least a dozen books on internal medicine to the medical literature of this country. Of book writing there has been no end, but not many books have achieved a national significance in point of value and influence. Only three books on practice have been written in Cincinnati since 1860, that were epoch making in their influence on the medical thought of the entire country. One was *A Practical Treatise on Phthisis Pulmonalis*, by Leonidas Moreau Lawson. Then came Roberts Bartholow's classical book, and—last but not least—the work on practice by James Magoffin French, a wonderfully clever and practical book. These three books represent an achievement of no mean significance. To say that *Forchheimer's Prophylaxis and Treatment* is a worthy peer of the three great works mentioned, is but paying a just tribute to the mastery of his subject which its author possessed in so high a degree. This work bears eloquent testimony to the fine sense of synthetic discrimination, analytical succinctness, and critical coordination so characteristic of Frederick Forchheimer. The honorary degree of doctor of philosophy, granted him by Harvard University, could not have been bestowed upon one more worthy.

Forchheimer, the physician and teacher, was a well balanced and well rounded product of his day. But there is much more to be said about him. Even at the risk of disclosing to the gaze of the world some things which he in his characteristic way secreted behind the portals of his home and reserved for the privacy of his leisure hours, I venture to point out a rare and lovable psychic duality which Forchheimer embodied. When he heeded the summons

to join
The innumerable caravan which moves
To that mysterious realm where each shall take
His chamber in the silent halls of death,

it was not only his colleagues, his fellow physicians, and students, who gathered around his bier to pay homage to his genius and the worth of his life work; among those who mourned were the members of another profession, the devotees of music, the most heavenly of the arts, because Forchheimer was a musician, a violinist of unusual merit, not merely a lover of music, an amateur, but an artist whose talent was the marvel of the musical fraternity in Cincinnati. In his early days in Vienna he enjoyed the friendship of Johannes Brahms, whose work in the renaissance of classic art was understood by few only at that time. Forchheimer was admitted to the select circle which had gathered around Brahms. There was Eduard Hanslick, the austere apostle of classic form; Jo-

seph Joachim, the master violinist of his age, and Theodor Billroth, supremely great as a surgeon, but no less of a striking figure as a pianist and composer. Amid such environment young Forchheimer's receptive and impressionable mind was moulded. Here he gathered the riches of mind and heart that filled his life to overflowing, true to the Hippocratic aphorism which places the shortness of life and the length and richness of art in juxtaposition.

In the contemplation of the life of Forchheimer, the scientist and physician, and Forchheimer, the dreamer and artist, upon whom the Muses smiled all through his career, we see consummate perfection, a veritable ideal of happy existence. Such a life has no sorrow, such a death no sting. Frederick Forchheimer, our departed fellow member and colleague, passed from the midst of us,

sustained and soothed
By an unfaltering trust, approached the grave
Like one who wraps the drapery of his couch
About him and lies down to pleasant dreams.

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXLVIII.—How do you treat sunstroke and heat exhaustion? (Closed.)

CXLIX.—How do you treat the opium habit, viewed as a neurosis? (Answers due not later than August 15th.)

CL.—What is your experience with belladonna or atropine in the treatment of alcoholism? (Answers due not later than September 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best essay submitted in answer to Question CXLVII was awarded to Dr. Karl A. Meyer, of Chicago, whose article appeared on page 230.

PRIZE QUESTION NO. CXLVII. THE TREATMENT OF TETANUS.

(Concluded from page 232.)

Dr. Jacob M. Schildkraut, of Trenton, N. J., observes:

The treatment of tetanus can conveniently be divided into prophylactic and active. In probably no other disease is prophylaxis of greater importance; for this is one disease above all where specific treatment in time will most assuredly save life. The toxin generated by tetanus bacilli has a specific affinity for nerve tissue; it is taken up by the lymphatics of the nerves and carried to the central

nervous system, where it forms a firm combination with nerve cells. This combination cannot be dissociated by tetanus antitoxin. Therefore it is of extreme importance to get the antitoxin into the system before this combination occurs.

Naturally, it follows that in all cases of wounds which have come into contact with the ground, they should be enlarged and opened, thoroughly washed with tincture of green soap and water, and disinfected with a twenty-five per cent. solution of carbolic acid and drained. In emergency cases, or where the patient must be taken great distances for treatment, the wound should be disinfected by some handy antiseptic as hydrogen peroxide, tincture of iodine, one to 1,000, or solution of bichloride until proper treatment can be instituted. In all cases the patient should receive as soon as possible a prophylactic injection of 2,500 units of tetanus antitoxin, to be injected into and about the wounds.

As tetanus is not a disease which comes to the attention of the general practitioner every day, and as the early symptoms are not well marked, the physician fails to make a diagnosis until lockjaw and the other characteristic symptoms set in, when it is often too late. Therefore the physician should be constantly on the look out; and when a patient comes complaining of headache, general malaise, chilliness, or symptoms similar to a grippe attack, with stiffness of the muscles of the jaw and neck and some difficulty in mastication, whose occupation is suspicious, as that of gardener, stableman, or plumber, and who gives a history of a wound still open or one that has healed, he should receive an injection of 3,000 units of antitoxin.

After the disease has developed, the patient should be kept absolutely quiet in a darkened room, free from all noises and from the visits of friends, as the slightest noise, touch, or visit from a friend is likely to set up a spasm. The diet should be light, but nutritious, and frequently repeated. When the patient is unable to swallow, he should be fed through a stomach tube passed through his nose, or through the space behind the last molar or where the teeth may be absent. Rectal alimentation may be resorted to.

The local wound should be thoroughly cleansed and antiseptized with a twenty-five per cent. solution of carbolic acid, thoroughly opened and drained, and where practical the local wound should be excised, as this is the site where the toxin is manufactured.

Tetanus antitoxin in doses of 5,000 units should be injected into and around the wound, and into the nerve trunks leading from the wound, where it may be possible to neutralize the toxin being conveyed to the central nervous system. This dose should be repeated every three or four hours, depending on the exigencies of the case. In severe cases thirty c. c. of antitoxin should be injected into the subarachnoid space by lumbar puncture, after the previous withdrawal of a considerable amount of cerebrospinal fluid, and the patient's body then tilted so that the antitoxin may be thoroughly mixed with the remainder of the cerebrospinal fluid. This procedure is to be repeated if indications demand it. In very severe cases the skull may be trephined and the antitoxin injected beneath the cerebral mem-

branes. It may be necessary to control the spasms by chloroform and morphine. Bromides, chloral, and atropine are valuable adjuncts in producing quiet and controlling spasms. Exhaustion and cardiac failure should be combated by the administration of alcohol, caffeine, digitalin, or camphor. At the same time the absorbed poisons should be eliminated by cathartics, diuretics, diaphoretics, and possibly by injections of large amounts of salt solution.

We also have a couple of forms of special treatment, viz., the so called Baccelli treatment, which consists of the subcutaneous injection of a two per cent. solution of carbolic acid, given in divided doses until five grains are injected in twenty-four hours. Some assert that they have had good results therefrom. The other form of special treatment consists of the injection into the subarachnoid space, by lumbar puncture, of one c. c. of a twenty-five per cent. solution of magnesium sulphate for every twenty-five pounds of body weight, to be repeated daily or every other day. This is believed to act by inhibiting nerve impulses.

However good and energetic our treatment, this is one disease where our greatest good lies in proper prophylaxis.

Dr. R. O. Munding, of Richmond, Va., remarks:

All will agree that the wise man who said, "An ounce of prevention is worth a pound of cure," may have been thinking of lockjaw. Puerperal tetanus and tetanus neonatorum may be prevented by antiseptic midwifery and by an antiseptic dressing of the umbilical stump.

When the accident occurs, the wound should be laid wide open, all foreign particles removed, and a hot one to 500 bichloride solution used to wash out the cavity. After drying with antiseptic gauze, swab thoroughly with equal parts of carbolic acid and tincture of iodine, and then wash with sterile water. Apply an ointment consisting of six to eight grains each of menthol, carbolic acid, and camphor to one ounce of zinc oxide ointment. Bandage and renew dressing daily. Five hundred antitoxin units may be given as an additional preventive.

In most cases when the physician is called, the toxin has begun its deadly work and there is rigidity of the muscles of mastication and of the cervical region. The distinctive physiognomy, the sardonic grin, dyspnea, cyanosis from spasm of the glottis, the convulsions producing the orthotonos and opisthotonos positions, increased reflexes, profuse perspiration, moderate or very high fever, rapid pulse, suppression of the urine, constipation, a clear intellect, and agonizing suffering; any or all of these may be seen.

Unfortunately, there is no specific treatment for this dreaded condition. When the patient is seen in the condition just named, look for the site of the infection and treat prophylactically. Place the patient in a dark, well ventilated room as far from any noises as possible. One nurse in the room at a time is sufficient. The object is to have everything as quiet as possible around the patient. Tetanus antitoxin cannot cure the disease after the infection has reached the cord and the brain. Thirty c. c. may be given and repeated every six hours until improvement is seen. This will at least serve to prevent further infection.

Catheterize frequently and keep the bowels open with salines. The best thing for the seizures is chloroform inhalations; and the antispasmodics (of which morphine, chloral, and potassium bromide are the best) in large doses must be given at regular intervals. Stimulation is necessary—strychnine, digitalis, alcohol—and the heart must be closely watched. If the patient is unable to swallow, medication must be given through the stomach tube, by the rectum, or hypodermically.

In some cases, venesection followed by the intravenous injection of a pint or more of warm normal salt solution gives excellent results. Throughout the disease, only the most nourishing diet should be allowed the patient.

Dr. William J. Ryan, of Philadelphia, writes:

Tetanus is an infectious disease characterized by tonic and clonic spasms of the voluntary muscles. It begins in the jaws and spreads to the trunk and extremities. The tetanus bacilli probably gain entrance into the tissues through a wound or abrasion of the skin and mucous membranes caused by an object containing the discharge from previously infected wounds, or dirt or from infected food. In order that the organism may grow, the wound must be of such a character as to preclude the entrance of air, or it must be accompanied by some other organism whose affinity for oxygen will absorb all the oxygen in the tissues so quickly as to allow the tetanus bacillus to grow.

A number of experiments have been performed to determine the course of the toxin to the spinal cord, which cannot be cited here, owing to lack of space. But we may state our conclusions, formed after going over these. The toxins are not deposited in the cord directly from the circulation, but always through the medium of the motor nerves only.

Tetanus may be classified as acute, subacute, and chronic, or as traumatic and idiopathic. The term chronic tetanus applies rather to the duration than to the time of incubation. Idiopathic tetanus developing without a sign or history of injury may be due to the inhalation of the organism in dust or to its ingestion in contaminated new vegetables. Tetanus neonatorum is a form of tetanus of the newborn from infection carried through the navel. It differs in no way from the other forms.

The treatment of tetanus is prophylactic and active.

Prophylactic. An immunizing dose of tetanus antitoxin should be administered in every suspicious case and repeated on the third, fifth, and fifteenth to twentieth day, usually fifteen hundred units of a standardized solution being given at each dose. It is necessary to repeat the dose because the immunizing effect last only a few days.

In addition, every suspicious wound should be thoroughly disinfected after making a culture. The disinfection must be radical, and, if necessary, a general anesthetic must be used. If possible, lay open the wound in its entire length, remove all dirt and necrotic tissue, disinfect the entire wound surface with one of the following solutions: 1.5 per cent. carbolic acid, one to 1,000 silver nitrate, one per cent. iodine trichloride, or pure tincture of iodine. The iodine and carbolic solutions are to be preferred. The use of actual cautery, pure carbolic,

or other strong caustics is not to be recommended because the resulting escharotic membrane will prevent the oxygen of the air reaching the tissues, and thus make things favorable for the growth of the tetanus bacillus. Iodoform gauze makes an excellent dressing because of the iodine in it, but I prefer a wet dressing of gauze soaked in a solution of one dram of tincture of iodine to one pint of sterile water. MacFarland, in an experimental study found that antitoxin in the form of a dry dusting powder was very efficacious in the treatment of suspicious wounds. Blank cartridge wounds are probably the one type of wound causing more tetanus than any other. But the reduction of the number of these should be taken care of by our law makers.

Active treatment. It might be well here to enumerate the most important symptoms of acute tetanus. In man there is first a stiffness in the back of the neck, often preceded by a chill. In a few hours the jaws become stiff (trismus or lockjaw). The fifth nerve seems to be very susceptible to this toxin. After the masseter, the other face muscles and the muscles of deglutition become affected. The nostrils are raised and the mouth becomes puckered (Risus sardonicus), the brows are contracted, the eyes drawn in and partially closed. Occasionally there is strabismus. The abdominal muscles become boardlike in their rigidity, then the muscles of the back stiffen. Finally, the extremities are attacked. There are two muscular phenomena, the tonic and clonic contractions, the latter usually accompanied by considerable pain, and brought on by the most trivial causes—a slight noise, jar, or draft of air. There is profuse sweating, the head is drawn back, and the spine arched. This condition is all the more distressing because the mind is perfectly clear, even to the end.

Bacelli's carbolic acid treatment consists of the subcutaneous injection of a one per cent. solution until eighty grains are given in twenty-four hours (adult). Owing to its rapid elimination, the injections should be given at short intervals. In Italy the results have been very convincing.

Serum therapy may be tried, but the results are very disappointing when compared to its marvelous results as a prophylactic agent. This disparity is explained by the great affinity of the toxins for the cells of the spinal cord on one hand and by the inability of the nervous tissues to take up the antitoxin on the other. There may be some fault in our technic that we have not yet recognized. At all events, it should be used in every case by one of the various methods; either subcutaneously, intravenously, intracerebrally, or by subarachnoid injection. Krokiewicz recommends injection of brain emulsion around the original wound. Matthews advocates injecting into the venous circulation the following:

R	Sodii chloridi, ...	grs. lxx;
	Sodii sulphatis, ...	grs. clv;
	Sodii citratis, ...	grs. li;
	Calcii chloridi, ...	grs. ii;
	Aquæ destillatæ, ...	Oii.
M.	ft. mist.	

This is given slowly into the vein, about three c. c. every minute, and repeated in twenty-four hours if

necessary. Murphy recommends the withdrawal of some cerebrospinal fluid and the injection of a morphine-eucaine solution, one seventy-fifth of a grain morphine and three fiftieths of eucaine were used with each injection.

Subdural injection of magnesium sulphate solution has some advocates. Too large a dose may be fatal owing to paralysis of the respiratory centre. Blake says the dose for children should never exceed one c. c. for every twenty-five pounds of body weight; for an adult, one c. c. for every twenty pounds.

If the case is seen early, in addition to the foregoing prophylaxis, Bier's hyperemia may be tried or circular incision around the limb down to the fascia, to prevent transportation of the poison through the lymphatic system.

The onset of symptoms is not the beginning of tetanus, but the beginning of death. Constitutionally, three measures must be carried out: 1. Free elimination; 2, protection of unaffected regions; 3, counteract effect of toxins on cells already affected.

1. The first indication is met by encouraging free diuresis and sweating. Water should be given freely and the action of the kidneys further stimulated by use of saline, either subcutaneously or intravenously. Matthews's salt solution (mentioned previously) is well recommended here, because it not only allays irritation, but insures rapid elimination of the toxins.

2. In order to prevent the toxins attacking hitherto unaffected organs, we administer one of the so called antidotes or specifics—antitoxin, carbolic acid solution, or brain emulsion (mentioned previously), at the same time keeping up the serum therapy. The antitoxin should be given in ten to twenty c. c. doses, injected about the wound, into the circulation, into the nerves of both upper and lower extremities as near to the cord as possible. An immunizing injection may be given into the cord at the highest level to which the symptoms correspond. Or if this is omitted, it may be injected into the cauda equina. The antitoxin is harmless and may be used in large quantities without any bad effect. 3. To counteract the effect on cells already affected we must fall back on our physiological antidotes, chloral, bromides, morphine, and atropine. Undoubtedly the best is chloral combined with one or more of the bromides. To control pain and promote sleep morphine and atropine should be given, grain one quarter of the former and grain 1/100 of the latter, repeated if necessary.

Amyl nitrate is sometimes efficacious in overcoming spasm of the glottis and respiratory muscles. It may be necessary in some cases to use an anesthetic to control convulsions and prevent exhaustion. Here chloroform is preferable. We should not hesitate in this class of case to use the magnesium sulphate or morphine eucaine injections into the sub-arachnoid space. A nutritious diet of broths and milk, given through a nasal tube or a tube introduced through the mouth after the extraction of a tooth, should be kept up.

Every case of tetanus should be isolated in a quiet, well ventilated room.

Therapeutic Notes.

Vaccines in Lobar Pneumonia.—G. Morton Illman, in *International Clinics*, II, 23, 1914, states that he and W. E. Robertson now make it a practice to give an injection of from 400 to 500 million stock pneumococci in every case of lobar pneumonia as soon as the diagnosis is made. This is followed in two or three days by a second injection of the same or a slightly smaller dose. The results have from the beginning been very favorable compared with those in control cases given the usual symptomatic treatment. Excluding one patient who died of uremia, the mortality in a series of nineteen of the earlier cases was but 10.5 per cent. In some patients the injections are followed by a drop in temperature to normal, a rapid clearing up of the toxemia, and marked symptomatic amelioration; in others the drop in temperature—to or below normal (a pseudocrisis)—is followed by a moderate rise, and this in turn by lysis to normal in one or two days; finally, in a third group there is no appreciable beneficial result.

The author has never noticed any marked favorable influence in clearing up the physical signs immediately after the crisis or termination of toxic symptoms; but in cases of distinctly delayed resolution, especially when toxic symptoms, caused by a secondary infection or the lighting up of a former infection, e. g., tuberculosis, make their appearance, vaccines again become a therapeutic aid, in particular when given with due regard to the etiological organisms present. It is to be borne in mind that lung consolidations may be due to such organisms as the streptococcus and the bacillus of Friedländer, or that these may complicate a pneumococcic consolidation. In this case the pneumococcic vaccine must be supplemented with these organisms if a favorable result in the pneumonia is to be obtained.

Treatment of Parotid Fistula.—R. Leriche, in *Lyon médical* for February 22, 1914, reports the case of a man suffering from parotid fistula as the result of a knife wound in the cheek. The cut extremities of Steno's duct were both found upon examination, but the duct was so small as to preclude its repair by suture. Attempts to cure the condition in such wise as to restore normal function were thereupon given up. The author conceived the idea of abolishing the secretory activity of the parotid by destroying its nerve supply. The auriculotemporal nerve was therefore sought, dissected loose as far as the condyle, and its central end avulsed by slow traction. About four cm. of the nerve was thus drawn out. On the same evening the dressing was found dry. On the succeeding four days a much diminished flow of saliva was observed, chiefly during mastication at meal times. At the end of this period, however, secretion entirely ceased, and a complete cure of the condition was noted. Steno's duct being cut, infection of the parotid was not to be feared, and subsequent atrophy of the gland was to be expected.

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CHANGED CONDITIONS OF MEDICAL PRACTICE IN ENGLAND.

The trend of modern theories of government, whether in free England or State regulated Germany, is away from the *laissez-faire* doctrines of liberty of John Stuart Mill and the individualism of Herbert Spencer, which prevailed so largely in English speaking countries in the middle and latter decades of the nineteenth century. Whether we will or no, we are rapidly approaching the realization of a socialistic State in which the life of the citizen will be minutely regulated and controlled from the cradle to the grave. There are few now left to acclaim that government best which governs least. St. Simon, Fourier, and Karl Marx are fast coming into their own.

Already socialistic legislation has profoundly affected the life of the physician in Germany and in England. It is felt that the beneficent discoveries of medical science cannot be made available and be efficiently applied to all classes without State direction and compulsion. The problems of alcoholism, tuberculosis, venereal disease, infant mortality, insanity, cancer, the marriage of the unfit, and juvenile delinquency can no longer be left to individual initiative and private philanthropy. In this new and larger conception of the duties of the State, the

question of health is paramount, and the doctor of the near future is to be a cog in the government machine set up to promote the health of the industrial classes. He will be drilled and subordinated to accept the place assigned him in the medical bureaucracy.

There has been a good deal of friction in applying this theory. In Germany there have been recent strikes of organized physicians who have refused to accept the terms of the *Krankenkassen*. In England there is serious question of uniting the entire profession as a great trade union, a majority of the Council of the British Medical Association having recently made such a recommendation. Medical societies are now chiefly occupied with politics, quarrels over the division of allotted appropriations under the National Insurance Act, and acrimonious replies to lay members of insurance committees, who aver that the panel doctors are guilty of excessive prescribing and that they encourage malingering, and unlawfully charge the insured for medicines dispensed. The retiring president of one section of the association reports that for three or four years the medicopolitical work of his division has been sufficient to occupy their whole attention, and that it has not been possible to hold any scientific meetings.

If the benefits of the act are extended to dependents of insured persons, as now seems likely, the total proportion of insured in Great Britain will be not less than four fifths of the entire population. To combat the demoralization of the profession, there was organized in London on June 27th, the National Medical Union, whose members are pledged to defend their freedom and economic interests; to render every service possible to nonpanel practitioners; to secure needed amendments to the insurance act; to uphold the principle of unrestricted, free choice of doctor in any form of national insurance; to insist that no doctor attending insured persons be required to sign any contract; and to maintain that a State medical service is necessary only for the genuinely necessitous classes.

VIBURNUM PRUNIFOLIUM.

While *Viburnum prunifolium* is an American plant, it is less known than it should be; it is an agent which is efficacious without being toxic. We have used it in dysmenorrhea, and with advantageous effect. Naturally, therefore, we have read with more than usual interest the researches of Chistoni, of Professor Marfori's clinic, on the pharmacology of *Viburnum prunifolium*. This paper, published in *Giornale internazionale delle scienze mediche* for June 30, 1914, is possibly the best piece of work that has been done on this subject; it is clear, complete, careful, strictly conservative. Chis-

toni remarks that while viburnum has been an object of much interest to clinicians, pharmacologists, on the other hand, have paid infrequent attention to it. Indeed, no regular experimental study of its effects exists. Medicinally, it is believed, *Viburnum prunifolium* has specific effects on the uterus, what is called a selective action on the uterine nerves and muscle. The effect is one of calm and arrest of hemorrhage. In his experiments, Chistoni used an extract; the ingredients, according to Wehmer, are valerianic acid, citric and oxalic acids, a bitter substance, viburnina, and an alkaloid of ill defined composition. On the uterus the extract produces the effects specifically intended. Contractions succeed one another with increasing rapidity and a corresponding decrease in the amplitude of the wave. The tone of the muscle is not altered—a rather indefinite statement—and the action is essentially one of nervous impulses to muscular elements. The substance called viburnina reproduces these effects on the heart, which manifests rapid contractions. The breathing, on the other hand, is unaffected. Chistoni sums up his experiments by saying, "We must look to the nervous system of the uterus for an explanation of the powers of viburnum. It excites within the uterus the nerves which govern the autonomous movements." This explanation of the action of viburnum advanced by Chistoni is the most modern notion; fortunately it does not tend to upset practical knowledge.

THE DANGERS OF TWILIGHT ANESTHESIA.

It has long been known that pain could cause death under chloroform a short time after the beginning of its administration, even though trifling operations, such as the extraction of teeth, were being performed. This has been attributed to shock, or reflex cardiac arrest from irritation of the nasal branches of the fifth pair. Suggestive in connection herewith is the fact that Depree recently observed a sudden death from stoppage of the heart caused by the injection of five minims of a one to 1,000 solution of epinephrine in the nose of a patient who had been lightly anesthetized with chloroform. So slight was the anesthesia in fact, that the corneal reflex was quite brisk. Lévy had previously observed, in experiments on cats, that when a small dose of epinephrine hydrochloride solution was injected into a vein, there occurred a well marked rise of blood pressure, followed later by marked irregularity of the heart, but only when deep chloroform anesthesia existed. When, however, the same injection was made while the animal was under light chloroform anesthesia, the effect became so intense that death due to ventricular fibrillation ensued in

almost every instance. Lévy had observed a similar effect in man, the action of epinephrine in a lightly chloroformed subject being acceleration of the pulse with raised tension, then still greater frequency with pulse less readily felt and sometimes perceptibly irregular at the wrist. A few temporary pauses may be noted, and then the heart suddenly ceases beating; the pupils dilate widely, intense pallor supervenes, and cessation of respiration follows. Such a termination has been observed in other cases.

Death, thus brought on by the external or intravenous use of epinephrine, seems but to illustrate the morbid process irrespective of any use whatsoever of the adrenal principle and through abnormal activity of the adrenals themselves. While Starling and von Anrep have held that the rise of blood pressure which occurs in asphyxia was due to the fact that the increased carbon dioxide content of the blood stimulated the adrenals and therefore the secretion of epinephrine, Cannon and Hoskins found that sensory excitation and fear also enhanced markedly the production of this adrenal principle. Linked, these observations explain the many deaths observed during the first stage of chloroform under the influence of fright, excitement, pain, etc. Precisely as if it had been applied locally or injected intravenously, the excess of epinephrine gave rise to cardiac fibrillation followed by death.

Can all this be said to apply also to ether? Clark and Cathcart (*Glasgow Medical Journal*, April, 1914) have recently urged that it does. They found that in the case of the rabbit anesthetized with ether, the action of carbon dioxide on the heart and circulation was practically nil when the anesthesia was deep, but that it was marked when the anesthesia was light. They argue that during deep anesthesia the extra production of epinephrine as the result of carbon dioxide did not take place, while under light anesthesia the adrenals produced an excess of their secretion sufficient to affect the heart. They were thus led to conclude that safety lies in deep, and danger in light anesthesia; that continuous and not intermittent administration is essential; and, finally, that the use of epinephrine in any form during anesthesia is fraught with danger.

Still, the role of the adrenals in ether anesthesia is purely speculative, and considerable clinical evidence tends to militate against these conclusions in respect of this agent. This cannot be said of chloroform, however; all evidence, clinical as well as experimental, tends to show that twilight sleep produced by this anesthetic, and the use of epinephrine during that state, are dangerous measures. And this, as pointed out editorially in this JOURNAL as long ago as December 2, 1905, will probably be found to apply to other agents, used for the same

purpose; although these have not as yet been submitted to close scrutiny so far as their relations to organic carbon dioxide and epinephrine are concerned.

A SIMPLE DIAGNOSTIC REACTION FOR MALIGNANT TUMORS.

If the assertions made by M. P. Michajloff, of St. Petersburg, can be substantiated, we have in his method a wonderfully simple diagnostic test for cancer. In 1906, Michajloff made the statement that the administration of potassium iodide per rectum (potassium iodide 4.0, sodium carbonate 2.0, and water 80 to 100 c.c.) is followed in one or two hours by an elevation of temperature if the case is one of carcinoma or sarcoma. In cases of syphilis the temperature was lowered. This reaction, he maintained, is analogous to the tuberculin test and equally specific. He further stated that by the administration of potassium iodide conjointly with hypodermic injections of one per cent. of sodium arsenate in a twenty-five per cent. solution of carbolic acid, he was able to "cure" several cases of cancer. It appears that Dr. R. Robinson submitted, in 1913, before the Paris Academy of Medicine, a thesis on the diagnostic value of potassium iodide in cancer, the thesis having been accorded the Chevillon prize. Doctor Robinson is also of the opinion that the reaction following the administration of potassium iodide is analogous to the tuberculin reaction in tuberculosis. It seems that a method as simple as this could be easily verified and the statements of the originator either substantiated or disproved.

THE TREATMENT OF SYPHILIS.

When accurate statistics show that a certain remedy has actually decreased the total number of days of sickness from a certain disease, we have the strongest possible argument for the efficiency of the remedy. It is such an argument that Stimson advances in an article on the treatment of syphilis in the *Public Health Reports* for April 3, 1914. In the twenty-one hospitals and other stations of the Public Health Service, out of 430 patients treated with salvarsan and neosalvarsan, the average hospital stay was 13.31 days. The records of these stations show that before the use of these remedies, an average of 29.14 days' hospital treatment was required, so that their use has shortened the average treatment by 15.73 days.

Although these statistics justify the author in believing that salvarsan is a most important remedy, he is not blind to its possible dangers, and he cautions against indiscriminate administration in ter-

tiary forms of the disease, and advises that, when repeated injections are made, the urine be tested to decide the duration of the arsenic elimination of each dose. It is interesting to note that, in practically all the cases reported by Stimson, salvarsan was accompanied by the administration of mercury, and the inference is plain that he considers it rather a most useful adjunct to the mercurial treatment than an entire substitute. This, we believe, is an opinion which is entirely justified by the facts so far known in regard to the history and treatment of syphilis.

SECONDARY SYPHILIS AND CHANGES IN THE STOMACH.

Hans Neugebauer, in *Wiener klinische Wochenschrift* for June 11, 1914, says that changes take place in the gastric secretion, of which hyperacidity or anacidity is the usual form, going on to achylia, while hyperacidity is rarer and transient. These disturbances are due, on the one hand, to changes in the tonus of the vagus, on the other, to direct disease of the wall of the stomach, perhaps to a combination of both factors. The diagnosis of syphilitic gastritis is based on a positive serum reaction, the changes in the gastric juice just mentioned, a distinct content of mucus, positive alimentary galactosuria, signs of syphilis in other organs, and the results of treatment. In all doubtful cases it is well to institute an antisymphilitic treatment in addition to other clinical methods.

POPULAR INFORMATION CONCERNING TYPHOID FEVER.

A new folder has been issued by the department of health, according to the *Bulletin* for August 8th, which is intended to instruct "the man in the street" on how to avoid typhoid fever. This information is given in condensed form and printed in four languages, English, German, Italian, and Yiddish. Five hundred thousand copies have been prepared and will be distributed through nurses, insurance companies, branches of the New York Public Library, and charitable organizations without delay, so that the information may be used to forestall the usual autumnal increase in typhoid fever. It is expected that through the cooperation of these agencies in the distribution of these folders, substantial progress in the campaign for the prevention of typhoid fever will be made.

SYPHILITIC INFECTION THROUGH EATING AND DRINKING UTENSILS, AND THROUGH COMMON TOWELS.

Important, because of its relation to syphilitic infection of the innocent, is the recent study by Zinsser and Hopkins of the viability of *Spirochæta pallida* in diffuse light at room temperature. As stated in the *Bulletin* for July 18th of the city department of health, the results obtained bear directly on the question of danger from common drink-

ing and eating utensils and from common roller towels, and afford abundant scientific support for the ban put upon these articles by health authorities.

Bits of towel, moistened with a culture of syphilis organisms and kept exposed to daylight at room temperature, were examined from hour to hour, and found to be still infective at the end of eleven and a half hours; even when allowed to evaporate on glass slides, infectivity could still be demonstrated at the end of an hour, provided the film was still slightly moist. The conditions here provided are probably often enough present in nature; in fact there is reason to believe that frequently the latter may be much less severe. Certainly it would seem that organisms deposited fresh from a patient might often be more thoroughly protected because of the slow drying of the mucous discharges in which they are contained.

News Items.

New Carlisle, Pa., Hospital.—Ground was broken for this institution on July 20th; its estimated cost is \$50,000.

Women's and Children's Hospital in Newark, N. J.—A hospital for women and children is in process of construction at Newark, N. J., on the corner of Central Avenue and South Tenth Street. The estimated cost is \$30,000.

Tetanus Serum Ordered from New York for War Purposes.—An order has been received by the Department of Health of the City of New York for 50 litres of tetanus antitoxin to be used in the Austrian army. It is not yet known whether so extensive an order can be filled at short notice.

An American Red Cross Ship for the European War.—The American Red Cross Association announces that it will charter and fit up a hospital ship and send it to Europe to aid in the care of the sick and wounded. It is intended to send on this vessel physicians and nurses and hospital supplies to aid the Red Cross of each of the countries involved.

The Week's Death Rate; a Lesson to Mothers.—There were fewer deaths during the week ending August 1st than during the corresponding week of last year, in fact a saving of seventy-two lives. The death rate for the first thirty-one weeks of 1914 was 0.33 lower than for the corresponding period of 1913. The most noteworthy feature was the decrease in the number of deaths from diarrheal diseases among infants, which is to be attributed in large measure to the cool weather. Nature is the most reliable teacher, if we but heed her advice.

Last week's death rate carries a lesson for mothers. It teaches that to keep the baby well it must be kept cool.

New Officers of the Fifth District Medical Society of Pennsylvania.—At the annual meeting of the fifth congressional district of the Pennsylvania Medical Society, held in Brookside Park, York County, on Wednesday, July 20th, the following officers were elected: President, Dr. William E. Wolf, of Adams County; first vice-president, Dr. Walter O'Neil, of Adams County; second vice-president, Dr. E. R. Plank, of Cumberland County; third vice-president, Dr. Frank Skinner, of Franklin County; fourth vice-president, Dr. H. B. King, of York County; secretary and treasurer, Dr. C. W. Eisenhower. The next annual meeting will be held in Franklin County.

A Strong Force for Civic Betterment.—How largely the activities of neighborhood associations touch on matters of public health and how thoroughly they reinforce the work of the department of health is apparent from a perusal of the bulletin issued by the Chelsea Neighborhood Association, New York. Clean up work, baby welfare activities, sane Fourth of July celebrations, provision of vacant lot playgrounds, better school buildings, and work against the social evil are some of the subjects discussed in a single number of the bulletin. It is interesting to note that Chelsea established the first day nursery for the care of babies coming from tuberculous families, which is conducted by the Woman's Auxiliary to the Department of Health Tuberculosis Clinics.

Drug Prices Affected by the European War.—The outbreak of a war involving all the great European powers will affect every community in the world even though not directly involved. One result of the war of particular interest to physicians is the greatly enhanced cost of drugs of European, African, and Asiatic origin. The prices of many of these drugs have already been doubled, and in some cases even tripled, the prices of something like fifty drugs having so far been directly affected. Among the most important of the botanical drugs thus affected are opium, cinchona bark, ergot, cantharides, digitalis, belladonna, and hyoscyamus, and the derivatives obtained from these drugs, such as morphine, quinine, etc. Proprietary preparations have also been affected. The interruption of traffic will of course make it impossible to obtain additional supplies of many European products, including surgical, optical, and other instruments, as well as strictly medicinal articles.

A New Hospital for South Brooklyn.—The Harbor Hospital has been established in South Brooklyn, N. Y., by a non-stock company recently incorporated by twenty-two physicians of South Brooklyn. A four story building at 704 Fourth Avenue has been leased for two years, with the privilege of renewal, and is being thoroughly overhauled and renovated. The institution is a private one, and it is expected that a dispensary will be added within a year. The cost of a bed will range from \$7 to \$20 a week, which includes medicines and the services of a nurse. It is open to any reputable physician. Dr. William H. Madder is president of the medical staff, which includes the following physicians: Dr. G. Bottaro, Dr. R. B. Anderson, Dr. Charles Fisher, Dr. L. W. Pearson, Dr. C. B. Vogt, Dr. J. B. Kopf, Dr. G. A. Clark, Dr. E. M. Wellbery, Dr. Thomas Cleary, Dr. R. Brockway, Dr. Leo J. J. McCommiskey, Dr. D. S. MacNaughton, Dr. John W. Durkee, Dr. S. B. Thomas, Dr. J. J. Sussman, Dr. J. P. McQuillin, Dr. W. O. Scanlan, Dr. W. Price, Dr. F. H. Bermingham, Dr. M. B. Gordon, and Dr. L. P. Lane. Any profit from the maintaining of the Harbor Hospital will be used to increase its equipment and enlarge its scope.

American Physicians in Europe.—The sudden outbreak of hostilities in Europe occurred while something like 100,000 American tourists were visiting various countries, among them many American physicians, some of whom went abroad to attend the Clinical Congress of Surgeons of North America, which was held in London during the week of July 27th. The proceedings of the congress were curtailed by the outbreak of hostilities, which involved the recall of Austrian and German surgeons who had expected to take part in the proceedings. Most of the American visitors returned directly from London and suffered no inconvenience. Many of those, however, who visited the Continent of Europe are experiencing serious inconvenience in getting back. Among the physicians who are reported as still being in Europe are the following: Dr. Charles H. Mayo, president elect of the Clinical Congress of Surgeons of North America, and Dr. W. J. Mayo, of Rochester, Minn.; Dr. Franklin H. Martin, of Chicago, secretary of the Congress; Dr. Ramon Guiteras, Dr. Henry Coggeshall, Dr. C. H. Moak, Dr. W. H. Lockett, and Dr. W. H. Stewart, of New York; Doctor Lynch, Dr. Elizabeth Bruyn, Dr. Burr B. Mosher, Dr. J. R. Solomons, and Dr. Junius W. Stephens, of Brooklyn; Dr. John Hetherington, of Jersey City; Dr. D. G. Leggett, of White Plains; Dr. H. V. Barclay, of East Elmhurst; Dr. Preston Satterwhite, of Great Neck; Dr. Joseph Broome, of Plandome; Dr. Mefford Runyon, Dr. Catherine Porter, and Dr. John H. Bradshaw, of Orange, N. J.; Dr. Clinton W. Strang, of Bridgeport, Conn.; Dr. Alexander Cummins and Dr. Irvine Goddard, of Poughkeepsie; Dr. Ludwig Kast, of Hildreth; Dr. David Paton, of Lakewood, N. J.; Dr. G. T. Mattlack and Dr. Louis Taylor, of Wilkesbarre, Pa.; Dr. Harry Parr and Dr. Clarence Decks, of Indianapolis; Dr. L. M. Becker, of Knoxville, Ill.; Dr. Daniel L. Morrison, of New Brunswick; Dr. J. L. MacDowell, of Perth Amboy; Dr. R. W. Swan, of Boston; Dr. D. H. McQuillen, of Philadelphia; Dr. Simon Ott, of San Francisco; Dr. C. C. Morris, Dr. Joseph H. Schlarman, and Dr. August Lohman, of St. Louis; Dr. R. R. Hertzberg, of Stamford, Conn.; Dr. James Lyman Whitney, of San Francisco; Dr. A. C. Elgin, of Philadelphia; Dr. W. L. Hunter and Dr. S. T. Clough, of Bangor, Me.; Dr. F. Y. Gilbert, of Portland, Me.; Dr. Henry L. Shiveley and Dr. John Hartwell, of New York, and Dr. G. K. Dickinson, of Jersey City.

Gifts to Hospitals.—An anonymous lady donor gave \$2,500 to the Long Branch, N. J., Hospital on July 23d after a trip through the wards.

A legacy of \$8,000 from Dr. Annie M. Hawley, of Pughtown, enabled the Pottstown, Pa., Homeopathic Hospital to open its wards on July 22d.

Arnold Gregory, of Albion, N. Y., who two years ago bought property for a memorial hospital, has now given \$30,000 with which to remodel the house and maintain a hospital therein.

Mr. George W. Nevil, of Philadelphia, has given \$5,000 to the German Hospital, \$18,000 to the Home for Incurables, \$5,000 to the Jewish Hospital, \$5,000 to the Pennsylvania Hospital, and \$5,000 to St. Joseph's Hospital.

By the will of Albert Whittaker, the Mercer Hospital, Trenton, N. J., will receive nearly \$130,000.

Personal.—Dr. George E. Beckham has resigned as president of the Brooks Memorial Hospital of Buffalo and will be succeeded by Dr. C. H. Richards.

Dr. Michael J. Thornton, of New York, who has been connected with the psychopathic ward of Bellevue Hospital for the past four years, has been appointed chief of the psychopathic ward of the Kings County Hospital.

Dr. Albert C. Thomas, superintendent of the New Haven, Conn., Hospital, has resigned, and the directors of the hospital have appointed Dr. Simon F. Cox, superintendent of the Boston City Hospital for Consumptives, to fill the vacancy. Doctor Cox will assume his new duties about October 1st.

Dr. Jacob Parsons Schaeffer, formerly of Yale University, has accepted the chair of anatomy at Jefferson College, Philadelphia, and the directorship of the Daniel Baugh Institute of Anatomy and Biology.

The Emile Chr. Hansen prize for 1914 has been awarded to Professor Jules Bordet, director of the Institut Pasteur of Brabant.

Dr. M. P. E. Groszman, president of the National Association for the Study of Exceptional Children, was reelected president of the department of special study of Exceptional Children of the National Educational Association, at the annual meeting recently in St. Paul, Minn. He was also reelected director of the department for the State of New Jersey.

Dr. Harris Kelly, of Louisville, Ky., superintendent of the Hospital for Eruptive Diseases, has been chosen by the Fiscal Court to take charge of the campaign to stamp out trachoma in Jefferson County outside of the city of Louisville. It is said that there are more than fifteen hundred cases of the disease in the county.

Dr. N. S. Yawger, of Philadelphia, has been appointed an assistant to Dr. William G. Spiller on the neurological staff of the Philadelphia General Hospital.

Dr. Eugene H. Porter, formerly State Commissioner of Health of New York, has announced his candidacy for the nomination of Secretary of State on the Republican ticket.

Ordinances Recently Adopted by the New York Health Department.—Among the new ordinances or amendments of old ones recently adopted by the Department of Health of the City of New York are the following:

Wood alcohol or wood naphtha: Hereafter no wood alcohol (methyl alcohol) may be introduced into any article of food or drink or any medicinal or toilet preparation intended for human use internally or externally. When wood alcohol is sold for burning purposes it must be conspicuously marked with a poison label bearing a skull and crossbones, together with a warning against the human use of the preparation either externally or internally.

Opium, morphine, cocaine, etc.: Hereafter no cocaine, salts of cocaine, opium, morphine, and no cannabis indica may be sold without the written prescription of a duly licensed physician, veterinarian, or dentist. Objection was made to this ordinance on the ground that it prohibited the sale of paregoric, Godfrey's cordial, and similar household remedies. The department, however, feels strongly that the home use of the remedies just named is distinctly pernicious and that narcotics of any kind should be used only under the direction of a physician.

Spring and mineral waters: Hereafter all manufacturers and importers of artificial or natural spring waters must file with the department information concerning the source of the water, together with a statement giving the results of chemical and bacteriological examination. Carbonated, mineral, or table waters, may not be manufactured in this city without a permit from the board of health.

Duties of the Department of Charities under the Boylan Law.—The Department of Public Charities asked an opinion from the Corporation Counsel as to the obligation of their department to restrain drug patients who may be committed to the institutions of the department by city magistrates under the Boylan law. The opinion is quite lengthy, but a summarized statement is contained in the following paragraph:

Referring to the inquiries, I am of opinion that your department should use such methods as may be necessary to detain the persons committed to its care, either under Chapter 305 of the Laws of 1914 or Section 249a of Chapter 303 of the Laws of 1914, but I do not see that it will be necessary for your department to take such steps as would change the nature of your institutions from welfare to correctional work.

Routine Work of the Diagnosis Laboratory of the Department of Health.—The daily routine work of the diagnosis laboratory consists of examinations of diphtheria cultures, of specimens of sputum for tubercle bacilli, of Widal examinations for typhoid fever, of blood examinations for malaria, of examinations of spinal fluid for meningitis, and in addition the examination of urine from patients at the department clinics. The examination of diphtheria cultures averages over 500 examinations a day. The number of sputum specimens averages about 150 a day.

In addition to these examinations, a regular system of messenger service is carried out through all the boroughs for the purpose of bringing in all specimens which may be left by physicians for examination in the laboratory. Drug stores are used as supply stations and collecting stations, giving employment every week day for this purpose to seventeen men. The laboratory is necessarily without the services of these men as far as making outfits, etc., is concerned, while they are out on their collection routes. At the present time, something like nine or ten thousand culture tubes are sent out each week, with a corresponding number of swabs and other outfits in proportion.

The department of health now maintains about 570 supply stations in the different boroughs. The collection routes are so arranged that it is possible for a physician to leave a specimen in even the most remote part of the city from the southern part of the Borough of Richmond, or Coney Island, or the northern part of the Bronx, and have such specimen examined and reported on or before noon the next day.

Fourteenth French Congress of Medicine.—This congress will be held under the patronage of the king and queen of the Belgians, at Brussels, September 30th to October 3d. The president is Professor Henrijean, of the faculty of medicine at Liège; secretary general, Dr. René Verhoogen, of Brussels; treasurer, Doctor Godart-Danhieux, 9a rue Montoyer, Brussels. The cost of membership is 20 francs, 10 francs for medical students. Papers must be registered before August 15th and must not occupy more than twenty minutes in reading.

The program is in part as follows: September 30th, afternoon, formal opening; evening, reception of members. October 1st, morning, Cardiovascular Syphilis; afternoon, Vaccinotherapy, in General, and as Applied in Cancer and Typhoid Fever. October 2d, morning, Therapeutic Value of Artificial Pneumothorax; afternoon, Miscellaneous Communications; evening, Dance at the City Hall. October 3d, morning, The Lipoids in Pathology; afternoon, Miscellaneous Communications; evening, Special Performance at the Théâtre royal de la Monnaie, gratis to members. October 4th (Sunday), Excursion to Spa and Reception by the Société des Eaux.

Delegates and members are expected from Germany, England, Austria, Hungary, Belgium, Canada, Denmark, Egypt, the United States, Greece, Italy, the Netherlands, Rumania, Russia, Sweden, Switzerland, Turkey, etc. The official program will be issued at an early date. Those desiring to subscribe are requested to send the equivalent of twenty francs to Dr. Godart-Danhieux, 9a, rue Montoyer, Brussels; ladies and medical students may become associate members on payment of ten francs. Those who wish to read papers must communicate, not later than September 1st, with Professor René Verhoogen, general secretary of the committee of organization, 22, rue Joseph II, Brussels.

During the congress numerous visits and receptions will be arranged for members and the ladies accompanying them, details of which will be furnished later.

Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

June 22, 1914.

Serous Meningitis in Tuberculous Children.—

H. Finkelstein saw a case of serous meningitis develop in an infant eight months old during the course of a tuberculous bronchopneumonia. The spinal fluid obtained by puncture was clear but under pressure, and contained no tubercle bacilli. After a severe meningitis, the symptoms gradually subsided and the meningitis completely disappeared, but the pulmonary tuberculosis progressed and ended fatally. On autopsy a large caseous tubercle was found in the floor of the lateral ventricle in the region of the caudate nucleus, lying just beneath the ependyma. The ependyma over the region of the tubercle was thickened and congested and there was an internal hydrocephalus of the ventricle. Finkelstein believes that the inflammatory reaction of the ependyma gave rise to the excess of spinal fluid, and the symptoms of meningitis and that with caseation of the tubercle, the irritation subsided and the symptoms of meningitis receded. He thinks that there was a mobilization of tubercle bacilli in the lungs due to an acute bronchopneumonia and that such an occurrence may frequently account for similar cases of apparent recovery from a condition which would most probably be diagnosed as a tuberculous meningitis.

Fat Metabolism in Nurslings.—J. Peiser placed a number of infants on a constant diet and studied their metabolism on this diet alone and with given amounts of various fats added. Codliver oil produced a marked increase in the gain in weight and very little, or no, alteration in the character of the stools; the same was true of phosphorized codliver oil; oil of sesame produced some increase in the gain in weight and slight increase in the number of the stools; lipanin, palmin, and phosphorized oil of sesame behaved much as did plain oil of sesame; butter and fifteen per cent. cream gave the least favorable responses, both showing far less increase in gain in weight, marked disturbance of the appetite, and an increase in the number of stools, which also became green and of the consistence of salve. Of all the fats used the best results were obtained from codliver oil, and of this Peiser says that it behaves in relation to other fats much as malt extract does compared to maltose. Any of the oils used, however, is to be preferred to butter or cream.

Anaphylatoxin in Formation.—H. Sachs and E. Nathan conclude from experiments with starch and inulin, that there is a close relation between anaphylatoxin formation and the physical state of the agent which induces it; the best results from starch and inulin were obtained when suspensions were employed, less satisfactory results were obtained with starch paste, and no anaphylatoxin formation at all with solutions of inulin. This physical action speaks against the occurrence of any protein destruction through a combined action of amboceptor and complement. According to this view anaphylatoxin production is unspecific, for it may depend merely upon mechanical agents which have absorptive powers, through which they pro-

duce an alteration in the serum which leads secondarily to the liberation of anaphylatoxin.

Theory of Serum Reactions.—L. Hirschfeld and R. Klinger found that the globulin in serum was very labile and could be partially precipitated by many methods, such as heating to 56° C., prolonged shaking, etc., while inactivation and hypertonicity increased the stability through an alteration in the serum colloids. Similarly, shaking, or other methods which precipitate the globulin, converted serums previously negative to the Wassermann reaction into serums which generally reacted positively. Substances such as kaolin, starch, etc., produced a similar effect. Complement binding is, therefore, closely related to the condition of the globulin in the serum, and inactivation and hypertonicity prevent an artificial alteration in the response to the Wassermann reaction.

Excretion of Typhoid Bacilli by Carriers.—Albert Hirschbruch shows that these persons may remain for long intervals—many months—without excreting any bacilli and that they may, therefore, be overlooked. The administration of certain cathartics, especially aloes and podophyllin, tends to bring about the excretion of the bacilli and is valuable for diagnosis. Calomel and tannoform exert a contrary effect and may possibly prove of value in checking the excretion of bacilli.

Hyperemia in the Brain and Internal Organs.—Blum conceived the idea of reversing the ordinary procedure of autotransfusion in these states and of confining large amounts of blood in the veins of the extremities by moderately tight tourniquets. The blood can be returned to the general circulation gradually at will by graded release of the constrictions. The method is recommended for a wide variety of conditions in which it is desirable to reduce the amount of blood in the internal organs.

June 29, 1914.

Therapy of Snapping Hip.—George Mueller attached a steel plate to the lower margin of an ordinary well fitting corset so that the lower end of the band lay just over the fossa behind the great trochanter of the femur. The lower end was padded with a triangular soft cushion so as to press into the fossa. By means of a knob on the outer aspect of the lower end of the band, he attached a leg strap, which girdled the thigh, in order to maintain firm pressure behind the trochanter. By this means he succeeded in preventing slipping of the iliotibial band and edge of the gluteus maximus over the margin of the trochanter and the riding of the head of the femur over the margin of the acetabulum, and completely prevented the snapping of the joint. After the patient had worn the apparatus for six weeks, the snapping failed to return when the apparatus was removed, except when the patient took very long steps. After the appliance had been worn for a total of four months, even marked exertion could be undertaken without a return of the snapping, and the pain, of which complaint had been made before the treatment, was no longer present. Mueller suggests the further trial of this method instead of the ordinary practice of performing an open operation in similar cases. He believes that the cure was brought about by pre-

venting the continued traumatism of the acetabulum and the involved soft parts and permitting them to be restored to normal as a result of the rest thus provided.

Transference of Hodgkin's Disease to Animals.

—Eduard Schaeffer obtained material from a typical case of this affection, and inoculated small fragments subcutaneously into two guineapigs by the method ordinarily employed for the inoculation of transplantable animal tumors. In about two months one of the animals had grown a firm subcutaneous tumor at the site of inoculation. This tumor was about the size of a pigeon's egg, and was attached to the underlying tissues, but not to the skin. After another three weeks the tumor began to soften and the animal had become very sick. On post mortem examination, the lymph glands in the drainage area of the tumor were enlarged and metastatic masses were also found in the lungs, liver, and spleen. Microscopical examination of the tumor and the metastases showed a picture quite similar to that of the original masses obtained from the patient, and typical of Hodgkin's disease. The second animal did not show any general symptoms, but on examination after it was killed it showed a smaller tumor at the site of injection and several glandular metastases, all of the same nature as in the first animal and human case. An attempt to transfer portions of the tumor from this guineapig to a third animal has not as yet been completed, though the third animal shows some lymphatic enlargement forty-five days after the inoculation. In the samples of tissue obtained from the patient, the author was unable to find any acidfast bacilli so frequently described, and believed to be tubercle bacilli, but in the tumors from the inoculated pigs, these bacilli were fairly abundant.

Alkaloids in the Endocrinous Glands.—Carl Wiesand Rose announces that he has perfected a method by which he has been able to isolate one or more alkaloids from each of the several glands of internal secretion. In this preliminary report he does not state his methods of isolation or the chemical identification of the several alkaloids, although he states that large amounts of these bodies can be obtained from certain glands. In several cases alkaloids obtained from different glands exerted similar physiological actions. Often a single alkaloid failed to exert the desired action, but a combination of two or more was found to give the expected results. From the pancreas alkaloids were obtained which produced a relative leucocytosis, which lowered the blood pressure, which increased the solubility of uric acid, caused diuresis, and had a marked effect on the metabolism of sugar. It was possible to prevent entirely the excretion of sugar in a depancreatized dog by the administration of the alkaloid obtained from beef pancreas, and four diabetic patients who could not be made free from sugar by diet were rendered so by administration of this alkaloid. In them, also, the sugar tolerance was materially increased so that for weeks they could take much larger amount of carbohydrate than before without the reappearance of glycosuria. Three of the cases have remained free from sugar for four months. The thyroid yielded an alkaloid which caused lymphocytosis. The thy-

mus also contained a body which caused a relative lymphocytosis, one which produced a relative leucocytosis, and another which increased the formation of bone in young animals. The anterior lobe of the hypophysis contained bodies which increased bone formation, and another which diminished or prevented urine secretion. The testes and ovaries also caused relative leucocytosis, and through administration of a combination of substances from the thymus, pancreas, and genital glands, the symptoms were markedly improved in two cases of exophthalmic goitre. Other alkaloids from the genital glands inhibited the growth of young animals.

Apical Dullness in Children.—Fr. Mielke gives case records of eighteen children who had relative dullness of one lung apex, and shows that this relative dullness was not due to tuberculosis or other organic alteration in the apex, but was, entirely dependent upon a slight relaxation and compression of the part resulting from faulty position. In all these children it was possible to demonstrate by careful examination that there was slight curvature of the spine which led to an approximation of the upper ribs on one side of the chest. By correction of the malposition the dullness could be made to disappear in a few minutes. All of the children were thin, nervous, and of poor muscular development.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

June 25, 1914.

Renal Diabetes.—Arnold Galambos makes the following observations concerning the diagnosis and pathology of the condition. The anatomical condition of the kidneys has no diagnostic signification. If along with a chronic glycosuria there is little or no increase in the blood sugar, the case is one either of diabetes mellitus with an increased permeability of the kidneys for sugar or is one of renal diabetes. If the blood sugar is normal or subnormal, the case is one of renal diabetes, and the same may be said if there is no alimentary hyperglycemia. Renal diabetes is indicated also if the intensity of the glycosuria is wholly or mainly independent of carbohydrate or protein content of the diet. An increase in the sugar content of the urine following a dose of caffeine also points to renal diabetes. In severe cases of renal diabetes, acidosis may arise and the two forms of diabetes may be confounded under such circumstances. Diabetic coma may also develop. The low respiratory quotient, particularly after a rich carbohydrate diet, shows the incompleteness of the sugar consumption. In general the picture of renal diabetes corresponds to that induced by phloridzin. It is not possible to state whether there is a true renal diabetes, where there is no change in the amount of sugar burned and no true disturbance of metabolism, but solely a diabetes due to an increased permeability of the kidneys for sugar. Such cases have not been observed clinically, and experimental studies with phloridzin do not indicate their probability.

Remarkable Calcification of the Arteries.—

A. Magnus-Levy's patient was a woman aged forty-seven years who came under observation, for great cardiac weakness. Irregular masses of almost stony hardness were observed in the flexures of both elbows, and careful examination by radio-

graphs showed these to be very tortuous brachial arteries, so intensely calcified that their shadows were almost as heavy as those of dense bone. Both popliteals and many of the smaller arteries of the extremities showed similar calcification, whereas the large vessels of the abdomen and thorax seemed to be entirely free from involvement, with the exception of the inferior mesenteric. The picture was not one of general arteriosclerosis, but that of localized arterial calcification of great intensity. With a few exceptions of slight infiltrations in tendons and ligaments about the joints, both the bones and the joints were normal. The pulse was scarcely palpable and the blood pressure was 200 mm. Hg. Internal organs were normal. The symptoms were those of marked arteriosclerosis with those of intermittent claudication in all the extremities. The condition seems to have begun some thirty years before the patient was seen by the author, and the thickening in the flexure of the left elbow had been noticed for twenty years. The eldest son of the patient, nineteen years old, was found to have hard brachial arteries and a blood pressure of 150 mm. Hg., and a fourteen year old daughter was similarly affected. The author believes that the condition was one in which there was a primary alteration in certain tissues as a result of which they accumulated an abnormal amount of calcium and phosphorus from the normal tissue fluids.

Peculiar Response of Infants to the Wassermann Reaction.—Fritz Lesser and Richard Klages observed that serums from infants born of syphilitic mothers would react positively to the Wassermann test in the early weeks of life, or at birth, when the antigen used was prepared by extraction of the tissues with ether, whereas they failed to react to antigen from the same tissues when this was extracted with alcohol. After weeks or months these same infants gave a positive reaction to the alcoholic antigens. The importance of testing the serums in such cases with different forms of antigen is evident.

Coagulens.—E. Vogt used the coagulating element as extracted from the blood platelets by Kocher and Fonio and found it particularly effective for checking all varieties of hemorrhage except that from large arteries. It was applied either as an injection into the region of the bleeding vessels or in the form of tampons or pads of gauze wetted with the solution. A ten per cent. solution in water was prepared fresh and sterilized by boiling. It is of particular advantage to maintain a bloodless field in abdominal operations. Intravenous injections were also of value in checking the several types of uterine bleeding. No untoward effects have been observed in a large series of cases.

Complete Removal of Uterine Carcinoma with the Hand.—S. Saltykoff's patient was delivered of a child two years ago, and at the time of delivery, a soft, smooth, rounded mass, measuring two by four cm. almost fell spontaneously into the hand of the operator. This mass came from the cervix and was found to be a typical carcinoma. Subsequent sections were removed from the region of the cervix from which the mass came and have shown nothing but normal tissue. The patient is well after two years.

Friedmann's Remedy.—Fritz Rosenfeld finds that the remedy does not have the anticipated beneficial actions. In forty-three pulmonary cases, only four mild ones showed any improvement, and this could not be attributed directly to the use of the remedy. Two cases of glandular tuberculosis showed distinct improvement. Abscesses were frequent at the sites of injection.

PARIS MÉDICAL.

June 27, 1914.

Treatment of Fractures by Continuous Elastic Extension.—E. Destot, in fracture of the clavicle, uses a bicycle tire inner tube, twisted to form a figure eight, the two loops of which are passed over the shoulders. The valve is placed over the back and a small square piece of board, padded with cotton, is fastened between the two shoulders under the crossing point of the figure eight. Traction on the shoulders varies according to the extent to which the tire is pumped up as well as the size of the square piece of board, which obviates discomfort from pressure of the valve on the tissues when the patient is lying down. In fractures of the humerus Destot reports excellent results from the use of two connected canvas bags containing from 1,200 to 1,800 grams of leaden shot and fastened as a bracelet around the arm above the elbow. Continuous extension is thus exerted, whether the patient is in the standing or sitting posture. The forearm and hand are supported with a sling. In fractures of the forearm Destot uses a double lateral right angled splint, with a piece of leather exerting counterextension on the arm, and a rubber drain or square piece of rubber, fastened to the end of the splint, exerting extension on the hand, which is enclosed in a glove from which the fingers have been removed. In fractures of the fingers traction is made somewhat similarly with a rubber band fastened to the finger tip by means of adhesive plaster, the wrist and metacarpus being fastened to the splint by a figure eight bandage, and additional counterextension afforded by nails abutting in the interdigital spaces.

PRESSE MÉDICALE.

July 4, 1914.

Surgical Treatment of Mammary Abscess.—E. Desmarest warmly recommends, in all cases of breast abscess, except small subareolar abscess, the use of a curved inframammary incision, with evacuation of the abscess cavities from their deep aspects, in preference to the customary radiating incisions, which he considers insufficient as well as unnecessarily mutilating. The procedure advised consists in giving ethyl chloride, elevating the breast, incising to the loose subcutaneous cellular tissue around the lower half of the gland margin, reflecting the gland from the aponeurosis of the external oblique with the finger, ascertaining by the sense of touch the points of softening indicating local suppuration, evacuating the pus with a stab incision, enlarging the orifice, and exploring the cavity with the finger. Abscess cavities noted in lobes adjoining that first opened can be evacuated merely by breaking through the intervening tissue, or, if more remote, by other incisions. The abscess is drained from below, two tubes being inserted at the anterior

or posterior extremities or at the centre of the incision, according to the part of the gland involved. On the succeeding days irrigations with dilute iodine solution are practised. With this technic recovery takes place as quickly as, if not more quickly than with the radiating incisions, and with minimum residual disfigurement, the scar being nearly always completely hidden.

July 8, 1914.

Diabetes insipidus and Hypophyseal Glycosuria.—J. Camus and G. Roussy report experiments on dogs which lead them to conclude that polyuria is produced in these animals not by injury to or removal of the hypophysis, but by superficial injury to the base of the brain, in a region corresponding to the optopeduncular space. Injury to this area in the dog, causes a polyuria much more marked and lasting than can be produced by other procedures, such as injections of urea, glucose, caffeine, and sodium chloride. They believe this area to form part of a mechanism regulating the content of water in the system. Lesions of this area may give rise either to polyuria with corresponding polydipsia, i. e., without disturbance of water content regulation, or to polyuria without polydipsia, the regulating mechanism being then in a disturbed state.

SEMAINE MÉDICALE.

July 8, 1914.

Chronic Appendicitis and Omental Torsion.—F. Lejars asserts that a number of cases of obscure intraabdominal disturbance are due to twists of portions of the omentum. Predisposing to such twists are appendicitis and, more frequently, epiploitis, the latter, in turn, being itself frequently secondary to appendicitis. The smallest adhesion of the omentum to other structures affords a fixed point and axis upon which twisting may later take place. Omental volvulus is frequently mistaken for appendicitis. Appendicitis associated with omental twisting may be either chronic or acute. Attacks of pain, actually the result of omental twisting, may simulate a recurrence of appendicular trouble. A legitimate field for operative intervention is afforded by these cases and, furthermore, additional care seems to be indicated in examining the omentum in cases of appendectomy, however, simple they may appear, especially where there is found fixed to the appendix or in its immediate neighborhood an adherent strand or sheet of omental tissue.

BRITISH MEDICAL JOURNAL.

July 18, 1914.

Problems in Cardiac Physiology.—A. F. Stanley Kent calls attention to the fact that the existence of the bundle of His does not serve for the complete explanation of some of the observed conditions in the disturbance of the cardiac mechanism. For example, it has been observed in rare instances that this bundle has been found completely degenerated at autopsy, although the victim had showed no disturbance in rhythm during life, or even just prior to death. Kent's recent elaborate work on serial sections of many hearts, taken so as to involve the whole of the region of the auriculoventricular ring and the adjacent portions of the auricles and ventricles, has proved the existence of neuromuscular

structures near the auriculoventricular groove on the left side of the heart which have connections with the tissues at the ring and with the ventricular muscle. There is also a mass of nodal tissue on the right side of the heart which is connected with the ventricles by means of a muscular path. Experiments on animals have shown that this latter node and path are capable of maintaining the auriculoventricular sequence of contractions, and are capable of conducting stimuli artificially produced in the auricle down to the ventricle. This discovery of additional conducting tissues in the heart serves to clear up some of the disputed points in cardiac physiology and pathology which were wholly inexplicable on the basis of the older limited knowledge.

Endemic and Exophthalmic Goitre.—Rupert Farrant contributes the results of his careful observations in eighty-five cases of these closely similar conditions, supplementing them with observations on animals, bacteriological studies, and excerpts from the work of others. He presents the following conclusions and summary: "Endemic goitre is caused by the toxins from the atypical forms of *Bacillus coli*. The mutants are usually conveyed by water. They become indigenous in the intestine, and different mutants of *Bacillus coli* are to be found in the feces of cases of endemic goitre. The mutants set up an apyrexial toxemia, which stimulates the thyroid, so leading to a colloid hyperplasia and eventually to enlargement of the gland. Endemic goitre is preventable by the avoidance of water contamination and by the sterilization of contaminated water. It can be cured by the administration of intestinal antiseptics; the gland returns to normal, providing no degeneration has taken place. The gland as a whole involutes to normal, but the adenomata or cysts are left."

Latent Dysentery.—W. Ledingham Christie, writing from Borneo where amebic dysentery is prevalent, reports the finding of a large proportion of persons who complain of loss of weight, pallor, and weakness, in from eighty to a hundred per cent. of whom he has been able to find *Entamoeba histolytica*. These persons did not have the ordinary symptoms of dysentery, and did not complain of having loose stools. No blood or mucus was found in the stools in the majority of these cases, but the amebas were living and were capable of becoming pathogenic to others as shown by several cases of acute dysentery in exposed persons. Taking the entire population into consideration, Christie states that there are thirty to forty per cent. of these carriers. Early treatment with saline cathartics usually clears the intestine, but emetine has been found of especial value, particularly in the obstinate latent cases.

LANCET.

July 18, 1914.

Oral Sepsis in Pulmonary Tuberculosis.—R. C. Wingfield has had proper dental care given to twenty patients with chronic pulmonary tuberculosis, all of whom showed pyorrhœa alveolaris, and half of these showed decided improvement in their general condition, only three failing to gain in weight. Of the remaining ten, all had pyorrhœa alveolaris except two who had septic roots, but of

these none showed any improvement. Twenty-one questionable cases of chronic pulmonary tuberculosis were similarly cared for, fifteen of which were improved by the dental treatment, six remaining unimproved.

Bovine Tubercle Bacillus in Phlyctenular Affections of the Eye.—Sydney Stephenson cites his own previous observations and those of others to show the intimate association of phlyctenosis with tuberculous infection. Bywater found a positive reaction to the Moro test in each of sixteen cases of phlyctenosis in children, using both human and bovine tuberculin, and Stephenson has been able to confirm these findings with regard to the close relation between bovine infection and this disease by obtaining positive von Pirquet test with bovine tuberculin in each of twenty children.

Femoral Hernia Treated by Bone Graft.—W. H. Clayton Greene reduced the hernia and tied off the sac in the usual manner. Then removing about two inches from the eleventh rib, he split this longitudinally through the cancellous tissue and transplanted the fragments into pockets beneath the periosteum at the back of the pubic bone so that they lay behind the replaced Poupart's ligament. The author believes that this method will be found of advantage in cases of femoral hernia having very wide rings, and it certainly seems preferable to the use of filigrees, which have been proved unsatisfactory.

INDIAN MEDICAL GAZETTE.

June, 1914.

One Thousand Cataract Operations Performed in Six Weeks at Shikarpur, North Sindh.—H. T. Holland describes the hospital as consisting of one block, containing two operating rooms, one consulting, one dressing, and one dark room, while the so called inpatients are accommodated in serais situated near the hospital. The staff varied from time to time, but as a rule consisted of three doctors, one assistant surgeon, one subassistant surgeon, one hospital sister, one compounder, two dressers, and three ward boys. Between January 1st and February 15th, 2,330 operations were performed in that hospital, 1,024 of them for cataract. The largest number of outpatients in any one day was 706, the largest number of operations, 129. Of the 1,024 operations for cataract some 800 were done by Smith's method in the capsule, which he thinks the method of choice. The eye seems to recover more rapidly. "We have had quite a number of cases which have left hospital on the seventh or eighth day, and a few even on the sixth, with no sign of redness, lacrymation, or photophobia." The cases are dressed only once, on the fifth day, a great saving in time when 200 or 300 eye cases have to be attended to at one time. He gives the following as the disadvantages of the intracapsular operation: The tendency to escape of vitreous, which "becomes immeasurably less as the skill of the operator increases," the U shaped pupil, and an increased tendency to choroidal hemorrhage. He also tabulates the advantages as: Less tendency to iritis, less tendency to sepsis, greater economy in time in after-treatment, and in dressings, no secondary operation as needling for secondary cataract is necessary, a

shorter stay in hospital. He thinks the only great disadvantage is the danger of loss of vitreous. The unsuccessful cases amounted to from 4.2 to 4.4 per cent.

BOSTON MEDICAL AND SURGICAL JOURNAL

July 23, 1914.

Ulcerative Angina, an Early Symptom in Typhoid Fever.—Nathaniel Bowditch Potter says that in enteric fever there appears not infrequently, in from six to twelve per cent. of cases, it may be before, but as a rule about the same time as the roseola, one or more superficial ulcers, usually situated upon the anterior pillars of the fauces, the so called typhoid angina, or Bouveret's ulcer. These ulcers may appear sufficiently early to be of some value in the clinical diagnosis of typhoid. An appreciation of this lesion will prevent the mistaken diagnosis of syphilis, diphtheria, croup, and scarlet fever, as well as of other local lesions. The ulcers are probably due to a secondary infection upon a mucous membrane altered by the existing disease. Although an exactly similar lesion has been described in four cases of tuberculosis and so detracts from its credited specificity in typhoid fever, such are evidently very infrequent exceptions, lessening but little its diagnostic value.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

July 23, 1914.

The Cerebrospinal Fluid as a Problem in Intracranial Surgery, by C. H. Frazier.—This paper was abstracted in our issue for June 27th, page 1307.

The Treatment of Placenta prævia, by E. P. Davis.—This paper was abstracted in our issue for June 27th, page 1310.

Hysterotomy, by J. B. Deaver.—This paper was abstracted in our issue for June 27th, page 1310.

The Necessity for the Establishment of a National Leprosarium, by W. C. Rucker.—This paper was abstracted in our issue for July 4th, page 51.

The Duty of the Government in Leprosy Care and Control.—This paper was abstracted in our issue for July 4th, page 51.

The Therapeusis of Pericarditis, by R. L. Wilbur.—This paper was abstracted in our issue for June 27th, page 1310.

The Abuse of Normal Salt Solution, by L. Litchfield.—This paper was abstracted in our issue for June 27th, page 1310.

Therapy of Cardiovascular Disturbances, by L. H. Newburgh.—This paper was abstracted in our issue for June 27th, page 1310.

Cholesterinized and Noncholesterinized Artificial Antigens in the Wassermann Reaction.—C. C. W. Judd concludes: 1. Standard cholesterinized antigen does not yield an appreciable number of nonspecific reactions. 2. It detects many syphilitic cases which do not yield positive results with Noguchi antigen. 3. Though subject to the effect of treatment, it is not easily destroyed by therapeutic measures. 4. It possesses admirable keeping qualities, and is easy to prepare. 5. It is an excellent artificial antigen.

Adrenals and the Pulse Rate.—R. G. Hoskins and C. R. Lovellette state that intravenous injections of epinephrine under conditions closely simulating adrenal discharge cause increased blood pressure, and generally accelerate the pulse.

The Time that the Breath Can Be Held as an Index for Acidosis.—Yandell Henderson states that inability to hold the breath at all is a sign of acidosis in an acute stage. By V. A. Strange voluntary apnea is recommended as a test of a patient's fitness to undergo general anesthesia. He regards ability to hold the breath as depending on, and an indication of the condition of the heart muscle. The normal period is between thirty and forty seconds; any period under twenty seconds contraindicates general anesthesia. The test really indicates acidosis, and when used as Henderson suggests, consists in directing the patient to sit quiet for at least five minutes; then to draw a full, but not abnormally deep inspiration, and to hold it, with the mouth closed and the nostrils compressed with the fingers, while the observer notes the time.

Variability in the Results of Intelligence Tests.—D. D. V. Stuart, Jr., says that there is one very important factor which has seldom been emphasized, but which must be taken into consideration in forming conclusions based on the use of intelligence tests. This is the possibility of wide variations in the results of such tests when applied to the same individual by different examiners, if account is not taken of certain features, such as the possibility of fatigue on the part of the subject or the examiner, the personal equation as regards both these, the subject's home surroundings, the training he has received, and his general health. Having shown in tabular form the variations observed in the results of intelligence tests in a series of cases, conducted by different examiners under different conditions, he concludes that if intelligence tests, when conducted by examiners with a knowledge of psychology and psychiatry, show such great divergence in their results, the assumption seems justified that the variation would be even greater in inexperienced hands. It would also seem that it is time to stop regarding such tests as an infallible method of determining a patient's degree of mentality, independent of other considerations.

MEDICAL RECORD.

July 25, 1914.

Some Problems in Genetics, by T. E. Satterthwaite.—An abstract of this paper will be given in our issue containing a report of the fifteenth annual meeting of the American Therapeutic Society.

Chronic Intestinal Stasis.—S. Wendkos defines this term as a timeworn synonym of constipation, with its attending toxemia. It is evident that a clear history from each and every sufferer from constipation will suggest the line of treatment. He refers to Lane's classification of the symptoms into primary and secondary, and gives the leading ones in each class. All treatment must start with efforts at prevention; we must begin with the school child, or even with the baby. Diet is a most important factor in normal intestinal activities. Young moth-

ers are greatly benefited by orthopedic supports, in addition to a fat diet. Massage and electricity would be of service, though impracticable among dispensary patients. After all, drugs are still the mainstay of medical practice. Other methods are only accessories, though they may be very essential, but drugs judiciously used are of the greatest help. *Bacillus bulgaricus* has some power to inhibit growth and activity of intestinal bacteria, and after a preliminary purge, he prescribes a five grain tablet three times a day, to be taken indefinitely. The next use for drugs is to keep up a steady, mild peristaltic action. Physiological products such as inspissated oxgall, pancreatic gland extract, secretogen, etc., should be given a trial. Of the other drugs which stimulate the intestinal glands, cascara is by far the most useful. He has found the following mixture of the greatest benefit: Aloin, four grains; tinctures of *nux vomica*, *physostigmine*, and *belladonna*, each one dram; fluid extract of cascara, one ounce. The dose is from fifteen to twenty drops, to be varied according to the needs of the patient. The nervous system must not be overlooked. Not infrequently the bowels commence to act naturally after administration of sodium bromide, or when a tonic was given. The two most common seats of stasis are the cecum and the sigmoid. In cecal stasis, agaragar, from one to three drams three times a day or with the breakfast food, has been found very efficacious. In sigmoid stasis enemas have been most serviceable; electricity is also important. The author has not found patients willing to take liquid paraffin or Russian mineral oil.

Why Yellow Fever Is Endemic in the Tropical and Atlantic Region.—D. G. Palacios states that the presence of *Stegomyia fasciata* in a given place does not explain the existence of this endemic malady, because many places in the tropical and subtropical zone are known where it exists, and yet cases of yellow fever are not observed. The three necessary conditions to the production of a great outburst of the disease are the presence of the first case (furnishing the active yellow fever germ), the conveyers (mosquitoes), and the favorable climatic conditions.

Diagnosis of Chronic Bronchitis.—J. M. Cruice says that the cause of a chronic cough often requires careful and painstaking examination for its discovery; therefore we should make use of every diagnostic means possible, and remember that chronic bronchitis by itself is rare. The most usual conditions mistaken for it are pulmonary tuberculosis, emphysema, fibrosis of the lung following pneumonia or pleurisy, and some forms of heart disease.

Treatment of Diphtheria Carriers.—H. R. Miller has found the following method successful in a series of cases: The patient's throat is thoroughly sprayed, one hour before or at least two hours after the ingestion of food or fluid, with a solution, varying in strength from one quarter to one per cent., of the usual forty per cent. formaldehyde solution. The spray is used every three or four hours except during sleep, and three, four, five, or even six days of treatment may be required.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

June, 1914.

Sarcoma of the Stomach.—C. H. Frazier records a single case of resection of sarcoma of the stomach. The pathological report on the growth removed was, lymphosarcoma of the stomach, metastatic lymphosarcoma of the serous coat of the adherent loops of jejunum. The specimen, representing a considerable portion of the stomach, was about six inches long, two inches wide, and three fourths of an inch thick. Previously, Frazier was reasonably confident that the patient was suffering from carcinoma, but there was no means either of proving or disproving this diagnosis before opening the abdomen. He has been unable to find the record of a single instance where the true nature of the lesion was known prior to operation or autopsy. Life varies with the duration of the lesion prior to operation and the character of the tumor. As metastasis takes place relatively late, the size of the tumor and its duration should not deter the surgeon from resecting as much of the stomach as need be when this can be accomplished without undue risk.

Fatal Gastrointestinal Hemorrhage.—G. E. Armstrong and E. J. Mullally, in presenting five cases, state that they have excluded those which were due to the commoner causes of hemorrhage, such as ulceration of the stomach or bowel, aneurysms rupturing into the tract, blood disorders, or malignant disease. They have also excluded fatal cases in which the clinical signs indicated an unusual etiology, but in which no confirmatory post mortem examination was obtained. An increasing number of cases are being reported, they say, in which gastrointestinal hemorrhage is the most striking feature, and which show negative findings at autopsy. Another feature in the majority of these cases is the sudden onset of the hemorrhage. This group of cases of fatal hematemesis may be attributed to the direct or indirect effect of microorganisms, and it is likely that more attention will be directed to them when our knowledge of the bacteriology of the gastrointestinal tract is further advanced than at present.

Bone Repair Following Trauma.—F. W. Bancroft finds in the literature the greatest diversity of opinion. Clinicians have frequently reported results without consulting the microscopical findings; satisfactory microscopical examinations are difficult because of the injury incurred by the soft parts while the bone is undergoing decalcification. Some authors ascribe to the periosteum bone producing qualities, while others hold that it is nothing but a limiting membrane. From results of operations on thirty-eight dogs, the author reaches the following conclusions: 1. Where the periosteum has been well stripped off the bone for a distance of several cm., it is separated from it by serosanguineous fluid. Here the bone has apparently been repaired from the medullary cavity by a framework of connective tissue, upon which calcium salts have been deposited, forming osteoid tissue; there has also been a reparative process from the connective tissue of the Haversian canals at the sides of the bone incision. 2. Where the

bone has repaired under a definite fibrous connective tissue capsule, which is continuous with periosteum and also adherent to the surrounding muscles. This connective tissue is apparently not different from other connective tissue, except that in immediate approximation to the newly forming bone there is a single layer of cells which are larger and have nuclei which take a heavy stain. In places there is a metaplasia from the connective tissue cells to these osteogenetic cells. In the process of repair in fractures by the output of callus there is a metaplasia from connective tissue which seems to arise from the surrounding tissues, and seems not a direct continuation of periosteum. It is reasonable to assume that periosteum acts as a limiting membrane to the bone, tends to preserve its shape, and to furnish its blood supply. If small pieces of bone are transplanted, Haversian canals must be cut in many directions, allowing easy progress to the newly forming bloodvessels. The fragments must also receive a good blood supply from the entire periphery. In this case they grow without the aid of periosteum.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

June, 1914.

Abdominal Cæsarean Section for Eclampsia.—Peterson studied carefully the results of this method of treating eclampsia. Between 1908 and 1913, there were 283 cases of eclampsia treated by abdominal Cæsarean section with seventy-three deaths, a maternal mortality of 25.79 per cent. Up to 1908 there were 198 cases with ninety-five deaths, a mortality of 47.97 per cent. Hence the maternal mortality in the five year period has been reduced nearly one half. To give this method a fair trial the uterus should be emptied as soon as possible after the onset of the first convulsion, though not until all kinds of medicinal treatment have been tried and have failed. It cannot, however, be denied that older and tried methods of emptying the uterus in eclampsia give better results and should not be lightly discarded.

Gonorrheal Cervicitis and Endometritis.—Clark believes that between the onset of a primary infection of the cervix or endometrium and the stage when it has extended to the Fallopian tubes, there is time for remedial measures that might be effective. Before instituting any course of treatment, the physician should ascertain whether a source of recurring infection exists. The curable cases are those in which the infection may have been transmitted by a male subject in the final stages of curative treatment. Concerning curettage, the author believes that it is worse than useless. The only methods of value are those which destroy the bacteria.

Criminal Abortion.—Nicholson believes that little can be done toward controlling such operations by means of the law. He believes that the only way to bring about the desired end is by the education of the young girl. This education cannot be given at the time when a distracted woman is facing the loss of her reputation or when a married woman is clamoring for abortion upon grounds which seem to her to be adequate.

NEW YORK STATE JOURNAL OF MEDICINE.

June, 1914.

The General Practitioner and Gonococcus Infection.—J. Bayard Clark obtained answers from forty-seven prominent genitourinary specialists in reply to a series of questions relating to the treatment of gonococcus infections, and from these he comes to the conclusion that the general practitioner would do better by sending his patient at once to a specialist than attempt treatment himself. In the hands of a specialist forty-nine per cent. of cures were obtained without posterior urethritis, the average duration of treatment being six weeks. Under similar conditions the general practitioner usually obtains only little more than ten per cent. of cures without posterior spread.

Landry's Paralysis and Poliomyelitis.—Edward A. Sharp shows the confusion of views as to the exact nature of Landry's paralysis, and the divergent opinions with regard to its relation to acute anterior poliomyelitis. Sharp gives records of a number of cases of poliomyelitis in which an ascending paralysis occurred and draws the following conclusions as to the relation of the two conditions: "Landry's paralysis is a symptom complex characterized, clinically, by an acute ascending flaccid paralysis, and not accompanied by atrophy nor electrical reactions of degeneration; and pathologically, by slight lesions or none in the central nervous system." The rapidly progressive cases of acute epidemic poliomyelitis show a type of ascending paralysis similar in many ways to that observed in the so called Landry's paralysis, and such cases are properly classified as the Landry paralysis type of poliomyelitis. Both clinically and pathologically the poliomyelitis cases present many important differences from the original Landry case."

Influence of Diet on Adenoid Growth and Recurrence.—Frank Van Der Bogert offers strong arguments and illustrations in support of his contention that errors of diet in infancy and childhood are potent causes of the growth of adenoids. In fact, in nearly every case, it is possible to discover a close relationship between adenoids and digestive disorder. The excessive ingestion of sugars and starches and the practice of eating between meals seem to be the chief dietetic causes, with which there is usually a more or less marked degree of dental caries. Van Der Bogert also cites many cases in which the failure to correct the digestive disturbance seemed to be the direct cause of a recurrence of the adenoid growth after its operative removal.

OPHTHALMIC RECORD.

June, 1914.

Phlyctenular Conjunctivitis.—Ben Witt Key emphasizes care as the keynote to the successful management of phlyctenular conjunctivitis. Its etiology covers a broad field of medicine, and therefore it is the more incumbent on the physician, general practitioner, and specialist to make a study of the individual case. The course of the disease may be an indication of the general physical condition of

the patient. A differential diagnosis through thorough examination is expedient and imperative. The careful management of this disease is the profession's obligation in the struggle for the conservation of useful vision. Ophthalmia neonatorum, adult ophthalmia, destructive injuries, many cases of other disease, and congenital abnormalities are conditions over which the physician may have little or no control, although he may use correct judgment, give his utmost attention to diagnosis and treatment, and display the most precise operative skill, but phlyctenular conjunctivitis, *per se*, is an open field to a great extent, and demands only the early care and attention of the physician and his recognition of the seriousness of complications that may be impending. A superficial phlyctenule of the bulbar conjunctiva is of importance to that patient; a marginal phlyctenule is of great importance; and a phlyctenule, not yet pustule or ulcer, of central location, may be of the greatest importance, though the results of its effect may be years hence in determining the usefulness or uselessness of this patient's sight and life.

SOUTHERN MEDICAL JOURNAL.

June, 1914.

Carbohydrates in Infant Feeding.—L. W. Elias advises maltose for infants whose supply of energy is low, and whose pressing need is a quickly available form of carbohydrate requiring the smallest expenditure of the slender store of energy for its digestion. On the other hand, in a thriving baby, with a large supply of energy stored up as glycogen and fat, milk sugar admirably meets the needs of the body. Milk sugar is slowly absorbed and is less fermentable, and so less apt to cause trouble in most conditions.

Proteins and Fats in Infant Feeding.—A. W. Calloway states that for a baby to thrive it must have 1.5 gram of protein a kilo daily, even though the caloric estimation may be in excess of daily requirements. Where proteins are in excess there are failure in weight, constipation, and large hard casein curds in the stools; and the management would consist in increasing the percentage of sugar and lowering that of the proteins. A considerable portion of these may be given in the form of whey, and the casein may be rendered more digestible by adding starch to the food. In cases of digestive disturbance where excess of fats is regarded as accountable, the most persistent sign is vomiting or spitting up of a portion of food or regurgitation. In addition, there is the greasy stool with its sour odor, the ammoniacal urine, and occasionally an eczema or other rash. In making a reduction of fat in the food to remedy the condition, it is perhaps better to go at once to a low point, as far even as one per cent., and then increase it according to the results noted. When a baby is vomiting, it is a safe rule to keep the fats low. Fat starvation is soon manifested by a condition of rickets, and one of its earliest symptoms is constipation, in which there is a deficient tone to the bowel. The addition of cream to the food, codliver oil, or kindred products remedies this condition.

Proceedings of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

*Thirty-ninth Annual Meeting, Held at Boston,
May 19, 20, and 21, 1914.*

The President, Dr. J. WHITRIDGE WILLIAMS, of Baltimore,
in the Chair.

(Continued from page 249.)

Iodine as a Sterilizing Agent in Supravaginal Hysterectomy.—Dr. I. S. STONE, of Washington, D. C., did not deal with the nearly perfect results of skin sterilization, but the application of iodine and alcohol to the vagina and uterine mucosa had been productive of results which appeared to approach the ideal. The patient was brought to the operating table after the proper examinations had been made which showed her condition to be satisfactory for operation. She was placed in the lithotomy position, and a twenty-five per cent. (1.75 iodine) diluted alcoholic tincture of iodine was applied over the genitals and introitus vaginæ. The catheter was used immediately after this, a perineal retractor introduced into the vagina, and a volsellum used with which to grasp the cervix. The cervix was dilated to admit the conical nozzle of a two ounce glass syringe. An ounce of the same twenty-five per cent. alcohol solution was then slowly injected into the cavity of the uterus. The fluid was not allowed to remain, nor was great force used. After the injection the cervical canal should be again gently dilated to make sure of the discharge of the excess of the solution. Every part of the vagina was exposed, and the assistant who gave this injection made this feature of the technic an important one. The operation was preceded by a second application of iodine to the skin over the abdomen, the first having been made before the anesthetic was given. After this the operation proceeded as usual and a final application of the iodine alcohol was made to the stump before closing the flaps if there was the slightest intimation that infectious matter had been handled, such as in an appendix, pus tube, etc. Finally, the iodine solution was applied over the closed abdominal incision before the usual gauze dressings were applied.

Complete Sterilization of the Skin with Iodine.

—Dr. J. WESLEY BOVEE, of Washington, D. C., related that in ten instances between May 9 and June 17, 1913, scrapings were made from skin prepared with the alcoholic solution of iodine (31.2 per cent.) and then subjected to thorough scrubbing with a strong solution of hyposulphite of sodium until the iodine color was gone, the patients being anesthetized at the time for operation. The technic and findings were as follows: The following four specimens were used in the tests in each of the ten cases. 1. A small amount of the solution of hyposulphite of sodium was put in a bouillon tube as a control. 2. Skin scrapings two minutes after the application of the second coat of iodine were put in some bouillon in tubes. 3. Same as 2, except scrapings were made five minutes after second painting. 4. Skin scrapings from the same field after thorough washing, scrubbing, and decolorizing by the sterile hyposul-

phite solution. At the end of five days' incubation, forty specimens from the ten patients showed absolutely no growth.

In attempting to determine whether perfect sterilization of the skin could be produced by the painting with iodine, the following technic was used in preparing the specimens for the bacteriologist. The skin was lightly painted twice (the patient being anesthetized for operation) with the iodine preparation and a strip of skin four inches by one half to one inch was cut from the median line of the abdomen two minutes after the last coat was applied. This strip was at once dropped into a container in which was one quart of normal salt solution. Some of the same solution was previously put into a bouillon tube as a check. The tube and large container were taken to the laboratory and turned over to Doctor Briggs. In case number 1, the iodine was of ten per cent. strength, but in all of the other eleven it was the same as he had used for four years in surgical operations, 31.2 per cent. The interim between the coats varied from sixteen to ninety-two minutes and the number of experiments was twelve. In the last five a vigorous culture of *Bacillus subtilis* was rubbed into the skin, to remain thirteen to eighteen hours before its removal, and the area was covered with a sterile dressing until the first coat of iodine was applied. These specimens were all transported a mile and not particularly well wrapped, which might in a measure account for the contamination of the control solution in three cases.

The report showed that the salt solution containing the skin pieces was not inhibitory to bacterial growth; that the skin was sterile in practically every case, the few instances of growth being reasonably attributed to contamination, and that *Bacillus subtilis* was killed. The spores of this latter species were known to be remarkably resistant, being able to withstand a one to 1,000 solution of mercuric chloride for periods up to one hour. This notable resistance prompted their employment in this series of experiments. He had not been convinced that a ten per cent. alcoholic preparation of iodine would not destroy these spores in from two to five minutes, even when painted on the skin. He was inclined to believe the extent of the germicidal power of the iodine depended more than a little on the manner of its application as well as upon the strength of the solution used. If the coating was made at first thick before a thin one was allowed to dry, penetration should be deeper or the deep penetration more perfect. If a thin coating was made the skin recesses might be but partly filled, and when evaporation had occurred, a thin, impermeable barrier of iodine was left. Whether this layer was free iodine or an albuminoid, he was not prepared to state at this time. He expected later to determine whether a preparation of iodine stronger than used in this work, would destroy the spores of *Bacillus subtilis* in the skin recesses.

Abdominal Cutaneous Reflexes in Acute Conditions within the Abdomen and Pelvis.—Dr. RICHARD R. SMITH, of Grand Rapids, Michigan, said the behavior of this reflex had been noted in 175 cases in which diseased processes existed within the abdomen; the greater part of them were

acute. The results had been compared with the findings at the operation which followed. This reflex and its behavior had been a test frequently used by neurologists, and attention had been called to it in local conditions within the abdomen, by several writers. The reflex was obtained by stroking the skin of the abdomen, which normally produced an almost simultaneous contraction of the rectus and oblique muscles on the corresponding side. It was common to distinguish four reflexes—two above and two below. The reflex was constant in healthy young people, though uncertain in very young infants and in old people or those with relaxed or obese abdominal walls—exceptions which might be definitely borne in mind. In the acute inflammatory diseases within the abdomen, it was common to find this reflex involved to a greater or less extent, and the test might be made use of in the diagnosis, and in estimating the extent of this lesion. He had found that in seventy-five cases of acute appendicitis, the reflexes were more or less involved in sixty-five. It was sometimes involved where rigidity was absent. The reflex was commonly impaired over the seat of the lesion when circumscribed, and in more extensive processes the other reflexes were also impaired. It was commonly, though not uniformly involved in ectopic gestation cases. Its normal presence in cases of bowel obstruction would help to eliminate any acute infectious condition, and in the subacute infections of the pelvis he found the lower reflex almost uniformly absent. He believed that, although the test had a certain limited view, it might be of distinct advantage to the surgeon, and it was well worth his careful study.

Can Surgery Be Eliminated in the Treatment of Fibroid Tumors of the Uterus?—Dr. JOHN A. MCGLENN, of Philadelphia, presented the following conclusions: 1. Surgery was the best treatment in fibroid tumors of the uterus and could not be supplanted by any other known form of treatment. 2. Röntgenotherapy had an important place in the treatment of those tumors. 3. Surgeons and röntgenologists should not enter into competition, but work hand in hand for the relief of womankind.

ASSOCIATION OF AMERICAN PHYSICIANS

Twenty-ninth Annual Meeting, Held at Atlantic City, New Jersey, May 12 and 13, 1914.

The President, Dr. SIMON FLEXNER, in the Chair.

President's Address.—Dr. SIMON FLEXNER said the extension of the boundaries of knowledge has been such that it had compelled medical colleges to become departments of universities. This rapid extension of knowledge coincided with the active pursuit of physiology, pathology, bacteriology, and pharmacology, either alone or in association with clinical studies for which special laboratories and institutes came to be established. Independent institutions for medical research had exercised a distinct influence on medical practice, but the foundation of these institutions was impossible until medical schools furnished an adequate supply of students whose training approximated that of the older European countries. All these conditions had acted most powerfully on clinical teaching. The profes-

sor of medicine in the university medical school had ceased long ago to be a general practitioner. The function of the clinical teacher had been newly defined within one or two decades. The American Association of Physicians had sympathized with every movement affecting the progress of medical education, and it favored this later step with the single hope, if it be in the real interest of medical progress, it might be given a chance to succeed.

Chronic Interstitial Gastritis.—Dr. JOSEPH SAILER, of Philadelphia, reported a case of chronic interstitial gastritis in a man, forty-five years of age, who had been subjected to various forms of medical treatment, none of them of any avail. Doctor Deaver had performed an exploratory operation and found the condition of the stomach entirely in accord with the clinical picture. The stomach walls were very thick. The stomach was adherent posteriorly and around the pylorus. The adhesions were released, and the stomach wall found greatly thickened. Doctor Deaver believed that gastroenterostomy would have been difficult, in addition to giving no definite relief. There were no enlarged glands along the lesser curvature, but the adhesions were dense along the greater curvature, and a definite gland mass could not be felt. There was no evidence of metastasis. The abdomen was closed and the patient made a satisfactory recovery from the exploratory operation.

Dr. DAVID RIESMAN, of Philadelphia, stated that with the x ray they were not able to distinguish between the malignant and nonmalignant types of what was called leather bottle stomach. This distinction could be made only by clinical observation. Recently he saw a typical case of leather bottle stomach which was very malignant, because the patient had cachexia and ascites. Both of these conditions in this case were sufficient to determine that the condition was cancerous. The man died in a few weeks. There were no evidences of metastases in the liver, and the liver was not enlarged at any time. Another case that came to autopsy showed no metastasis from any of the viscera, but marked enlargement of the glands along the greater curvature of the stomach.

One Thousand Cases of Cancer of the Stomach.

—Dr. JULIUS FRIEDENWALD, of Baltimore, presented a study of 1,000 cases occurring in 10,416 patients, affected with various gastrointestinal disturbances. The maximum liability to the disease occurred between the fortieth and sixtieth years. The greatest proportion occurred in males, 588 to 412 females. An hereditary history of cancer appeared in 9.4 per cent. of cases; a history of trauma in 1.9 per cent.; anemia was present in eighty-two per cent. Chronic endocarditis was present in 11.4 per cent.; arteriosclerosis in 69.6 per cent. A history of former indiscretions in diet was obtained in 32.1 per cent.; of alcoholism in 15.2 per cent.; of syphilis in 7.9 per cent.; hyperchlorhydria in 4.9 per cent.; hypochlorhydria in 2.8 per cent.; anacidity in 89.2 per cent. Lactic acid was present in 81.9 per cent. Dysphagia existed in 6.9 per cent. of all cases. Loss of weight existed in 88.5 per cent. Anorexia was present in 89.3 per cent. Vomiting existed in 89.3 per cent. Occult blood was present in the stools in 92.5 per cent. Masses in the form

of tumors were detected in 71.9 per cent. Dilatation of the stomach existed in 46.7 per cent. Perforation occurred in 2.3 per cent. Metastasis existed in 67.2 per cent. Operations were performed in 26.6 per cent.

Tuberculin Preparations in Private Practice.—Dr. S. SOLIS-COHEN, of Philadelphia, dealt with pulmonary tuberculosis only. The disastrous results of the early use of tuberculin were owing to, 1, crude dosing; 2, unsuitability of cases.

1. Correct principles were established by Trudeau. The opsonic index of Wright marked a further advance. Latham's method of administration by mouth, with parallel temperature curve and opsonic index guidance, demonstrated the full trustworthiness of the temperature curve alone, and simplified the procedure. The following was the author's modification of Latham's method: Tuberculin residue (T. R.) triturated with milk sugar was given with skim milk, whey, or beef tea juice. The initial dose, he said, was one one millionth mgm. Both subjective and objective symptoms of reaction were watched for. The dose was repeated once or twice weekly, according to result. It was gradually increased by increments of one one millionth mgm. to the reaction point, and then dropped one point lower, and so continued for some weeks. Later, a further increase was attempted, and if reaction was not shown, was proceeded with in a similar gradual way. The arbitrary increment of one one millionth mgm. was maintained during this remittent progression until one ten thousandth mgm. had been reached. After that, the increment might be raised to one one hundred thousandth mgm. Thus by successive stages a maximum dose was attained at a point determined for each individual by all the factors in the case, including the rapidity of the increase, character and intensity of reaction, and maintenance of tolerance, as well as the local and general signs of improvement. The treatment was continued with intermissions, for many months, and might be resumed, if necessary, from time to time over a period of years.

2. In the majority of advanced cases, according to present knowledge, tuberculin was likely to be harmful. Experienced observers might employ it cautiously under conditions that seemed to call for its use, but others should avoid it, especially in cases showing a tendency to continuous fever, or in which there was, or had been recently, active softening. In the great bulk of early cases it was needless. Under proper treatment, medicinal as well as hygienic, recovery would take place without it. Its field of action was in the treatment of cases which, 1, had not passed beyond the stage of infiltration and which, 2, had shown a certain degree of improvement under proper food, fresh air, judicious rest and exercise, and other approved measures, including the right drugs, but in which, 3, improvement became sluggish or ceased, or retrogression took place. The slight additional stimulus afforded by an appropriate tuberculin preparation administered at well chosen times, and in correct doses, would often reawaken the defensive and restorative processes of the organism and be followed by complete recovery.

Dr. ABRAHAM JACOBI, of New York, had used

tuberculin in doses of from one hundred thousandth up to one five thousandth mgm., and had never seen any unpleasant symptoms. He had given it in combination with other agents. His routine treatment in chronic cases of pulmonary tuberculosis consisted in the internal administration of guaiacol and arsenic with tuberculin, and he had observed no disagreeable symptoms which he could attribute to the tuberculin.

(To be continued.)

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

A Doctor's Viewpoint. By JOHN BESSNER HUBER, A. M., M. D., Editor, *The Dietetic and Hygienic Gazette*; Author, *Consumption and Civilization* (Lippincott's); Fellow of the American Medical Association and of the New York Academy of Medicine, etc. New York: Gazette Publishing Company, 87 Nassau Street. Pp. 164. (Price, \$1, postage prepaid.)

Doctor Huber has become favorably known to the laity as well as to the medical profession as a graceful and thoughtful writer on scientific subjects, who takes an occasional excursion into more literary bypaths. This volume is a collection of essays and editorial articles contributed both to professional and popular periodicals. The first, *A Twentieth Century Epic*, is an almost lyrical tribute to Gorgas and his scientific predecessors, whose work is now stricken forever into the steel and stone of the Panama Canal. Doctor Huber's pet subject, tuberculosis, comes frequently to his pen in this volume; other topics are medical research and education, eugenics, the value of sunshine, psychic research, genius, euthanasia, prayer, cancer, and some adventures of the writer. All are treated effectively and cannot fail, while amusing the reader, to enlarge his mental horizon. Doctor Huber is a worthy member of our small but distinguished group of medical *littérateurs* and we hope that this book will be as widely read as it deserves. The author's fondness for the eighteenth century leads him to cling to such archaic or poetical forms as *whilst* and *ofttimes*, which are merely old and not especially literary. His thoughts, however, are modern in conception and expression, and, as already intimated, are frequently clothed in language of exceptional beauty. As he has hitherto shown such unusual moderation in his output, we believe the reading public would welcome more of Doctor Huber's charming essays; there must be many more things that he has considered from a doctor's viewpoint and concerning which he must be about ready to say something interesting.

Jahresbericht über die Fortschritte der Laryngologie, Rhinologie, und Ihrer Grenzgebiete, under Mitarbeit von Dr. A. BLAU, Görlitz; Dr. Com. F. BOBONE, San Remo; Dr. OTTO GLOGAU, New York; Dr. RUDOLF HOFFMANN, München; Doctor HOWARTH, London; Doctor IMHOFER, Prague; Prof. Dr. O. KÄHLER, Freiburg; Prof. Doctor KAN, Leiden; Dr. L. KATZ, Ludwigshafen; Dr. EMIL KRONENBERG, Solingen; Dr. K. KASSEL, Posen; Doctor LAUTMANN, Paris; Dr. ARTHUR MEYER, Berlin; Doctor MALOENS, Brussel; Doctor MENIER, Decazeville; Dr. JÖRGEN MÖLLER, Kopenhagen; Dr. M. NADOLECZNY, München; Doctor POLYÁK, Budapest; Dr. BOTHO SCHULTZ, Dresden; Dr. O. SIPPÉL, Würzburg; Doctor SOKOLOWSKI, Königsberg; Prof. Dr. W. UFFENORDE, Göttingen; Dr. IGNAZ WIESER, Lemberg; Prof. Doctor YOSHII, Tokio, herausgegeben von Dr. F. BLUMENFELD, Wiesbaden. I. Band. Literatur vom I. IV. 1912 bis I. IV. 1913. Würzburg: Verlag von Curt Kabitzsch, Kgl. Univ.-Verlagsbuchhändler, 1914. Pp. 204.

In searching the literature for definite information on certain subjects, the difficulty not infrequently encountered is the necessity for the perusal of a large amount of litera-

ture before the desired information is obtained. This seemingly useless sacrifice of time evidently prompted the editor to gather together the notable nose and throat literature of the world for the year ending April 1, 1913, and to put it in book form for ready reference. It is the intention of the editor to issue subsequent editions at yearly intervals. The different articles which might be considered as denoting progress in this special branch of medicine, are classified under the countries of the respective authors, and the journals of publication are designated. At the end of each list a brief résumé is given to call attention to the more noteworthy work accomplished. The book is divided into three parts. Part I has to do with affections of the throat. Of approximately 100 pages devoted to this section, a little over half is occupied by German literature. Part II considers the various affections of the nose, while Part III is devoted to the consideration of the accessory sinuses of the nose. To the rhinologist and laryngologist, who has frequent occasion to consult the literature in the preparation of papers, or for other reasons, and who wishes the recent views on any subject pertaining to the nose and throat, this book may prove to be a time saver, and may give him the necessary references to the recent literature.

Psychoencephale Studien. Von Dr. S. K. THODEN VAN VELZEN, Joachimsthal i. Mark. V. Auflage. Im Juni, 1913. Pp. 316.

This is a remarkable and most interesting volume, comprising more or less independent philosophical discussions of a host of subjects related to the processes of cerebral and nerve activity. Underlying the greater part of the entire discussion is the author's peculiar conception of the nature, situation, and activity of the spirit (*Geist*) and the soul (*Seele*). He refers practically all manifestations of life processes, normal or pathological, back to the fundamental conception of the spirit. This spirit is conceived to be material and to occupy definite space in the central region of the cerebrum. It is the sole element of our entire structure which is capable of activity *ab initio*, and even such capability is not clearly established, but seems to rest upon the entrance of some extraneous stimulus. Each region of the brain concerned in any way with that condition of activity which is designated "life" is regarded merely as a structure upon which impressions are made by incoming stimuli, such impressions constituting memory. All impressions and all stimuli are the results of the motion of matter, and without such motion such impressions are impossible. Stimuli may enter, however, without necessarily leaving that impression which constitutes memory, for a single impression only can occupy a given space in the region in which it is to be stored, and all other stimuli entering simultaneously with the one selected for impression on the memory are kept out. Thus, if we would gain a lasting memory of a complicated scene, we must permit the entrance of the host of different impressions, one by one, through long observation of the scene. Then, when this same scene is again encountered, the first incoming stimulus sets the spirit in motion and this, in turn, activates the many areas originally impressed, and the whole scene is recalled as the result of but a glance. No two activities can occupy the spirit at one and the same time; one is bound to predominate and throw the other out, though the second may be sufficiently powerful to remain dormant and reassert itself when the initial activity has subsided. Thus, while intent on one thing, we may be spoken to without becoming conscious of the fact until a considerable time has elapsed, when suddenly consciousness of the spoken words arises and we make a proper reply. To van Velzen the spirit is the core of our whole existence, but it becomes manifest in movement, thought, etc., only through its power of initiating activity in the realm of memory. It is impossible for man to conceive of anything which is not constituted of fragments of memories awakened by the influence of the spirit. The activities thus set up in the realms of memory react on the spirit just as new stimuli coming from without would do, and thus cause that phenomenon which we call consciousness. Van Velzen's discussions are based upon most minute and thoughtful observations, and his knowledge of the writings of philosophers of all times and all lands is remarkably comprehensive. His criticisms of these writings show the exceeding originality of the author's thinking. To the physician

who loves philosophy based upon a keen insight into *causa causarum*, as well as to the true philosopher, van Velzen's book must appeal on the score of originality, if on no other.

Die Gonorrhoe des Weibes. Für die Praxis Dargestellt. Von Prof. Dr. F. FROMME, Oberarzt der Frauenklinik der Königl. Charité in Berlin. Berlin: Verlag Von S. Karger, 1914. Pp. 56.

This book is for the practising physician and covers the subject of gonorrhea in women very completely. Unfortunately the complement fixation test for gonorrhea has apparently not yet reached Germany, since the author does not mention it. It has been conclusively proved that the complement fixation test picks up cases of gonorrhea in women which smear or culture fails to reveal; some of the statistical tables are therefore incomplete. The chapters on therapy and prophylaxis seem to be particularly good.

Interclinical Notes.

Many of our readers were struck by the verses appended to Dr. George F. Butler's communication on The Ladies in a recent issue of the JOURNAL and have written to ask their authorship. Doctor Butler informs us that they are from the pen of a poet physician, Dr. James Newton Matthews, a warm friend of James Whitcomb Riley. He died some years ago, no richer in this world's goods than poets and physicians in general. His poems have been collected and edited by Walter Hurt and published by Horton & Company, of Cincinnati, under the name of *The Lute of Life*. We cite here one of the most admired poems. The collection should be in the hands of every physician who would like to help the family of a deceased worthy confrère.

THE SONNET.

To sit in midnight solitude, and trace
A twining sonnet through its mazes
Of subtle melody and sweet excess
Of rhymes recurrent, to keep in pace
With its elastic feet and flexile grace,
To me is pleasure more than one can guess
Who draws it with disinterestedness
When daylight dips the world into his face.

I love the sonnet's very ebb and flow,
Its short, swift motion—its impetuous dash
Against the sestet, and its slow rebound;—
Like wind-whipped billows that to landward go,
It leaps along beneath the master's lash,
Till beaten backward like a baffled hound.

* * *

Ethel Watts Mumford, in *The Golden Web*, a serial tale in *Women's Stories*, has devised a thrilling scene in the August issue, in which a hypodermic syringe full of morphine plays a prominent part. As an aid to the seduction of unwilling girls, the syringe is the weapon of a coward and blackguard. It must be a very coarse sensualist who would be satisfied with victories secured by such means. In this story the load of the syringe is discharged into one of the villains with most gratifying results.

* * *

According to the heroine of *Too Good Looking for Business*, by Gertrude Brooke Hamilton, in the August *Women's Stories*, a handsome girl has a hard time in business offices and on the stage; "the women think one thing, the men want one thing. What's the use?" We fear that the young woman exaggerates.

* * *

A. W. Cutler, in an article entitled *A Picture Hunter in Hungary*, in the *Wide World Magazine* for August, shows that there are other mysterious and astonishing things in Hungary beside the well known *gulyas*. Travelers who are annoyed at the recent uniformity in costume and manners all over Europe, might find variety and entertainment in the rural parts of Hungary.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending July 29, 1914:

Carmelia, Francis A., Assistant Surgeon. Directed to proceed to New Orleans, La., for duty in plague eradication measures. **Clark**, Taliaferro, Surgeon. Detailed member of the board convened to examine written examination papers of candidates for appointment as assistant surgeons. **Cody**, H. C., Assistant Surgeon. Directed to proceed to South Baltimore, Md., and report to the Commanding Officer of the Revenue Cutter *Miami* for temporary duty. **Foster**, A. D., Passed Assistant Surgeon. Granted four days' leave of absence from July 24, 1914. **Kerr**, J. W., Assistant Surgeon General. Granted fifteen days' leave of absence en route while carrying out Bureau order dated July 10, 1914. **Kesl**, G. M., Acting Assistant Surgeon. Granted two days' leave of absence, July 25 and 26, 1914. **Miller**, K. E., Assistant Surgeon. Relieved from duty in field investigations of the public health at Cambridge, Md., and directed to rejoin station at Stapleton, N. Y. **Parcher**, George, Assistant Surgeon. Relieved from temporary duty on Revenue Cutter *Miami* and directed to rejoin station at Ellis Island, N. Y. **Stiles**, C. W., Professor. Detailed to attend the meeting of the Sixth District Medical Association of North Carolina, to be held at Wrightsville Beach, N. C., August 4, 1914. **De Valin**, Hugh, Passed Assistant Surgeon. Relieved from duty as recorder of the board convened to examine written examination papers of candidates for appointment as assistant surgeon, and directed to proceed to New Orleans, La., for duty in plague eradication measures. **Williams**, L. L., Surgeon. Directed to make an inspection of immigration stations on Canadian border east of Buffalo, in addition to duties enjoined by Bureau order of July 14, 1914, in order to establish uniformity in the medical examination and use of instruments of precision in the diagnosis of disease.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending August 1, 1914:

Artaud, Frank E., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Gibbon, Alaska, and will proceed to Key West Barracks, Florida, for duty. **Billingslea**, C. C., Captain, Medical Corps. Relieved from duty as Attending Surgeon, Chicago, Ill., and will proceed to Fort Leavenworth, Kansas, for duty. **Fisher**, Henry C., Lieutenant Colonel, Medical Corps. Leave of absence for one month granted about August 15, 1914. **Garcia**, Leon C., Captain, Medical Corps. Now at Fort Morgan, Alabama, is detailed as Inspector Instructor of Military Sanitary Troops, during encampment of State troops, Mississippi, vice Major M. A. W. Shockley; Captain Garcia will go at once to Natchez, Mississippi, to make the necessary inspection from July 31 to August 10, 1914. **Harwood**, Thomas E., First Lieutenant, Medical Reserve Corps. One month's leave granted August 1st. **Jones**, Percy L., Captain, Medical Corps. Relieved from duty Ambulance Corps No. 3, and from duty in the Second Division, Texas City, Texas, and ordered to command Ambulance Corps No. 6, Walter Reed General Hospital, Takoma Park, D. C., relieving Captain William A. Wickline, who upon being thus relieved will proceed to Jefferson Barracks, Missouri, for duty. **King**, Charles T., Captain, Medical Corps. Granted two months' leave of absence when he can best be spared. **Miltenberger**, E., First Lieutenant, Medical Reserve Corps. Leave of absence for fifteen days granted when his services can best be spared. **Pierson**, Robert H., Captain, Medical Corps. Upon arrival in United States will proceed to Fort Williams, Missouri, for duty. **Pillsbury**, H. C., Captain, Medical Corps. Relieved from duty at Jefferson Barracks, Missouri, and will proceed to Fortress Monroe, Virginia, for duty. **Pipes**, H. F., Captain, Medical Corps. Four months' leave of absence granted on his arrival in the United States. **Stayer**, M. C., Cap-

tain, Medical Corps. One month's leave granted when his services can be spared. **Tuttle**, Arnold D., Captain, Medical Corps. Granted one month's leave about August 1, 1914. **Van Voast**, Rufus A., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Crockett, Texas, and ordered home for relief from active duty. **Wickline**, William A., Captain, Medical Corps. Leave of absence granted about August 4, 1914.

Births, Marriages, and Deaths.

Married.

Clendening—Hixon.—In Walden, Wis., on Wednesday, July 22d, Dr. Logan Clendening, of Kansas City, Mo., and Miss Dorothy S. Hixon. **Howe—Gallup.**—In Denver, Col., on Tuesday, July 21st, Dr. Hubert S. Howe, of New York, and Miss Mary S. Gallup. **Thomas—Wright.**—In Seattle, Wash., on Saturday, July 18th, Dr. M. E. Thomas, of Tacoma, Wash., and Miss Annie Wright.

Died.

Adams.—In Pittsfield, Mass., on Monday, July 27th, Dr. James F. A. Adams, aged seventy years. **Beals.**—In Salamanca, N. Y., on Saturday, July 25th, Dr. Frederick C. Beals, aged sixty-two years. **Bennitt.**—In Springfield, Mass., on Wednesday, July 29th, Dr. Francis M. Bennitt, aged fifty-six years. **Berberich.**—In Wildwood, N. J., on Sunday, July 26th, Dr. Herman Berberich, of Philadelphia, aged thirty-six years. **Bogert.**—In Pearl River, N. Y., on Sunday, July 26th, Dr. Sylvester S. Bogert, aged seventy years. **Booth.**—In Minneapolis, Minn., on Friday, July 25th, Dr. Charles E. Booth, aged seventy years. **Brundage.**—In Chicago, Ill., on Monday, July 20th, Dr. Alfred B. Brundage, aged fifty-four years. **Buffum.**—In New York, on Tuesday, July 28th, Dr. Charles T. Buffum, aged sixty-one years. **Carpenter.**—In Brookline, Mass., on Thursday, July 23d, Dr. William H. Carpenter, aged seventy-seven years. **Dolbeck.**—In New York, on Wednesday, July 29th, Dr. George N. Dolbeck. **Farr.**—In Jackson, Miss., on Saturday, July 18th, Dr. William W. Farr, of Bolton, Miss., aged seventy-five years. **Finch.**—In Scho-dack Center, N. Y., on Saturday, July 18th, Dr. Elmer E. Finch, aged forty-eight years. **Freeman.**—On the Pacific Mail Steamer *Pennsylvania*, on Thursday, July 16th, Dr. R. T. Freeman, aged seventy-one years. **Gartner.**—In Brooklyn, N. Y., on Saturday, July 25th, Dr. Charles Gartner, aged forty-four years. **Griffith.**—In Phillipsburg, N. J., on Wednesday, July 29th, Dr. John H. Griffith, aged seventy-two years. **Hemstreet.**—In Poland, N. Y., on Tuesday, July 21st, Dr. James Hemstreet, aged ninety years. **Hutchinson.**—In Glen Springs, Col., on Tuesday, July 21st, Dr. Thomas L. Hutchinson, aged forty-two years. **McConnell.**—In Brimfield, Ohio, on Friday, July 24th, Dr. William H. McConnell. **McCulloh.**—In Baltimore, Md., on Sunday, July 19th, Dr. W. W. McCulloh, aged forty-eight years. **Page.**—In Berryville, Va., on Tuesday, July 28th, Dr. Robert P. Page, aged seventy-six years. **Reclus.**—In Paris, France, on Wednesday, July 29th, Dr. Paul Reclus, aged sixty-seven years. **Roberts.**—In Brookfield, Mo., on Monday, July 27th, Dr. Benjamin F. Roberts. **Rowland.**—In Boston, Mass., on Friday, July 17th, Dr. Oliver J. Rowland, of Sealy, Texas, aged thirty-eight years. **Segerlund.**—In Caledonia, Ill., on Friday, July 24th, Dr. Charles Segerlund, aged sixty-five years. **Tanguay.**—In Detroit, Mich., on Monday, July 20th, Dr. Joseph R. Tanguay, aged seventy-six years. **Tucker.**—In Bradford, Pa., on Friday, July 24th, Dr. Adelaide G. Tucker, aged forty-four years. **Wasson.**—In Rhea Springs, Tenn., on Monday, July 20th, Dr. Jeremiah C. Wasson, aged seventy-eight years. **Williams.**—In Columbus, Ga., on Thursday, July 16th, Dr. Charles L. Williams, aged seventy years. **Williams.**—In Philadelphia, on Sunday, July 26th, Dr. Herbert F. Williams, aged forty-three years. **Wilson.**—In Philadelphia, on Friday, July 24th, Dr. James F. Wilson. **Yankauer.**—In New York, on Tuesday, July 28th, Dr. Grace Pryor Yankauer, aged forty years.

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Lectures and Addresses.

THE SCOPE OF THE AMERICAN SOCIETY FOR PHYSICIANS' STUDY TRAVELS.*

A Presidential Address.

By J. M. ANDERS, M. D., LL. D.,
Philadelphia.

While the American Society for Physicians' Study Travels has recently been organized, Germany has had its German Central Committee for Physicians' Study Travels for twelve years, and France a similar association for a somewhat longer period. "The science of anything may be taught or acquired by study at home." Physicians, like progressive spirits in other walks of life, however, should be alive to what concerns their lifework in the more remote sections of their own country, as well as in foreign lands. Their broader interests in the development of medical science demand that they give their power of attention to the many excellent institutions—their advantages, physical equipment, and methods—to be found on all sides, especially those in which they are directly interested.

Medical men should cultivate the art of seeing and hearing things; their senses and perceptions should be quickened and trained so that nothing of importance shall elude observation. To this end travel lends itself admirably, and it was for the purpose of promoting knowledge gained from excursions and observation, as well as professional advancement in medical, sociological, and economic matters that the American Society for Physicians' Study Travels was organized. There is warrant for the assumption that information on these lines and in these directions can be most easily obtained and most clearly comprehended by personal observation, together with demonstrations and lectures, opportunities offered by this society. It will also be devoted to an improvement of mutual friendship and will serve to increase interest in American medicine, science, and history on the part of the profession of foreign nations.

The medical profession of the cities, resorts, and other places of interest to be visited, will arrange for an interesting and instructive program, in advance. The society will doubtless receive a cordial welcome wherever it may go, and everything will be done for the comfort, entertainment, and instruction of the members that could be desired.

The lectures and demonstrations will be made by well known representatives of the medical profession and other scientists, and will be, so far as practicable, in the English language. Opportunities will thus be afforded the members of the American Society for Physicians' Study Travels to inspect institutions, and learn the methods and views of some of the great masters that are not open to the individual tourist, or at all events not without devoting a greatly increased amount of time, energy, and expense to the acquisition of an equal amount of useful information. Hence this society offers advantages in the domain of postgraduate instruction in a form that should appeal to the practitioner, who, sadly enough, too often finds it beyond his private means to make a prolonged visit to the universities of either Europe or America.

The constitution and bylaws of the American Society for Physicians' Study Travels, which it is hoped have been read by every member thereof, also refer to the opportunity afforded for recreation—a feature of undoubted significance, since the annual tours occur at a season of the year corresponding to the vacation period of most of its members. Since, then, an enjoyable and instructive annual trip can be made without adding materially to the expense of the annual vacation, or taking any time from professional work, it would seem to be the duty of every intelligent and progressive physician to give this new society his earnest support.

The medical profession has long since concurred in the idea that prevention is better than cure, as well as more humane, but it has been slow to emphasize the importance of looking to the matter of improving its own physical stamina as a factor in that program, and in the advancement of its own best interests in the ways formulated by this society.

The organization which is here assembled, offers splendid opportunities for healthful recreation combined with excellent educational advantages, and all this at a reduced cost compared with current tariff rates. If the law of economy should, as has been urged repeatedly in recent times, enter into the practical affairs of life of any class of men, surely it is those of the medical profession. It has been well said that there is nothing like serving an apprenticeship to fortune, and it is equally true that with respect to new undertakings the temptation is to begin where other more or less similar enterprises leave off.

In connection herewith it must be recalled that the previous plans of this association have been only tentative, but it is believed that they will be so perfected by the end of one year as to be found easily

*Read at a meeting of the American Society for Physicians' Study Travels, at Atlantic City, June 25, 1914.

operable. Surely, our expectations of trips, such as this society proposes to make in the future, are much enhanced by the company of those having the same hopes, aims, and ambitions as ourselves, for such a tour, interesting and profitable enough in itself, is likewise certain to be crowned by "idyllic days," and filled with the fondest recollections.

It should be well understood that the American Society for Physicians' Study Travels encourages an appreciation of scenic beauty, of natural resources, of delightful social life among members of the medical profession of American and other countries, and an intimate acquaintance with leading institutions, medical, historic, sanitary, municipal, and sociological, both at home and abroad, as well as knowledge of the physical equipment and advantages for study which they offer. I feel strongly that this new society will be found to possess a marked educational value in that it will furnish interesting, new, and practical lessons for the physician, whatever his line of work may be. Is it not true that we American physicians have failed to realize our own possessions, and have, unfortunately, allowed the rest of the world to forget them? If the medical profession of the United States and Canada of its own volition fails to make much of the proposed annual tours, it will, it seems to me, mean a want of a sense of obligation to itself, to its history, and to its traditions.

Perhaps one of the most beneficial features will be the lecture and demonstrational courses arranged for in advance, at the various points to be visited. These will deal principally with medical, hygienic, and sanitary topics, but by no means exclusively, for they will embrace subjects of industrial, sociological, and historical interest—subjects which every physician, if he desires to be broadly educated, must cultivate. In no other way can the opportunities that these places offer to the tourist for educational recreation be so thoroughly enjoyed; in no other way can the common interests and ideals of our profession in the realm of postgraduate training be so successfully supplemented.

The American Society for Physicians' Study Travels affords adequate scope for progress and development on international lines. It is not bound, as are other medical organizations, by the limitations of space, hence we may reasonably expect that it will progressively modify foreign professional opinion concerning American medical interests generally. It will, if represented by the best element of our profession, exert a strong uniting influence among the physicians of our own and the different European nations.

We are all aware that a large and constantly increasing number of invalids are annually visiting foreign health resorts with the hope of regaining lost health. Many of these patients learn on arrival that theirs are not suitable cases for treatment at the spa to which they have been sent by their home physician or some friend. The writer has witnessed many sad and disappointing experiences among this class of patients on foreign shores, and feels strongly that a visit to the leading European health resorts under the auspices of this association would enable American physicians in due season to direct presumably curable cases intelligently in this

respect. The sufferer who is sent to a foreign resort has a right to expect intelligent advice from his home physician, who should be prepared to give it.

This society will be subserving a needful purpose if, as the result of a just appreciation of the therapeutic and health giving resources of foreign health resorts, the profession of our country will in great measure at least deter the annual exodus of the "incurables" and improper cases from making the hazardous experiment of an ill advised expatriation.

Greater familiarity with these foreign resorts of note, will confirm the view that, judiciously chosen, they exert notable curative effects, not alone on account of the relief afforded by baths and mineral waters, but also by reason of the fact that the moral and intellectual nature of the sufferer is cared for with no pretence of superior knowledge. There are important lessons which the profession of America has not as yet learned. I would mention, first, that it has no just conception of the inconvenience, suffering, and disappointment that await the incurable invalid abroad in search of health. Secondly, the medical profession of America has not sufficient knowledge of the true merits of the health stations abroad and in its own country.

It may be seriously questioned whether the curative agencies of our own resorts have been intelligently prescribed, while freely admitting that they may have been honestly administered. This society intends to visit and study the leading resorts of the United States and Canada so that their virtues and the rationale of the treatment may be the more perfectly understood. Obviously, the profession of America should rely on the resources of its own land so far as possible, and this statement applies with special aptness to that large class of chronic incurables to which I have already made reference.

Quite independently of the reputed health resorts of this and other lands, there are many places that have well merited claims to curative power, some by the seashore, some in the quiet of Nature, some among the hills or the deep gorges of grand and picturesque mountain scenery, and some amid the social life and gay glitter of crowded cities. These places are made available for treatment in certain circumstances by organizations such as ours, by familiarizing physicians with their sites and virtues.

It would be highly desirable if prominent physicians all over the country took up the work just begun, and carried it further in the direction outlined above. It is especially needful in a movement of this sort to extend it to all branches of our science and art, since here is a large field which has remained uncovered and is of interest to every member of the profession. The profession as a whole has been and is astir with ideal interests, and stands ready and willing to make sacrifices for their promotion. As a means of preparation for dealing with the questions of the day, it seems to me that the medical profession of America should be prompt to give careful consideration in a fair spirit to an enterprise which bears so much potential profit.

Finally, we may take a hopeful attitude with reference to the future activities of this organization. We may also rest assured that as the worth of the enterprise advances it will lighten the task

of those who share in its benefits; more than this it will put within their reach knowledge which, if used to the fullest extent, will tend to educate professional opinion and thus become a weapon for the good of our contemporaries and the still greater good of those who come after.

1605 WALNUT STREET.

Original Communications.

NATIONAL QUARANTINE.*

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There was a time when remarks upon the subject of quarantine were always prefaced with a definition of the word, but that is not necessary in this paper, for we are all advocates of organized protection for ourselves and our families against the numerous communicable diseases, whether said diseases are found in schools, in street cars, in railway trains, or in ships. We may not have suffered from the quarantinable diseases, nor indeed even heard the name of all of them, but if a case of smallpox, cholera, plague, or yellow fever should appear in close proximity to us, our first impulse would be to cry out, "Take it away—quarantine it!"

In this regard, history has been repeating itself since biblical times. In the Bible, in *Leviticus*, directions are given for the segregation, sometimes for stated periods, of lepers, and in fact, all persons suffering from skin diseases. History in general shows that self preservation from disease was a recognized right of individuals as well as of groups of people or communities. Maritime quarantine originated in connection with the Levantine trade, and its early history was associated with that of shipping in the Mediterranean, especially with that of Venice and Marseilles. It is recorded that the pest at Constantinople, A. D. 534, was carried by ships, and that this invasion of disease became later the foundation of the quarantine establishments on the Mediterranean coast. The Venetians were the first to make provision for maritime sanitation; as far back as the year 1000 there were overseers of the public health. These officers were authorized to spend public money for the purpose of isolating infected ships, goods, and persons on one of the islands of the lagoon surrounding the city. A medical man was stationed with the sick, and as a result of this arrangement the first thoroughly constituted maritime quarantine station of which there is historical record was established in 1403 on the island of Santa Maria di Nazareth, at Venice.

History tells us that the average maritime quarantine station of the sixteenth century consisted of an anchorage for vessels, and barracks for suspects and convalescents, and a place where "purification" could be applied. To give an idea of the quarantine methods practised in those days, it will be interesting to relate what happened to a Catalan

ship that arrived at Palermo from Barcelona on the way to Naples, which account shows at least that the sanitarians of the sixteenth century were thorough in their methods.

The vessel in question had ninety-seven persons aboard, eighteen of them passengers. Three seamen and two passengers had died of a disease suspected of being plague. The deaths occurred while the vessel was taking on cargo in the harbor where she lay at anchor. The cargo consisted of barrels of salted fish, cases of sugar (destined for Palermo, and already unloaded and in the warehouse), salted cheese, salt in bulk, a quantity of sumac, and general merchandise, including bales of cloth from Barcelona, a port not under suspicion. The master of the vessel was first required to give an enormous bond as security that he would not leave the harbor until given pratique, and to make his leave still more difficult, the rudder was removed from the ship and a watch was set. All persons, except the sick, and sufficient seamen to guard the ship, were sent ashore, where all garments were taken from them, and they themselves exposed to the fumes of boiling pitch and afterward washed with vinegar. Some of the clothing was burned, and some was washed, aired, and perfumed for fifty days. The sick were sent to a lazaretto, and the cargo was treated as follows:

The barrels of salted fish were washed outside, first with sea water and then with vinegar. The cases of sugar, salted cheese, and sumac had their coverings removed and burned, and the commodities without further treatment were delivered to the owners. Merchandise was aired and perfumed for fifty days, and the cloth fabrics were unrolled and hung from the rigging of the ship for fifty days. The sails and cordage of the ship were taken down, submerged in the sea for a week, and then hung from the masts, yards, and booms in the air, sun, and dew, by day and night, as long as the ship remained in quarantine. The ship was then fumigated with boiling pitch in caldrons between decks.

It is needless to say that the treatment of vessels infected with plague is not so complicated today. The history of our national quarantine system really began in the year 1893. It may be said that prior to the passage of the act (approved February 15, 1893) "granting additional quarantine powers and imposing additional duties upon the Marine Hospital Service," there was no national system of quarantine. Prior to 1893, the various State governments, and later the county and municipal governments, as the case might be, conducted their own quarantine systems. It is true that there was some national legislation along the lines being discussed, but all the acts of Congress up to the one I have just mentioned, namely, that of February 15, 1893, relating to quarantine specifically, provided that the national measures were in the aid of State and local authorities. In other words, quarantine was permitted to be exercised by the States as a police function, notwithstanding the opinions held by the members of the national legislature as to their rights in the premises, and it will be seen that in the present law, the act of 1893, it is provided that assistance shall be given to the States and municipalities by the United States Government, the supremacy of the latter to obtain only when the State or local

*Read before the Medical Society of the County of New York, February 10, 1914.

authorities fail, or refuse to enforce the minimum of regulations provided for by national law. It is not my purpose in these remarks to go into the disadvantages which did accrue or could easily now accrue under such a varied system of operating quarantine, but if the system had not been faulty and a burden upon commerce, not nearly so many States would have transferred their quarantine functions to the custody of the national government.

THE INSPECTION OF VESSELS.

The inspection of vessels is the most important part of quarantine practice. Indeed successful maritime quarantine depends almost entirely upon proper inspection of vessels. In other words, the inspection of a vessel holds the same relation to quarantine practice that the process of making a diagnosis does to medical practice. An inspection of a vessel includes the consideration of the sanitary history of all ports visited by the said vessel, the present health status or quarantine credit of those ports, the inspection of all persons on board, and the collecting of collateral evidence bearing upon the sanitary status of the vessel. It follows naturally that the quarantine officer must keep himself posted concerning the sanitary history and the present sanitary status of all the principal ports of the world, and should consider the bearing which the general sanitary history of a port may have upon the recent real or alleged health status thereof.

The recent sanitary condition of a port is learned through a publication issued weekly by the Surgeon General of the United States Public Health Service, through the consular and other bills of health carried by the vessel, which bills of health are necessary to compliance with the United States Quarantine Laws, and from special information received either by wire or by letter from medical officers of the Public Health Service or from consular officers stationed at the ports previously visited by the vessel.

The inspection of a vessel consists in the examination of all persons on board, and when necessary, of the living apartments and holds. The first step in the inspection of a vessel is an examination of all sick persons on board. After visiting the sick the bodies of persons who have died at sea are viewed, and a necropsy is performed if necessary. A bacteriological examination is made of all suspected cases of either plague or cholera. Next in order comes the general muster. The method and extent of the examination of passengers and the personnel of the vessel vary with the disease or diseases existing at the vessel's port of departure or ports of call. In the case of vessels from plague infected ports a glandular examination and the taking of temperatures of steerage and crew may be necessary.

Even with a cursory inspection of a person standing in line, the officer may detect any condition denoting illness not warranting the person's appearance at muster. This is mentioned because more than once men have been compelled to get out of bed and stand in line. A convalescent from any disease may be easily recognized at a glance. By a quick inspection such symptoms of leprosy as the

claw hand, drumstick fingers, elongated or nodular ear lobes, and frontal or cutaneous thickening may be seen. Cutaneous eruptions of any description naturally suggest a further examination of the person, with a view of fixing or eliminating a diagnosis of smallpox. Unusual or marked cases of "seasickness" from cholera infected ports naturally demand further investigation. Cases of pneumonia either acute or convalescent from plague infected ports are examined, especially for the presence of the plague bacilli in sputum.

The formal inspection of the vessel having been completed, the quarantine officer collects the collateral evidence as to the ship's sanitary status. The collateral evidence includes the general condition of the hull and the living quarters, the character and condition of the sanitary arrangements, and the condition of the decks and holds as to general cleanliness. It includes the question as to whether or not there are mosquitoes on board, also the possible finding of dead rats during the voyage.

The source of the water and vegetable supply and the kind of cargo carried are also considered in the light of collateral evidence.

THE DIAGNOSIS OR JUDGMENT OF A VESSEL.

The last step, the judgment of a vessel's health status, is arrived at by weighing the findings of the inspection, that is, the conditions which were apparent at the time of the inspection against the possibilities of concealed infection or latent infection. Either concealed or latent infection, or even both of these conditions, may apply to a ship itself or to the personnel. Concealed infection is usually concomitant with dishonest or ignorant masters or captains, or with wily passengers and crew. Latent infection is a condition dependent upon the character and condition of a vessel, her conduct while in an infected port; and upon the character of the quarantinable disease present in such port.

When a captain of a vessel compels men sick with quarantinable disease to stand in line to pass inspection, or makes a false certificate regarding the finding of dead rats on board during the voyage, he may be said to be concealing infection. On the other hand, when a passenger or member of the crew has had a very mild, modified, or attenuated attack of a quarantinable disease which has escaped all notice, the disease on the ship may be said to be latent.

The determination of concealed or latent infection in vessels cannot be learned from books; it must be acquired or absorbed by long continued experience and observation. Concealed or latent infection is the cause of most of the failures in maritime quarantine work, therefore it frequently happens that a quarantine officer is forced in the interest of public safety to impose the burden of proof as to the absence of latent or concealed infection upon the vessel.

This explains the occasional necessity for quarantining a vessel when at the time of arrival there are no cases of illness on board. For example, several years ago a ship came into Honolulu fifty days from Wellington, Australia, with coal and general cargo. An examination of her papers and

log and careful inquiry from her captain and crew brought out the fact that, ninety days prior to her arrival in Wellington, she lay in Rio de Janeiro harbor, where the master and over half of the crew had contracted yellow fever. On her voyage from Wellington to Rio five men died of yellow fever. Although no cases of illness of any kind had occurred on the voyage from Wellington, the vessel was thoroughly fumigated and the personnel detained for five days in quarantine at Honolulu. The hazard in this case lay in the possible presence of infected *stegomyia* on board either in the holds or lockers and compartments.

The facts which may be gathered by the ordinary inspection of a vessel comprise the information obtainable from the bills of health and the ship's papers, and the sanitary facts gathered by the quarantine officer. The apparent presence or absence of quarantinable disease is the most that can be determined by an examination of the vessel and its personnel. Instances are rife where careful and conscientious quarantine officers have failed to detect cases of quarantinable disease in passengers, who by means of careful planning were able to evade inspection. For example, a case of smallpox in the steerage of a vessel was successfully concealed for ten days from a ship's surgeon who was known to be very careful in his work. The case was discovered while the vessel was being subjected to inspection; the man was found hiding behind a pile of baggage by one of the three quarantine officers who were searching the steerage quarters of the vessel, after every one in sight had been sent to muster on the deck. It was found that the steerage passengers, upon learning that one of their number was suffering from smallpox, had concealed the man in order to escape detention at quarantine, which they knew would follow his detection. On another occasion a messman suffering from bubonic plague was discovered standing in line at muster.

The quarantine officer must render his decision as to the vessel's status immediately after inspection, and the said decision must afford protection to the community and yet act as a sieve, not as a dam, to commerce. If the quarantine officer only had the facts above enumerated to consider, an opinion would always be prompt, and generally speaking, exact, but the probability of latent or concealed infection to which a large steamer, en route perhaps ten days from an infected port, is liable, renders a decision possible only after the consideration of the following conditions:

1. The probable sanitary history of the voyage.
2. The likelihood of latent infection.
3. The likelihood of concealed infection.
4. The kind of cargo carried.

The probable sanitary history of the voyage involves the hazard of way port traffic. For example, if 100 coolies of unknown origin board a vessel in Hongkong and land two days later at Shanghai, their presence on board may or may not have altered her sanitary status, but the number, nationality, and destination of the coolies, together with the known sanitary condition of the port, would raise a question which might be used as collateral to facts. As a case in point, seventy Chinese sailors

were taken on board a vessel at Hong Kong, which vessel was destined to San Francisco, via Shanghai, the Japanese ports, and Honolulu. At Nagasaki, five days later, the coolies were transferred to an army transport. Two days after their transfer, one of the sailors died of bubonic plague. Meanwhile, the first steamer had sailed for Yokohama, and at the latter place the medical officer of the Public Health Service learned of the incident, and was able to report it to Honolulu. Because no further case of disease had appeared on the passenger vessel, the quarantine officer at Honolulu would have rated the probable sanitary history of the voyage as good, had he not received the information from the medical officer at Yokohama, or had the vessel failed to touch at the latter place.

The likelihood of latent infection must be reckoned with particularly in the case of such diseases as yellow fever or plague. Latent infection in the case of plague could be caused by an infected rat being introduced into the vessel with the freight, or by the embarkation of a passenger suffering from a case of ambulant plague. The passenger himself might recover from the illness without attracting attention, and yet leave infection to spread later on.

A case illustrating this point occurred on a tramp steamer leaving Hongkong for San Diego, California, via Honolulu. On the eighteenth day out of Hongkong, or three days before reaching Honolulu, a Chinese sailor died. He had been sick only two days prior to his death, but throughout his illness he lay in a stupor. The captain thought that he was simply under the influence of opium, as the man was addicted to the use of a drug. Upon the arrival of the vessel at Honolulu, the vessel was placed in quarantine. The captain denied ever having seen any dead rats on board and a daily examination of the crew showed them to be apparently free from infection with plague. Because the vessel carried so much "through cargo," the "layer by layer" disinfection of cargo and hold could not be carried out, so the vessel was allowed to sail for San Diego, after having been detained for eight days in quarantine at Honolulu awaiting developments; that is one more day than the incubation period of plague. All of the facts in the case, which included the written opinion of the quarantine officer at Honolulu to the effect that the vessel was very suspicious, were reported to the quarantine officer at San Diego. On the fifth day out of Honolulu, thirteen days after her arrival at the latter place, and sixteen days after the death of the sailor, five more deaths occurred which even the captain of the vessel upon his arrival at San Diego declared at once were from plague. Dead rats, which were found in numbers after a careful inspection of the vessel, were found to be infected with plague.

Latent infection with yellow fever could be caused by infected mosquitoes gaining an entrance into the hold of a vessel along with the freight and escaping at the end of the voyage during the process of unloading. Such infected mosquitoes might infect nonimmune stevedores at the port of arrival, or persons having residence contiguous to the shipping.

THE KIND OF CARGO CARRIED.

A cargo is dangerous according to its general character. Coal, oil, ore, nitrates, and the like are safe cargoes, while flour, cereals, grain, and food-stuffs are apt to harbor vermin and are therefore open to question. General merchandise is dangerous, but principally because the spaces which usually intervene between the parcels may harbor vermin.

A vessel may be found a safe risk in every respect, save the cargo. A decision depending upon the status of the cargo is a difficult one to make, as on the one hand, the public health may suffer and on the other hand, the vessel may be put to needless expense if quarantine treatment is not necessary. After all, the quarantine officer must judge cargoes by the probability of their affording a habitat for the intermediate hosts of quarantinable diseases. In short, the judgment of a vessel's status can be obtained only by a process of deduction, and the most successful quarantine officer is the one who forms the largest number of correct deductions.

SEGREGATION OF PASSENGERS AND CREW.

In maritime quarantine practice, suspected or infected vessels, together with all persons and effects on board, are subjected to what is known as quarantine treatment. Under quarantine treatment, disinfection as a function and process is properly placed and will be here described.

All persons suffering from quarantinable diseases are first removed and placed in the lazaretto, the quarters just vacated by them being immediately subjected to fumigation by sulphur gas, which is quickly generated in small pots by firing. Next comes the removal of first class, second class, and steerage passengers in regular order followed by the ship's officers and crew. These groups of persons are taken off in numbers corresponding to the capacity of the disinfecting plant for doing the work required in the case of each group. After all persons have been removed from the vessel, the latter is subjected to the process of disinfection.

The treatment of persons from an infected vessel varies with the class of passengers, with the arrangement of the living quarters of the vessel, the type of vessel, the home port or port of arrival, and with the disease involved. Different classes of passengers may or may not be required to have their effects disinfected according to circumstances.

A ship infected with plague, when plague infected rats are present and their fleas probably at large, would be an example of a ship whose entire personnel, including all passengers, would be subjected to bathing and disinfection of all clothing. In no other way could one be sure that the danger of infection was removed. The reason of this lies in the fact that infected rat fleas leave a rat dying of plague as soon as the body begins to get cool, and their natural destination is another warm body. The natural selection would be the bodies of those persons who live nearest to where the rats live. This explains the reason why steerage passengers and crews are more often the victims of plague in vessels than the cabin passengers, who live high up in the superstructure well removed from the freight compartments or holds.

After all restrictions intended for the several classes of passengers are imposed, the said passengers are directed to their respective detention quarters, there to remain the length of time corresponding to the incubation period of the disease for which they are being held; it being always understood that where passengers are held they have been exposed to infection.

During the fiscal year ending June 30, 1913, a total of 12,838 vessels were inspected by the National quarantine establishment. Of this number 113 vessels were placed in quarantine. Also during the last fiscal year, 4,352 vessels were fumigated, either for the eradication of infection, or else for the destruction of the carriers of quarantinable diseases, such as rats and mosquitoes.

The quarantine regulations are being revised constantly in order that they may be kept apace with the progress in sanitary science, and also as a result of the steadily increasing cooperation offered by the shipping interests in general. This cooperation, which is in so great a measure a recent condition, is due to two factors, one being the fact that public sentiment is being aroused to public health problems as they relate to all activities, and also the fact that the owners of vessels are beginning to see that the more care they exercise to keep their carriers from conveying quarantinable disease, the more their profits increase in the long run, for with the exception of a marine disaster of one description or another, nothing tends so much to reduce the profits of a voyage as the occurrence on board of a vessel of a quarantinable disease, with its consequent loss of time and annoyance to every one concerned.

One can easily imagine that as a result of special endeavor to this end, most if not all of the principal ports of the world could, by the execution of the proper health measures, remove the necessity for maritime quarantine. Such a state of affairs is not likely to occur in our lifetime, and on this account quarantine as a function will remain, notwithstanding the fact that it is at best a palliative measure.

The Bureau of the Public Health Service has steadily striven to simplify the quarantine methods as much as possible, not only to save expense, but also to produce effective results in protecting the communities in this country from the infection of quarantinable diseases from other countries. This task makes it necessary that educational measures be carried out along two lines, first for the proper sanitation of seaports, and especially the water fronts and wharf property, and, second, the alteration and construction of marine carriers to the end that they will afford the least opportunity for infection with quarantinable disease, and when they are infected, will offer the most favorable conditions for the quick eradication of the infection. These results will probably come about in the course of time by the slow process of the enforcement of regulations, but if the general public could understand the problems as a whole, and would lend their approval and cooperation to the work, it is not at all improbable that the whole system of maritime quarantine could be revolutionized, with numerous advantages and the saving of time and money to every one concerned.

THE VALUE OF SKIMMED MILK AND ITS DILUTIONS IN FEVER.

BY LOUIS FISCHER, M. D.,
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A question that confronts the physician in his daily routine practice is, How shall a child be fed during fever? Our views concerning fever have changed. We formerly believed that fever must be reduced at all hazards and accordingly gave antipyretics. Today we have learned that fever is the bodily defense resulting in a leucocytosis and that this is an evidence of a response of a healthy body to the invasion of a foe such as a pathogenic bacterium.

If the body is in a subnormal condition, or if the bodily resistance is not up to the standard, then the system does not respond and leucocytosis is absent. In this latter condition we are face to face with a state recognized as the typhoidal condition, in which the body instead of showing its normal resistance plus leucocytosis, will also give a subnormal or only a very slight elevation of temperature. These latter conditions should be regarded seriously.

During any febrile process the altered condition of the glandular and other internal secretions is greatly reduced or modified. This must be taken into consideration when ordering food for a child. Lack of digestive secretions with a reduced quantity of ferments contained therein, means that the system cannot digest and assimilate as well as during the healthy period, when the secretory function is normal.

This is no trivial matter, and its importance has a decided bearing on the disease under treatment. If, for instance, the usual feeding is continued during a pneumonia as during a normal condition, owing to the altered state of the system, the food cannot be taken care of, and as a result we may observe a gastric or intestinal complication that will mask the symptoms of the primary disease under treatment.

In *pneumonia* one should give no more than one half of the quantity of milk formerly given. Therefore an eight ounce bottle of milk should be reduced to four ounces, and to this four ounces of water should be added. The frequency of feeding should also be reduced, so that if in health an interval of three hours existed, during fever a four hour interval is indicated. Solid food should be prohibited during an acute febrile attack, regardless of the diagnosis, so that eggs, meat, vegetables, and bread should be prohibited. On the other hand, gruels may be permitted in many diseases. Thus a farina or oatmeal gruel, or a barley gruel made with diluted milk is well borne and may be ordered. Fruit juices, such as orange juice and pineapple juice, are grateful and quench thirst. One of the best remedies to give is water for its antipyretic effect and because it stimulates the kidneys, and for its laxative effect.

The tolerance for carbohydrates during fever is limited and in many cases they are contraindicated. In many instances carbohydrates should be prohibited, hence cereals and especially sugar in every

form should be omitted from the dietary. Fat in the form of butter or cream is also contraindicated. For this reason milk should be set aside until the cream has risen. This cream should be removed and the skimmed milk should be diluted with an equal quantity of water. By this method of feeding we give a very low percentage of sugar and a low percentage of casein and practically no fat. Such feeding is sufficient to sustain life, does not increase the febrile process, and will not complicate the disease under treatment by any gastric or gastrointestinal disturbance.

155 WEST EIGHTY-FIFTH STREET.

THE EFFECTS OF CAFFEINE AND NICOTINE ON THE ACTIVITY OF THE INTESTINAL MUSCULATURE.*

BY W. ASHBY FRANKLAND, M. D.,
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The effects of caffeine and nicotine on the activity of the intestinal muscles are important because a large number of the patients who come to us with digestive disorders use coffee, tea, and tobacco. When it becomes necessary for the physician to forbid the use of these drugs, he will be fortified in his attitude by a definite knowledge of their effects, and can thus give himself as well as the patient good reasons for his opinion.

It is in dealing with cases of chronic constipation that the effects of these substances must be taken into account. The larger number of such cases coming for relief have reached the spastic stage, in which the muscles of the intestinal wall are persistently contracted. Spastic contraction may be due to the presence of hard masses of feces in the intestine which, by irritation and distention, send up to the reflex spinal centres a constant stream of impulses which return along the reflex arc persistently to maintain the contraction of the intestinal muscle. There may be other sources of irritation setting these reflexes to work, as pyloric ulcer, gallstones, a diseased appendix, or Meckel's diverticulum, malignant growths, hemorrhoids, or anal fissure.

Whatever the cause of the persistent spasm of the intestine, if caffeine is taken, the activity of the motor cells is increased and the muscular contractions become stronger, and these contractions are not coordinated into a progressive pushing movement, consequently peristalsis is not helped at all, but rather hindered by the persistent narrowing of the bowel.

If nicotine is absorbed by a tobacco user whose intestine is spastically contracted, there is a paralysis of peristalsis in addition to increased motor activity with stronger contractions which do not pass downward with any certainty, but are just as likely to pass upward, thus disorganizing completely the apparatus elaborately designed for agitating the intestinal contents and steadily pushing them toward the rectum.

The intestine is often described as a muscular tube, and its movements are referred to in terms which do not suggest the complicated function that

*Read before the George Washington University Medical Society.

it has, nor is the fact always remembered that the nerves which cause these muscles to move receive their impulses from three different sources. The interesting feature of this fact is that some drugs and other substances in common use affect some of these nerves, but not all.

There are three sets of nerve fibres supplying the intestinal muscles: 1. The vagus and spinal nerves; 2, sympathetic fibres; 3, the local system of nerves in the intestinal wall itself.

The small intestine, cecum, ascending colon, and transverse colon are supplied by a nerve trunk which is a continuation of the right vagus after it has received, while on the esophagus, a communicating branch from the left vagus. This trunk, containing inhibitory and motor fibres, leaves the stomach wall and runs with the superior mesenteric artery and its branches (1) to all parts of the intestine as far as the transverse colon. The descending colon, sigmoid, and rectum receive inhibitory fibres from the second, third, and fourth lumbar ganglia of the sympathetic chain, thence through the inferior mesenteric ganglion. Their spinal motor fibres come from the first, second and third sacral nerves through the hypogastric plexus (5).

The sympathetic fibres and the inhibitory fibres in the vagus stop the peristaltic contraction when they are stimulated (1). The motor fibres from the vagus and spinal cord bring impulses which are not coordinated for propulsion as are those of the local system. The local system of nerve fibres is called Auerbach's plexus. It extends along the entire length of the intestine and lies between the outer layer of longitudinal muscle fibres and the inner layer of circular muscle fibres. Many ganglia are distributed at short distances apart along the course of this plexus, the nerves of which supply the muscle fibres of the intestinal wall.

These nerves and ganglia constitute a complete machine for the reflex function whose activity results in that coordinated movement known as peristalsis. This reflex movement does not require any impulse from spinal or sympathetic sources, as it is independent of the connections of the gut with the central nervous system and will occur if these connections are severed (3). Its action is to send a motor impulse upward and an inhibitory impulse downward. When the intestine is irritated by pinching or by distention, a motor impulse travels upward and the gut contracts behind the distending mass, an inhibitory impulse passes downward, and the gut relaxes in front of the mass, which is thus constantly pushed along (1).

These numerous sources from which motion may be initiated in the intestine bring about several modes of action. There is the coordinated peristaltic movement which travels in but one direction, downward (1). There is what is called the pendulum movement, rhythmical contractions which seem to originate in the muscle fibres themselves, and pass in either direction (1). There are brief contractions at many points simultaneously, which keep the intestinal contents in motion, thus hastening chemical activity and absorption (2). There are several well known drugs which definitely modify these particular movements by acceleration of one or another, or by inhibiting them or by changing

their character. Among these drugs are caffeine and nicotine which, on account of the agreeable effects of coffee, tea, and tobacco in other ways, are taken many times when the effects that they would bring about in the intestinal movements already exist as a part of a diseased condition, so that they must simply and surely make matters worse by increasing this condition.

According to Cushny, "caffeine increases reflex irritability." It "resembles strychnine" which "quickens the response to stimuli" so that "impulses reach the motor cells in greater force than normally, and arouse a more powerful reaction and a correspondingly stronger muscular contraction." "Caffeine increases the irritability of muscle" but "the alimentary tract is not affected" (4).

The effects of caffeine then appear to be stimulating to the nervous centres from which come impulses to the intestinal muscles, causing contractions which are not coordinated for peristalsis. There does not seem to be any increase in the activity of the reflexes in the intestinal wall causing the peristaltic wave which would push the mass of intestinal contents downward. The tendency is to intensify contractions which narrow the lumen of the intestine and add resistance to the passage of its contents.

On injecting nicotine in small doses into the jugular vein of dogs, Bayliss and Starling found that Auerbach's plexus was paralyzed by intense stimulation of the splanchnic nerves whose influence is not motor but inhibitory. Under nicotine an intestinal contraction caused by pinching was not propagated in either direction. A bolus of cotton covered with petrolatum and put in the intestine, remained in the place where it was inserted (1). There was no peristalsis to carry it on. The rhythmical contractions become stronger, and as they pass in either direction do not perform the function of normal peristalsis. The bowels are evacuated, but vomiting also occurs.

Cushny says that "nicotine produces nausea and vomiting with repeated evacuation of the bowels. Tetanic contractions of the whole intestine may occur with almost complete contraction of the lumen." It "first stimulates, then paralyzes the sympathetic ganglia" (4) and it stimulates the spinal reflex centres.

In the light of these facts it is necessary to forbid the use of coffee, tea, and tobacco in the spastic stage of chronic constipation and in the conditions which result therefrom, as mucous colitis, mucous colic, and stercoral diarrhea.

Coffee and tobacco taken at the same time unite their effects and form a combination opposed to rational therapeutic measures—an opposition too important to be neglected. Perhaps these articles are not often etiological factors without the assistance of other influences, but their evil effects are undoubted when the disease is once established.

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THE CAMPAIGN AGAINST PULMONARY TUBERCULOSIS.

A Criticism of Dr. Thomas J. Mays's Recent Communications on Pulmonary Consumption.

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I.

Some fifteen years ago, a physician of Brooklyn published in the *NEW YORK MEDICAL JOURNAL* a tirade against antitoxin. He averred that diphtheria antitoxin was a delusion and a snare, that it was unscientific, that it was harmful, and much more in the same vein. He marshalled statistics to prove that antitoxin was not to be credited with the decrease in the mortality from diphtheria and that it was accountable for various complications. I published a refutation of the doctor's statements, my article appearing in a subsequent number of the *NEW YORK MEDICAL JOURNAL*. The developments and experience of the last fifteen years have proved the gentleman to be in the wrong. I presume he is now employing antitoxin in every case of diphtheria.

Now Doctor Mays undertakes a similar futile mission—to assail a movement which has become worldwide and which is receiving the unqualified approval of scientific men, of expert sanitarians and of the medical profession at large, not to mention intelligent laymen, whose power of judgment and discretion is not always to be regarded lightly. I once more assume the pleasant task of criticising a reactionary position, and hope that the future will prove Doctor Mays to be in the wrong.

On reading Doctor Mays's article I could not but think that he is the victim of statistics. Statistics show the decline of the tuberculosis death rate prior to the inauguration of the crusade; they show a slight increase of the death rate for the last ten years of antituberculosis activity—*ergo*, the campaign has not only proved useless, but, inferentially, is in some way responsible for that increased death rate. Having thus established his "angle of vision" the doctor conjures up a picture of a "political alliance" presenting a dark and hideous career, and he forthwith proceeds to hurl missiles at the creature of his own creation. As a matter of fact what Doctor Mays says about the "crusaders" and their supporters in legislatures, is a gross insult to the many noble men and women who are sacrificing time and money in this great effort to rid mankind of the plague; it is an insult to the hundreds of medical men who are consecrating their lives to this cause, who work without any other motive than social service; it is an insult to such men as Trudeau who, while themselves victims of the disease, spared no energy to blaze the way toward the goal—the eradication of tuberculosis.

In refuting the statements made by Doctor Mays I shall not resort to statistics. It will be far more to the point to take a general common sense view of the situation.

First of all we are confronted by the question, Is tuberculosis a germ disease? We thought this had been definitely settled by a mass of scientific evi-

dence. Of course, if Doctor Mays does not believe that the tubercle bacillus is the specific cause of tuberculosis, if he still clings to the "nerve theory," then no further argument is required and the discussion as far as he is concerned is closed. However, we will assume that the work of hundreds of competent investigators, that the almost unanimous opinion of the medical profession, have sufficiently convinced the doctor that tuberculosis is an infectious disease. In that case, why should it be separated from other infections? Surely there is no evidence that the infection with the tubercle bacillus differs in essential characteristics from other infections. The germ is always found in the lesions in every case of tuberculosis, it may be cultivated outside the body in pure culture, the lesion may be reproduced by inoculation or other artificial methods, and the bacillus may be recovered in pure culture from the lesions so induced—a far more complete compliance with Koch's postulates than is the case in the majority of undoubted infections. That tuberculosis is contagious like smallpox is a statement made by Doctor Mays and others who are not familiar with the subject (I do not accuse Doctor Mays of ignorance, but he certainly permitted his pen to slip somewhat). "If this charge is true," grandiloquently remarks Doctor Mays, "the proposed remedy (compulsory quarantine) is justifiable beyond doubt. If not true" . . . then there is an injustice done to the "American citizen," as though it would not be half so bad if he was a German citizen. Now as a matter of fact the "crusaders," at least those whose statements may be regarded as authoritative, do not maintain that tuberculosis is contagious. On the contrary the doctrine of the noncontagiousness of tuberculosis is being continually preached and finds expression in the various health catechisms and aphorisms prepared for the public. The people are told that the germ is found in the sputum and if the latter is properly disposed of, there is no danger of infection. The careful consumptive is held up as a model and given perfect freedom of mingling with other people. In fact, the problem of making the consumptive careful and therefore safe is one that is usually in the foreground of all discussions on prophylaxis of tuberculosis. Nor are the "crusaders" unmindful of the unhygienic, economic, and social conditions which render the individual susceptible to infection.

If tuberculosis is infectious, Is it transmissible? By transmissibility we mean that the infective agent may leave the body of an infected person and enter the body of another susceptible individual. "There is no difficulty in establishing the contagious or noncontagious nature of any disease," Doctor Mays informs us. I am not so sure about that. For more than a century yellow fever was regarded as contagious, and yet now we have learned that it is a transmissible infection. The contagiousness of leprosy is still an open question, and even in such well acknowledged contagious diseases as the eruptive fevers there are thousands of instances of direct contact without subsequent infection. Think of the comparatively few cases of infection with diphtheria among doctors and nurses who are exposed to the disease almost daily. The "infallible criterion" is not so infallible after all. Just why

certain persons exposed to infection or contagion do not contract the disease is as difficult to answer as it is to account for the fact that in war hundreds of soldiers may go through serious battles without a scratch. Again, the question of absolute or relative immunity, which, by the way, cannot be ascertained in a given case, makes the riddle still more difficult to solve. Doctor Mays refers to the doctors and nurses and others who have been exposed to tuberculosis and have not contracted the disease. How does he know that the consumptives in this country, for instance, did not acquire the disease as a result of exposure to the infection? Who can tell in a given case whether the disease originated *de novo* or was transmitted from another individual? However, it so happens that tuberculosis is practically the only disease, the transmissibility of which may be established beyond a reasonable doubt by experiments on animals. In almost all other infectious and contagious maladies, the disease is either not communicable to the lower animals or else the specific organism is unknown. In tuberculosis, on the other hand, the incidence of the disease among the lower animals is analogous to, if not identical with that in the human being, and experiments along this line are simple and conclusive. The farmer knows that once tuberculosis is introduced into a herd the latter sooner or later will be destroyed by the disease. Environment alone plays no part, except in making the transmission of the bacillus more possible, for if the herd is kept free from tuberculous cows the disease will not develop. Again, numerous experiments have shown that if guineapigs are exposed to the inhalation of tubercle laden dust they acquire tuberculosis. I shall mention only the classical experiments of Ravenel, De Schwenitz, and others, who transmitted the disease from one animal to another by feeding tuberculous material. Are these data worth anything? If they are, the transmissibility of tuberculosis is a well established scientific fact. If not, then let us throw the entire science of bacteriology and experimental medicine overboard and begin again where our grandfathers left off.

"That consumption is contagious or infectious is refuted, not only by the history and clinical experience of this disease, but by the cold, solid facts of figures," says Doctor Mays. We should like to see these cold, solid facts. Perhaps they are the cold storage facts which years ago led Doctor Mays to the conclusion "that pulmonary phthisis in the large majority of cases is primarily a neurosis, and that the pulmonary disintegration is secondary."¹ "Majority of the cases," is begging the question. Tuberculosis is either caused by the tubercle bacillus or it is not, and there is neither majority nor minority in this matter. That predisposition as determined by hereditary influences, environment, individual characteristics, etc., plays a most important role in the causation of tuberculosis is undisputed. And here again the "crusaders" who rushed "recklessly into a movement without giving the least concern to its possible consequences" are to be credited with most of the improvement in personal and public hygiene for the last twenty years. They have opened bedroom windows, they have built sleeping

porches, they have taught people the benefits of air, they have introduced light into the hundreds of windowless bedrooms in the slums of New York and other cities, they have abolished the more unsanitary tenements, they have helped to bring about medical inspection of schools, they have created an interest in the ill nourished child and in the subject of nutrition in general, they have improved the conditions of factories and shops, they have fought battles with food sophisticators and patent medicine vendors; in short, they have helped materially in the inauguration of the present era of prevention of disease. They have done more; they have established hospitals and sanatoriums for the proper care and treatment of tuberculous patients who once crowded the already overcrowded homes of the poor or else were kept in general hospitals, where they constituted a source of infection. Of course, Doctor Mays tells us that the treatment of tuberculosis in the olden days was superior to the modern treatment, that is, when the disease was usually recognized in the far advanced stages and the patient dosed with codliver oil, tonics, digestives, purgatives, astringents, anodynes, and narcotics, *ad nauseam* (literally). This cold storage opinion is not generally shared by the medical profession. Doctors believe that the modern treatment is far in advance of the old time drugging, and what is more, that it actually cures a larger number of cases.

Has all this activity decreased the death rate from consumption? Doctor Mays admits that there has been a gradual decrease of the death rate since 1887, and attributes the results to the "general improvement in the physical and mental hygiene of the people—a betterment of general living conditions." "On the whole," he says, "there were more food and better shelter and greater comforts, increased remuneration for labor, less poverty, and a somewhat more softened struggle in the battle for existence than there was before." All of which is very nice if it is true, but it is not. Within the last half century, during which the reduction of tuberculosis mortality is noticed, the urban population has increased by leaps and bounds, concentration of industries has brought about a marked congestion of the working population, the purchasing power of wages has been gradually coming down and the cost of food has been soaring, wealth and poverty have also increased in direct ratio, and the struggle for existence is becoming harder and harder. This period is also marked by an increase in psychasthenia, various neuroses, and insanity, which according to Doctor Mays's dictum should have increased the incidence of consumption. The undoubted decrease in the tuberculosis death rate may be more correctly accounted for, first, by the improved methods of treatment whereby a large number of consumptives have been cured, and, second, the decreased morbidity from other contagious diseases. Hazen showed that the decrease of typhoid by improving the water supply was followed by a decrease in tuberculosis. While it is quite probable that a certain amount of infection may be carried by the polluted water supply, the main influence is undoubtedly exerted indirectly by the reduction in the number of typhoid victims who become susceptible to tuberculosis during convales-

¹Mays, Thomas J. Pulmonary Consumption, Pneumonia, and Allied Diseases of the Lungs.

cence. This applies with equal if not greater force to other infectious diseases. These factors have been operating even to a greater extent within the period covered by the tuberculosis crusade, and in addition, there has been a marked improvement in public health, due entirely to this maligned anti-tuberculosis movement. Consequently, the apparent increase in the death rate from consumption must be attributed to more accurate diagnosis. In the past, deaths from tuberculosis were often reported as chronic bronchitis, pneumonia, grippe, inflammation of the lungs, and so on. With the increased knowledge, the physicians are now reporting these deaths correctly. To maintain that the general control of infectious diseases becomes inoperative in tuberculosis is absurd, and the claim that the white plague will be eliminated without any control savors of antivaccinationism and similar reactionary follies which are obstructing medical progress. No more inapplicable instance could be cited than the reference to yellow fever made by Doctor Mays. In the eradication of yellow fever by the American army he sees a practical evidence to the effect that "if we pay more attention to curing of poverty, and less to the swatting of bugs, the sooner will the object of extermination be accomplished." As a matter of fact, the eradication of yellow fever was brought about, not by curing poverty, but by the strict isolation of the infected individual and the swatting of virus carrying mosquitoes. The introduction of sanitary improvements had the same purpose in view, namely, the extermination of the mosquito. The same method is followed with precisely the same results in other contagious diseases where an intermediary host is known to be the disease carrier. Public hygiene is fast becoming an exact science with definite underlying principles applicable to all infectious diseases. These principles may be briefly summarized, as follows: 1. Exterminate the infective agent, if possible. 2. Prevent contact of the healthy individual with the infective agent. 3. Cure the disease as quickly as possible so as to stop the source of infection. 4. Increase the resistance of noninfected individuals either by an improved mode of living or artificial immunization, or both.

These principles have been faithfully followed in the campaign against grave infectious diseases with results of which the achievements of Doctor Gorgas are a brilliant illustration. The same general principles applied to tuberculosis are bound to have the same result in the eventual conquest of one of the most dreadful of plagues. What we want are assistance and guidance and not unjust criticism.

II.

Since sending the foregoing notes to the NEW YORK MEDICAL JOURNAL, I have had the privilege of reading the second article by Doctor Mays, A Plea for Saner Methods in the Treatment of Pulmonary Consumption (July 11, 1914). While reading this article, the image of Bastian, who struggled for years to maintain the doctrine of spontaneous generation, came to my mind. Then the ghosts of all the other nonconformists, who took pleasure in discrediting every advance in science, fled by; quite a respectable army! And here is Doctor Mays, still clinging to his neurosis theory, like a drowning sailor to a raft from the shattered ship. Doctor

Bastian did perform experiments and apparently obtained growths in presumably sterile fluids. Doctor Mays has not performed any experiments, but he is a clever writer and uses statistics. Of course, his opinion that "this disease is largely, if not altogether (why not altogether?) the product of a disturbance of the physiological forces within the body, or of those which play on the body from without, or of both," is very much like the advice given to students by Oliver Wendell Holmes to make a diagnosis of "obstruction of the portal circulation" in all obscure cases; it does not mean anything and sounds well. I wonder how Doctor Mays explains local tuberculosis, lupus, tuberculous adenitis, tuberculosis of the bone, joints, and other isolated organs and tissues, or acute miliary tuberculosis, in all of which "constitutional depravity" is no more a factor than in other acute and chronic infections. Contrast with this vague pathology, the orderly modern conception of tuberculosis as a distinct pathological entity, which depends on a definite exciting agent, which pursues a certain definite course, which shows a constant interaction between the exciting agent and the body cells; contrast these two conceptions and see whether the latter is not more consistent with science and logic. But, Doctor Mays uses statistics. He compares the presanatorium results with those obtained at Saranac Lake and finds the latter unfavorable. Of course, he takes no account of the totally different conditions under which these results were obtained, at least, he does not tell us what these conditions were, nor can we be at all sure of the accuracy of diagnosis being alike in the two sets of cases. Were I so disposed, I could adduce all sorts of statistics showing results far superior to those obtained by Flint or Williams; it all depends on the statistician. While statistics are of extreme value, they are worthless when abused. This is practically the case in tuberculosis, a disease which is often self limited and in which the prognosis is very uncertain. Given a certain number of consumptives, no one can tell how many will survive a most inappropriate treatment or how many will die under the best of care. Some years ago, for instance, a statement was made by a homeopathic physician that at the sanatorium at Rutland, Mass., more patients recovered under homeopathic treatment than under the treatment of the "regulars," and this gentleman "proved" it by *statistics*. Time and again a certain drug or a system of treatment has been heralded as a sure cure for tuberculosis, and again the claims have been supported by statistics. "In estimating the value of medicinal treatment in any disease," correctly remarks Doctor Mays, "it is essential to ascertain, at least approximately, how much of the recovery that goes with it is attributable to the normal resistance of the bodily forces, and how much to the drug forces." However, this is no easy task, and all such approximations contain a large element of guesswork. The best we can do is to determine as nearly as we can whether a given treatment is consistent with our ideas of the nature of the disease in question. In other words, if the disease is due largely to lack of elimination of the effete metabolic products, drugs, or a system of treatment which has been found to aid elimination

should prove useful, if not curative. If the condition is caused by lack of nutrition, such drugs or regimen as will improve the patient's nutrition are distinctly indicated. If it is necessary to increase the body resistance, certain substances that have been found by experience or experiment to stimulate the production of immune substances may prove of great value. This is what is generally called "rational therapeutics," in contradistinction to the irrational therapy of the shotgun prescriber. Looking at the treatment of tuberculosis from this standpoint, I would ask Doctor Mays what justification he has for his sweeping condemnation of the modern sanatorium treatment of tuberculosis? What is it that the sanatorium is doing that may be interpreted as injurious to the consumptives? Is the removal of the patient from a dingy, overcrowded, ill smelling slum room to an open, airy, clean and picturesquely situated shack an injury? Is the substitution of a wholesome, nourishing, and properly regulated diet for the starvation diet of the poor consumptive an injury? Is the regulation of the patient's rest and exercise under the supervision of especially trained attendants an injury? Wherein does the sanatorium fail in its efforts to invigorate the patient, to increase his resistance, to place him in the very best condition to regain his health, if possible, and to send him home a breadwinner? The forced imprisonment of which the doctor complains so vehemently is no more an imprisonment than that to which we subject a patient with typhoid fever, who is not permitted to eat everything he wants, to get out of bed when he feels like it, to entertain visitors, etc. It is a restriction on personal liberty imposed by the disease and not by the attending physician.

Another count in the indictment is that drugs are not used in sanatoriums. As a matter of fact, every sanatorium uses well known drugs for the relief of urgent symptoms, such as persistent harassing cough, night sweats, marked anorexia, constipation, hemoptysis, etc. It is true, that in many sanatoriums and even in private practice, tuberculin is employed in the treatment of certain selected cases and, it is asserted, with gratifying results. But in no instance is tuberculin regarded as a specific. It has been found by competent observers that in small doses tuberculin often acts as a stimulant, exciting a mild reaction in the tissue cells (a general reaction means an overdose), with the production of immune substances, or greater metabolic activity (if the doctor will rather have it so). Assuming that these observations are correct, it is hard to see why a poisonous substance like strychnine should be regarded as nearly a specific, and its use in very large doses, advised (Mays), while a less toxic substance should be taboo simply because it is derived from a microscopical plant of somewhat different biological character from *nuxvomica*? Neither the sanatorium nor scientific medicine is to blame for the dearth of medicinal agents for the cure of tuberculosis or other diseases. It is of no use to put it all on the shoulders of the much abused therapeutic nihilist. The Lord knows, our friends the homeopaths, the eclectics, and other "yarb doctors," are scanning the woods and the prairies, the hills and the dales in search of pana-

ceas, and what have they produced? Of course, now and then some really valuable agent is discovered, and the therapeutic nihilist is the first to subject this agent to a careful scrutiny and avail himself of it, if found of real worth.

In conclusion, I wish to emphasize that Doctor Mays's attack on the modern treatment of tuberculosis is absurd and unworthy of a man who occupies a prominent position in the medical profession.

THE VALUE OF RENAL FUNCTIONAL TESTS TO THE SURGEON AND THE LIMITATIONS OF THESE TESTS.*

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The estimation of renal function is of vital interest to the surgeon as well as to the internist. In ascertaining the functional capacity of the kidney, judicious selection of tests is the key to the maximum amount of information from a minimum expenditure of time and energy. The number of tests is now so large that it is impossible to use all in any individual case. It is not necessary, moreover, since all of the available information is forthcoming at times from a single test or from the proper combination of a small number of tests. Only through familiarity with the reliability, value and limitations, peculiarities, and the significance of the findings of each test in various types of disease is the most profitable selection of tests made possible.

Certain tests, such as lactose and the chlorides, prove of great value to the internist, but are practically valueless from the standpoint of the surgeon. Some tests are valuable for an estimation of total function, but cannot be used in conjunction with ureteral catheterization. Other tests may be of no value for the estimation of total function, but may be very valuable in conjunction with ureteral catheterization for estimating the relative functional ability. Urea estimations of the twenty-four hour output give, as a rule, information of but little value, but urea estimations of catheterized specimens give a very accurate idea of the relative amount of work done by each kidney.

The renal functional capacity is usually ascertained in one of two ways: First, tests of excretory capacity from the quantitative determination of the secretion of various substances in the urine; second, tests of retention through the determination of the concentration of certain substances in the blood: cryoscopy, blood urea, and total incoagulable nitrogen being the tests most generally employed. The information given by many of the tests is of the same character, but is more accurately furnished by one test than by others. For example, there is a certain parallelism between the excretion of the different dye substances, but as phthalein furnishes more accurately all the information obtainable from this group of substances, no advantage attaches to the employment of all.

Renal functional tests have already proved their great value to the surgeon in two types of cases. First, in the surgical diseases of the kidney second-

*Read before the New York Academy of Medicine, March 5, 1914.

ary to obstruction in the lower urinary tract, and, secondly, in the unilateral and bilateral surgical diseases in association with ureteral catheterization. In previous communications by Doctor Rowntree and myself, on the subject of renal function, attention has been called to the value of phthalein in affording an index to the renal functional capacity in the changes resulting from obstruction in the lower urinary tract. It was pointed out that such patients are frequently the subject of hydronephrosis, pyonephrosis, pyelonephritis, pressure atrophy, and the resulting changes in functional activity, and that the urine output, urea, and total solids might be practically normal and yet the patient be on the verge of renal failure, which would surely be precipitated by any radical surgical interference. The phthalein test was shown to be of value in all these cases and to allow of differentiation between those with severe renal damage and those in which the renal involvement was slight. It was further shown that the marked improvement of the renal condition and the decreased operative risk which followed the adoption of preliminary treatment, either through the use of an inlying catheter or suprapubic drainage, was the result to a large extent of the improvement of the renal functional capacity. It was held that the test made it possible to determine the cases suitable or unsuitable for operation and also to determine in any given case the most propitious time for surgical intervention.

Subsequently, a number of tests have been used in order to determine if any individual test or any combination of tests furnishes information other than that derived from the use of phthalein. Choice was made of what appeared to be the most important representatives. Of the excretory tests, lactose, diastase, and urea were employed, and of the retention tests, cryoscopy and blood urea. Lactose was employed according to Schlayer's technic. Diastase was introduced into functional renal work by Wohlgemuth for determining the relative functional capacity of the two kidneys. A modification of this method was devised by us to make the test adaptable for determining the total renal functional capacity. The diastatic activity is expressed by a formula which represents the number of c. c. of a 0.1 per cent. freshly prepared soluble starch solution capable of being digested at 38° C. in thirty minutes by one c. c. of the urine as originally diluted. The urea content of the twenty-four hour specimens of urine was determined by the Doremus and Marshall methods. The principle of Marshall's method consists in the conversion of the urea into ammonium carbonate by means of an enzyme urease present in an extract of the soy bean and the titration with standard hydrochloric acid and methyl orange. The freezing point of the serum was made in the ordinary way, using the Beckman apparatus, twenty-five to fifty c. c. of blood usually being taken from the patient. The blood urea was determined according to Marshall's method. The lactose test was employed in a considerable series (about twenty-two) and in only two was a positive test for sugar obtained. The lactose test in this type of case has proved of but little value from a diagnostic standpoint and of no value in relation to prognosis. In many of these cases, although no sugar appeared in

the urine following the lactose injection, the clinical condition of the patient, as well as the phthalein excretion, indicated a good grade of renal function.

The failure on the part of lactose to appear in the urine is in keeping with our earlier experience with phloridzin in this type of renal disease. In our early work phloridzin was used in a small series of cases of renal changes second to prostatic hypertrophy, but in not a single instance was sugar recovered. The almost constant suppression of lactose in these cases, although it renders the test useless, is an interesting phenomenon (now being worked on by Keith). The prognostic significance of this test in cases of urinary retention, compared with chronic nephritis, is striking. The absence of glycosuria following the injection of lactose or its elimination in mere traces in chronic nephritis, usually means a bad prognosis. In cases of surgical disease it indicates renal derangement, but not necessarily derangement of a severe degree. In the series of cases in which diastase estimations were made, in some cases with severe renal damage, the diastase content was normal. In a few cases in which the phthalein and the clinical findings showed only slight renal impairment, the diastase was markedly decreased. In the majority of instances of disease, a decreased diastatic activity was present, but no constant nor definite relationship between the diastatic activity and the true renal function, as shown by phthalein and the clinical findings, exists. Where, however, a complete absence of diastase in the urine occurs, it apparently indicates an extremely bad renal derangement. Two cases with severe renal impairment, as shown by excretory tests and the presence of marked cumulative phenomena, showed no diastase and death occurred within two weeks in one, and within a month in the other. Autopsies were obtained in each of these cases and revealed advanced renal disease.

Urea estimations of the twenty-four hour output give information of but very little value. Patients with very low renal function and advanced renal disease frequently excrete larger quantities than those in good clinical condition and with comparatively good renal function. When, however, there is persistently a very low urea elimination, it indicates a severe grade of renal disturbance. In using the second group of tests, namely, tests of retention, a study of what is to be considered as the normal limit seems advisable. Although Folin and Denis accepted 0.28 gram of urea per litre as the normal, where no dietary control is exercised in health or in many diseases without recognizable renal changes, much higher values are encountered. From our observations it seems advisable to place the limit of normal at 0.55 gram for urea and -60° C. for the freezing point. In every instance in which a freezing point lower than -60° C. was encountered, except in one case, the renal function was seriously involved, as indicated by phthalein and the general clinical condition. A decrease in phthalein output of serious import may, however, be associated with a normal delta. The blood urea has proved a better index to the renal condition than cryoscopy, and in several of our cases afforded indications of cumulative phenomena earlier than cryoscopy. The explanation of decreased freezing point has not yet

been satisfactorily worked out. In no instance was a normal blood urea associated with markedly decreased phthalein, while, on the other hand, in every instance in which the phthalein was high the blood urea was normal.

From a consideration of these data it appears that our previous assertions in relation to the value of phthalein were well founded. The phthalein test undoubtedly affords the truest index of the functional capacity of the kidney in this group of cases. In no instance were its findings incompatible with the clinical condition and subsequent history. Corroborative evidence only was adduced from the employment of the other tests, particularly valuable in connection herewith being the presence of cumulative phenomena. In several instances, however, the tests of retention failed to indicate the serious nature of the renal change, so that the findings of these tests can be considered of great value only when marked retention is indicated. Diastase and urea are of about equal value and are unreliable indices to renal functional capacity generally, but where very low values are persistently indicated they have some prognostic significance. Cumulative phenomena do not occur in the presence of good renal functional capacity, consequently the tests are unnecessary where phthalein is normal. They do not occur constantly or early in the presence of even marked renal involvement, and consequently would prove misleading in a certain proportion of cases with phthalein not employed. Positive cumulative phenomena, however, are of the greatest prognostic significance. When we encounter an extremely low renal function as indicated by phthalein, associated with marked retention of urea or great increase in incoagulable nitrogen, the condition as a rule is of more serious import than the presence of a low renal excretory capacity as indicated by phthalein, but with the absence of cumulative phenomena such as increased urea or incoagulable nitrogen.

We do not attempt to draw a definite functional line below which one should not operate. The tests simply indicate the renal function, and it depends on the operator what risks he is willing to assume, the probabilities of fatality increasing as the renal function decreases. We do, however, recognize when we have low function, which otherwise may be unrecognized, and have found that preliminary treatment in most instances, whether it be by suprapubic, perineal, or catheter drainage, allows a regeneration of function which will be indicated by the test, and enables the patient later to undergo the greater operation of prostatectomy with less risk. The test can be used with equal advantage preliminary to any surgical procedure, where it is deemed important to know the true functional capacity of the kidneys.

It should be remembered that the presence of a good renal function is only one factor, and that other conditions contraindicating or requiring preliminary treatment should not be neglected.

FUNCTIONAL TESTS IN ASSOCIATION WITH URETERAL CATHETERIZATION.

In this group, it is desirable to have information in regard to three phenomena: First, the total or

combined renal function without ureteral catheterization; second, the relative function; and, third, the absolute functional value, if possible, of each kidney. Functional tests in the past have demonstrated their great value in this group, but they have at most been able to determine only the relative working capacity of each kidney and have shed very little light on the absolute functional capacity of each organ or on the total or combined renal function. Urea, indigo carmin, methylene blue, diastase, cryoscopy, phloridzin, and Albarran's polyuria test have been used along with clinical studies in analysis of the separate urines to indicate which is the diseased or most diseased kidney. In this class of cases the shortcomings of most of these tests are very evident, since they give us only a relative functional value of the kidneys. One kidney may be doing two or three times as much work as the opposite organ, yet be incapable of assuming additional work or of carrying on adequate work when needed. Phthalein has prognostically shown great advantage over these other functional tests in that it indicates the absolute as well as the relative value of each kidney, so that one knows, not only which is the diseased or more diseased, but the amount of work which each is doing relative to the other, and, what is yet of greater importance, the amount of work for each relative to the normal, since this allows a prognosis concerning the capacity of the remaining kidney to carry on renal function. The phthalein test is incomparable so far as total function is concerned and gives information frequently unavailable from any other source. In cases in which leakage and inhibition are absent, it furnishes in itself all the necessary information in regard to the function of each kidney. The employment of functional tests in association with ureteral catheterization, is attended with two great difficulties, which in certain cases make it impossible always to obtain all the desirable information from any one test, namely, inhibition of function and leakage around the ureteral catheter. It is the occurrence of these two difficulties, but particularly inhibition, which renders experience and judgment necessary for the interpretation of functional findings in association with ureteral catheterization. Any discrepancy due to inhibition can be detected readily through the determination by phthalein of total renal function without ureteral catheterization.

For instance, with the total phthalein excretion normal or nearly normal, one kidney at least is normal or practically so. If on ureteral catheterization one should find on one side decreased function, and pathological findings which, under ordinary conditions, would be an indication for nephrectomy, one should not hesitate to remove the diseased kidney, even though the function of the supposed healthy kidney, estimated with the aid of the catheter, showed an apparently dangerously low excretion. The low function here is clearly the result of inhibition, the extent of which is indicated by the discrepancy between the separated function and the total function without ureteral catheterization.

Unfortunately the inhibition is not always equal on each side, and under such conditions one is not justified in accepting the phthalein or total urea

from each side as the true index of the relative value of the two kidneys. In connection herewith, diastase and urea percentage, together with the difference in the intensity of urinary pigment and consideration of the total phthalein, are of value. Indeed it is in connection herewith that urea percentage finds its greatest usefulness. By combining the information obtained through clinical studies, analysis of the separated urines, total function by phthalein without ureteral catheterization, and the relative function through urea percentage or diastase, it is indeed very rare that one would have any difficulty concerning the functional ability of one or both kidneys. In order to obtain an accurate quantitative estimation of the function of each side, it is necessary to secure complete collection of the urine. By the use of special catheters this is usually possible. In a certain proportion of cases, especially in patients with relaxed ureters, leakage does occur and sometimes in amount sufficient to nullify the findings. Unless one repeats the catheterization, which is not always possible, using the Garceau catheter on one side and transvesical collection on the other, knowledge of the relative functional values must be largely obtained from the urea percentage, diastase, and time of appearance of the phthalein. While the total urea from the combined urine is no true index of the functional activity of the kidneys, the comparative urea output from each side is of decided value. The same amount of urea is presented to each kidney for elimination, and therefore it is possible to estimate to some extent the proportionate amount of work which each kidney is performing. It is of most value when there is a marked disproportion from the two sides. In the vast majority of cases in which neither inhibition nor leakage occurs, the combination of total function, estimated by phthalein, and relative function, estimated by urea, would give all of the necessary information; but when inhibition and leakage occur, the relative functional power, estimated by the amount of urea excreted, can readily be seen to be valueless. When either of these difficulties arises, one has to depend upon total function and obtain an idea of the relative function from urea percentage and diastase. Urea percentage and diastase have equal significance, but when inhibition is absent and leakage occurs diastase is more reliable, since it is not so readily affected through dilution. Phloridzin has proved of comparatively little value in our experience and adds practically nothing to the information obtainable from the other tests.

PROCEDURE.

The method of procedure which has furnished the greatest amount of information is as follows: In all cases demanding ureteral catheterization, the total functional capacity is first determined by phthalein without ureteral catheterization. Where the phthalein is low, a cryoscopy of the blood serum or a blood urea determination is made according to Marshall's method. Where the ureteral catheter is in place and the flow of urine has become established, phthalein is given intravenously and the time of appearance on the two sides noted. Urine is then collected for periods of from fifteen minutes to

one hour, starting from the first appearance of the drug, the length of period depending upon the character of the information desired. Where leakage or inhibition of a grade sufficient to interfere with quantitative determinations does not occur, the quantity of phthalein from each side during the period of fifteen minutes, or preferably one half hour, is considered the index of the function of the individual kidney. Total urea estimations almost invariably corroborate the findings of the phthalein test as regards the relative function. In the presence of considerable leakage, dependence is placed upon the time of appearance of the phthalein, urea percentage, and diastase. In the presence of inhibition, urea percentage and diastase are the factors of greatest value, taken in conjunction with the clinical findings. The inhibition which occurs in these cases is largely the result of the pain which is produced by the instrumentation. As a rule, the less the discomfort caused by the manipulations of ureteral catheterization, the less frequently will inhibition be encountered.

Most of the criticism of functional tests has come from those who have not used them and are unfamiliar with the nature of the information supplied. It is true that, in the vast majority of cases, a successful nephrectomy of the diseased side from the standpoint of renal function can be performed where the urine from the opposite kidney is found apparently normal on analysis. Unfortunately, however, the problems are not always so simple. Cases of bilateral diseases are encountered in which a knowledge of the renal function becomes of absolutely vital importance, and in which every source of information must be called upon before the proper line of procedure can be employed. Again, in certain cases, particularly those of tuberculosis, it may be possible to introduce the catheter only on one side. In such cases one must depend to a great extent upon the information derived from function, as to the condition of the opposite kidney, as the cystoscopic appearance of the ureteral orifices is frequently deceptive. To illustrate the value of functional study under these circumstances the following case is instructive:

CASE. In this case tubercle bacilli were demonstrated in the urine. Cystoscopic examination showed ulceration of the right ureteral orifice with an apparently normal left ureteral orifice. The left side was readily catheterized, while it was impossible, on account of the ulceration, to introduce a catheter on the right. To our surprise, the urine from the left kidney contained a great deal of pus, also tubercle bacilli. With ordinary methods of examination this patient would have to be refused any surgical interference unless an exploratory incision was made on the right side, which under the circumstances would scarcely seem justifiable. Although it was impossible to catheterize the right side, it was possible to get the function of this kidney across the bladder and to show that, not only was this a normal kidney, but that there was a hypertrophic function, the tuberculosis probably involving only the lower end of the ureter. The left kidney was successfully removed.

The recognition of hypoplastic and infantile kidneys is practically impossible without functional estimations. This infantile kidney is a particularly dangerous type, because the urine which is secreted by this kidney is apparently normal in every respect, except that of quality. Functional estimations have proved also of great value in the differ-

entiation between pyelitis and pyelonephritis. In pyelitis the renal function is practically normal, while in pyelonephritis there is decreased function, depending upon the degree of destruction. It has enabled us to select with considerable accuracy cases of renal infection suitable for pelvic lavage. In pyelonephritis, so far, pelvic lavage has produced slight if any improvement in the infection, while the vast majority of the cases of pyelitis, if not of too long duration, and with marked changes in the pelvic walls, have responded promptly and in a most brilliant manner to lavage. Our best results have been obtained in this class of cases by beginning with one half to one per cent. silver and increasing in some cases as high as five per cent. By means of x ray examinations, pyelography, and function, the diagnosis of pure pyelitis can be made with a great degree of accuracy and the possibilities of cure from pelvic lavage determined.

LIMITATIONS OF FUNCTIONAL TESTS.

Functional studies reveal only the excretory capacity of the kidney. By themselves they do not make the diagnosis or settle the prognosis. The value of any of these excretory tests is purely empirical, because of lack of sound physiological information dealing with the ultimate physics and chemistry of the excretion of any substance by any part of the kidney, the tubules, or glomeruli. They indicate only the functional value of the kidney at the time at which the test is performed, but cannot of themselves indicate what the renal function will be tomorrow or next week. This latter information must be derived from the knowledge of the underlying pathological process which is producing the reduced function. For example, a degree of renal function in chronic nephritis which would indicate a very grave prognosis, might in polycystic kidneys be consistent with a considerable period of life. Again, there is a kidney whose function is being markedly reduced by the presence of a stone, blocking the ureter or in the pelvis. It is impossible to say, from functional studies alone, of what power of regeneration that kidney is capable after the removal of the cause of the reduced function.

Furthermore, it does not always follow that an individual with a urinary obstruction and a good renal function is necessarily, from the standpoint of function, a good operative risk. To illustrate, a patient with a very large residual urine and a considerable grade of hydronephrosis, but without infection, may present a renal function which, under ordinary circumstances, would be considered sufficient to warrant an operative procedure, and an operative procedure would be warranted if this same function could be preserved after operation. We know, however, from practical experience, that this class of case is an extremely dangerous one, because ascending infection may, and does frequently occur after operative interference. We have learned that this type of case should receive preliminary treatment, either by catheter or suprapubic drainage, notwithstanding the fact that it may have when first seen a good renal function. The preliminary treatment is indicated in these cases so that, should ascending infection occur, a success-

ful outcome may not be jeopardized by the reduced vitality of the patient, resulting from the operative shock of the prostatectomy.

In conclusion, functional tests are of greatest value when used in conjunction with careful clinical studies; when employed with the proper regard for their value and limitations, they furnish valuable information in diagnosis, prognosis, and selection of lines of treatment.

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PYLORIC AND DUODENAL OBSTRUCTION.*

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Before proceeding to the diagnosis of pyloric and duodenal obstruction as such, I wish again to call attention to the fallacious and confused state of much of our medical textbook knowledge. The general practitioner who is not in close touch with the study of ante mortem pathology in the operating room or who does not keep up with the surgical literature, has almost no chance at all to make timely diagnosis of upper abdominal lesions. The manner in which the subjects of these lesions is copied from one medical textbook to another and carried on and on through many editions is almost unbelievable. It is only within the last few years that students left college with any useful knowledge concerning gallstone disease, pyloric ulcer, obstruction, and many digestive disturbances of reflex origin. Even though the general practitioner closely follows the many textbooks of medicine, which are supposed to guide him safely in times of doubt, yet he must frequently err because of the numerous mistakes.

As proof of this, it is only necessary to turn to the various textbooks of medicine and find the lengthy chapters devoted to chronic gastric catarrh, nervous dyspepsia, hyperchlorhydria, gastralgia, etc. Thus Tyson, in his textbook on medicine, in differentiating gastralgia from biliary colic says: "Careful examination will generally discover the definite seat of the pain in biliary colic, while the almost invariable presence of jaundice settles the question." Now we all know that jaundice is a great exception in these cases, but it has been but a few years since we were taught to rely on colic, jaundice, and the passage of stones by the bowel for a diagnosis of gallstone disease, and this thought is still carried along to a great extent in the textbooks. Thus, this same author in speaking of pain in gastric and duodenal ulcer says, "it is characteristic of the pain of ulcer of the stomach that it occurs almost immediately after taking food," also, "finally it is to be remembered of gastric ulcer that it is often latent throughout, quite without symptoms during life, and recognized for the first time at necropsy." Further, under diagnosis, he says, "if hemorrhage of the kind described is present in connection with the other symptoms named, it affords conclusive evidence of ulcer, but in its absence there must often remain doubt. Aside from hemorrhage the

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most characteristic symptom is pain, and only in gastralgia and tabes dorsalis do such pains occur." He also says under this same head, "if palpation recognizes a hardening, there is further reason to believe the case is one of ulcer." In his differentiation of cancer from ulcer he says of the former, "through facts to be weighed in the balance as to the question of cancer or a palpable tumor, the greater age of the patient (always over thirty), the extreme emaciation and cachectic appearance, and the intermittent vomiting of large quantities of accumulated ingesta, sometimes of blood mixed with mucus or blood of the 'coffee grounds' character, is contrasted with the bright pure blood of ulcer." Even in the eighth (1912) edition of Osler's textbook on medicine, he gives several pages to the discussion of chronic catarrh of the stomach, but from his own definition of this condition it would be impossible to formulate any definite opinion whatever as to the real nature of this trouble. Under causes he says, "anemia, chlorosis, chronic tuberculosis, gout, diabetes, and Bright's disease, are often associated with chronic gastric catarrh," when in fact we should know that this association is reversed—that his synonymous term of chronic dyspepsia and chronic gastritis, is the result of these and many other preceding conditions. He even follows Ewald's old classification of chronic gastritis. In speaking of the diagnosis of cancer of the stomach from chronic dyspepsia or chronic catarrh, he says, "it may be very difficult when tumor is not present." He again says, "practically a large majority of all cases of indigestion comes from hasty and imperfect mastication of the food and from overeating." When the truth is, without regard to care along these lines, a large majority of gastric disturbances are associated with gallbladder, appendicular, pelvic, kidney, and pancreatic disease, as well as intestinal adhesions of various types, pyloric ulcers and cancers, all of which were produced regardless of care along these lines. In regard to pyloric ulcer, Osler, in this book, still says, "the condition may be latent," and that "hemorrhage is present in at least one third of all cases." He still insists that "this" (ulcer pain) "is most frequently induced by taking food." He also speaks of the pain being so severe in ulcer that the patient must bend over a chair, lie flat on the floor with a pillow under him, or have morphine frequently, and says that, "in all ulcers with thickened bases an indurated mass may be felt in the neighborhood of the pylorus." He also undertakes to show the mortality from medical treatment of pyloric ulcer to be 12.4 per cent., while with surgical treatment the mortality is twenty per cent. He still devotes space to gastralgia as such, and says, "the symptoms are very characteristic; they frequently come on at night," and further that, "more commonly the taking of food relieves the pain"; then again he says, "the diagnosis affords many difficulties" with which, I believe, all heartily agree. Again, under diagnosis, he says, "the fact that the pain is most marked when the stomach is empty and is relieved by the taking of food is sometimes regarded as pathognomonic of simple gastralgia, but to this there are many exceptions and in ulcer the pain may be severe on eating"; again he says,

"and in any long standing case of gastralgia in which the attacks recur at intervals for years, the question of cholelithiasis should be considered." He also writes of supersecretion as a gastric neurosis, when in fact it has been known for years that this trouble always has an organic cause, as ulcer, gallbladder, and appendicular infection, adhesions, etc. These books by Tyson and Osler are here referred to, because they are standard textbooks, used by the physician, but they form no exception to this rule of textbook teaching.

Only the acquired forms of pyloric and duodenal obstruction will be taken up here. Neither will time be devoted to the condition of pylorospasm *per se*, as it is probably never a pure neurosis occurring primarily, but is secondary to some definite pathological condition which constitutes the disease itself, with the spasm as a symptom. Pyloric or duodenal ulcer is the commonest cause of pyloric spasm which is, as Moynihan suggests, protective usually to a duodenal ulcer. How frequently it may be excited by conditions wholly outside the stomach, as from gallbladder and appendicular disease, has not been definitely determined. The normal stomach should be empty of a previous meal in twelve hours, otherwise stasis has occurred, but pylorospasm cannot produce such a stasis, though it is not denied that it may delay to some extent the emptying of this organ. Pylorospasm, however, is more or less of a factor at times in organic obstruction. The important causes of pyloric obstruction are cancer and scar contraction from ulcer, inside the organ, and tumor pressure and adhesions or contracting fibrous bands, on the outside. Of course the intrinsic causes are the most common. Pyloric ulcer is a common condition and often becomes extensive, producing great destruction. Ulcer of the stomach and duodenum may be small and last for years, not producing extensive tissue destruction, and, of course in such cases, without causing great scar contraction, but in many instances these ulcers become very large and the tissue destruction and cicatrization in these cases are proportionate. It has been my experience to find the largest ulcers and the most vicious and extensive scars in the first portion of the duodenum.

Going hand in hand with the ulcerative or destructive process in these ulcers, we find a protective degree of tissue thickening and induration, to the extent often that the base of the ulcer is hard and bulky, feeling like a tough fibrous or cartilaginous plate set in the bowel wall. Going hand in hand also with this ulcerative process, sooner or later, will be found the result of Nature's effort at healing, a large contracting scar. It is remarkable how viciously these scars will contract. In these hard, scarred ulcer bases, the ulcerative process may still be active or not. As most ulcers are, properly speaking, pyloric, that is, either just inside or outside this ring, this scar contraction will sooner or later interfere with the normal functions of that part and, in proportion as gastric drainage is interfered with, just so will we observe the symptoms of pyloric blockade. In the benign blockades produced by ulcer contraction, the onset and course of the obstructive symptoms are usually gradual, lasting months and in some cases a few years. In one

of our cases the period from which the patient began to vomit occasionally, until the vomiting became daily, covered nearly four years though the condition gradually got worse and within two or three months after it became of daily occurrence, he was vomiting after every meal of any importance and his loss in weight had been great. In other words, the condition was slow yet gradually progressed. The shortest period of ulcer history and obstruction which we have been able to note in any of our cases was the following:

CASE I. A girl, aged eighteen years, on whom we operated for appendicitis in September, 1909, but in whom there was some increase of acid chemically, but a clinical hyperchlorhydria could hardly be said to exist, though there had been some gastric disturbances approaching this type at times in the last few weeks. The patient had had several attacks of appendicitis in the last few months, and had finally become bedridden from a continuous subacute right iliac involvement. Duodenal ulcer was suspected, and when the abdomen was opened a large discolored sacculent appendix was removed which had been bound down by many recent adhesions, together with some exudative mass. The stomach and duodenum were looked over carefully, palpated, and inspected to make sure that no ulcer was present, as we had suspected, and had prepared the necessary instruments for an operation. Nothing was found at all. This girl made a prompt recovery and soon weighed 120 pounds. Then, in December of the same year, she began to have clinical symptoms of hyperacidity; about January 1st, eating began to distress immediately rather than relieve. This rapidly increased, and during the month she began to vomit occasionally because of insufficient gastric drainage. This rapidly increased, and we were again consulted in April, 1910, when her weight had dropped to eighty-six pounds; she was vomiting almost daily and we urged her to have the abdomen opened again because of pyloric blockage. This was the first time we had seen her since she left the hospital, the fall before. Her mother refused the operation for her at this time, but she returned again about June 1st of the same year when she weighed sixty pounds and was vomiting very freely after taking any sort of nourishment, even throwing up small draughts of water or other liquid. An operation was arranged and when the abdomen was opened, we found a hard, thickened, and extensively scarred ulcer base on the front wall of the duodenum just below the pylorus, as large as a dollar, but with extending lines of scar tissue which radiated about the gut at that point. The gut was almost entirely surrounded, and from the clutch of this octopuslike scar was distorted and narrowed to the clinical condition of complete obstruction. A posterior no loop gastrojejunostomy, without attention to the local lesion, gave her a complete recovery. She never vomited after the operation while in the hospital, and at the end of two months weighed 115 pounds. This patient is still at her normal weight of 120 pounds, and has no further clinical evidence of hyperacidity and no gastric distress.

We get a great deal of textbook and didactic teaching regarding the importance of chronic gastritis, a condition supposed to excite almost any type of digestive disturbance, with the secretion of much mucus, the production of vomiting, with almost all other gastric conditions known, etc., but it is remarkable that, as soon as the cause is removed, this highly respected chronic gastritis disappears like a phantom, just as it did in this patient, as shown by the disappearance of all burning sensations and distress in the stomach after the third day following operation, the absence of vomiting, and her ability to have a tray on the eighth day without any digestive disturbances. Intrinsic obstruction from cancer is commonly of much shorter duration than the average ulcer contraction.

CASE II. We met with one case last year in a man in his sixties who had had obstructive symptoms for two

years, of moderate intensity, worse at times than at others. His first obstructive symptoms caused him to consult a surgeon in Germany while traveling in 1910, who explained the condition to him. Nothing was done, however, but the condition gradually progressed from bad to worse, but very slowly indeed, until a few months before we saw him last April, a tumor was found by the attending physician. The condition became worse and the tumor larger until he was compelled to come to the hospital on a cot. He was vomiting daily and was much emaciated. On examination, we found a tumor about the size of a small fist in the midline and to the left just above the umbilicus, which was freely movable with the hand and respiration. On opening the abdomen, this was found to be a malignant growth which had evidently started from the back and upper wall of the stomach near the pylorus, which had gradually but surely brought about obstruction. We were unable to determine whether or not ulcer scars were present, but his previous history was very suggestive of an old ulcer, which no doubt had something to do with his early obstructive symptoms. Blockade from extrinsic tumor pressure or from the pressure of adhesions, etc., of course would progress as the cause progressed.

Now, how shall we make a timely diagnosis of pyloric blockage? First, it seems to me that it is plainly our duty to understand that it is not mere treatment that the stomach patients over the country need, but proper diagnosis, and to that end the most important factor in the beginning is a full and complete past and present history written as the patient gives it, enlarged upon by the attendant as required, until everything leading down to the present date in regard to all the patient's complaints is properly considered. An ulcer history will be found to precede a large part of these cases; again, the ulcer history may lead down to a given time at which a cancer history seems to displace that of ulcer, and which in turn will lead us down to the present condition of blockage.

CASE III. In 1910, a man, aged fifty-seven years, was referred to us, who gave a typical ulcer history lasting over a period of twenty-four years, but inside the last six months his stomach symptoms had entirely changed. Instead of distention coming at the end of two or three hours after eating, which was moderate and always without pain other than a little gnawing sensation, he began to have more severe distress than usual about thirty minutes after eating, and finally a few minutes after eating. In the last two months his stomach would hurt before he left the table. By that time his stomach never felt well when empty, but felt worse after eating full meals, and finally after light meals. He had sharp pains at times in the pit of the stomach, which had never been present before. His appetite, weight, and strength were greatly failing, he belched a great deal, and often brought up a sour fluid. In the last thirty days obstructive vomiting began. No mass was palpable, but a diagnosis of carcinoma was made very easily, and when the abdomen was opened for the purpose of making a posterior gastrojejunostomy to drain the stomach, the growth was found to begin just below the pylorus, at which point a large ulcer scar was present. The cancer extended throughout the whole length of the duodenum and in a diffused manner, the stomach itself being entirely free. Relief was complete and he lived almost a year without important symptoms, until within the last thirty days of his life and his weight, which had dropped down to 125 pounds again went back to 158, within two pounds of his normal weight for the past several years.

It is now known that the large majority of the cancers of the stomach begin in an ulcer base. Having studied the symptoms down to the time when obstruction began, then we will find the earliest symptoms of this blockade to be increased digestive disturbances on taking food. Food then distresses rather than relieves, and usually in proportion to the amount and character taken. In fact, there

may be much pain after meals, and in cancer sharp pains are frequent. The appetite, weight, and strength gradually diminish in proportion as the food is prevented from passing beyond the obstructed point. The patient feels full in the stomach and finally begins to vomit occasionally, going from bad to worse, slowly or rapidly according to the progress of the lesion, until the vomiting will finally occur daily, and later possibly after each portion of food. Thirst has gradually developed and may become extreme, and the patient will frequently notice that he vomits a much greater amount of liquids than he has taken and that he vomits old food remnants very often. There will be a history of periods of improvement under treatment or dieting or otherwise, but always followed, sooner or later, by relapses. Progressiveness is plainly shown in his history. Peristaltic cramps and unrest may have been noticed by the patient. These, in brief, are the prominent symptoms we get from the patient according to the stage of the condition in which we see him. On physical examination, we may find the epigastric region flat if the stomach is empty, or there may be a degree of fullness and bulging from that slightly appreciable up to the presence of a very smooth, even, doughy, prominent distention occupying the region of the stomach in cases in which a dilated stomach is full of fluid. Tenderness in some degree will be present. The presence of a tumor, of course, would point to malignancy as would also cachexia of any marked degree. If a tube is now passed into an overflowing stomach of this kind, or if the patient vomits, a large amount of acid fluid, often containing old food remnants, will be obtained; the stomach region will now be flat and empty, and a tumor may or may not be palpable. Under observation the stomach may refill in the next few hours or days out of all proportion to the amount ingested. Frequently in these cases, peristaltic waves advancing toward the pylorus will be seen through the abdominal wall. The diagnosis at this stage affords no difficulty whatever, but should we see the patient very early when vomiting is only occasional, as then a more technical examination is required.

After the physical examination has been completed the patient should be given a full evening meal of meat, raisins, rice, potatoes, etc., and next morning at the end of about twelve hours, the tube should be inserted. If food remnants are brought up, stasis from pyloric interference has occurred. If no food remnants appear, but more than fifteen or twenty c. c. of acid fluid, hypersecretion is present, which has some definite causative lesion as ulcer, gallstones, chronic appendicitis, etc., and this is to be thought of clinically in association with gastric dilatation, motor insufficiency, and some degree of pyloric disturbance. We should not think of persistent hypersecretion as the result of nervous dyspepsia so called, or as a gastric neurosis, but should seek out the definite lesion which has caused it. After the stomach is now emptied and washed out, a test breakfast of toast and tea is given; at the end of one hour the stomach is again evacuated through the tube; the funnel is now removed from the tube and the end of a Davidson bulb syringe is

inserted, and the stomach gradually inflated with air, when, by auscultation as the stomach is "pumped up," it will be easy to outline the organ. With a stethoscope over any part of the stomach, each pump of the syringe gives us a sharp high pitched click, while that heard beyond the limits of the stomach is a low pitched, distant, muffled click. It is important in these cases definitely to outline the stomach limits, the degree of gastric dilatation thus being made known. Cancerous stomachs are frequently contracted from extensive involvement, even with pyloric blockade. If preferable, the stomach may be ballooned by giving solutions of bicarbonate of soda and citric acid, after which the gastric limits may be defined by the association of percussion and auscultation. Directions for stomach contents analysis may be found in many of the textbooks; suffice it to say here that we do not always find high degrees of acid in ulcer, nor is cancer always marked by its absence. Several diseases give us an absence of acid, pellagra for instance, but the absence of normal acid and the presence of organic acids and the positive glycerotryptophan test are almost diagnostic of cancer.

Stomach analyses possess real diagnostic value only when associated with a painstaking history and physical examination, and many times the bismuth x ray pictures will aid very materially in the diagnosis of any one definite lesion, though this is not essential for the diagnosis of dilated stomach, but is very desirable from the standpoint of cause. If the stomach is empty at the end of twelve hours after a full meal as above indicated, then it is often wise to repeat the full meal test, withdrawing the contents at the end of seven hours, as a perfectly normal stomach should be empty at that time. There is one other cause for difficult and delayed passage of the food through the pylorus, which will lead to some degree of gastric dilatation and motor insufficiency, and which is especially vicious if it occurs in a posed stomach. The condition referred to is thickened new fibrous tissue formation in the gastrohepatic omentum, which becomes attached to the upper border of the pyloric ring. When the stage of contraction of this new tissue is reached, the pylorus is drawn upward and angulated in proportion to the lesion present. This is a condition not always recognized and often overlooked at operation. It is somewhat akin to the Lane's kink and Jackson's membrane and elevates the pylorus, giving it a greater fixity than is normal, gradually increasing the ascent and length of the "duodenal hill," so called, over which the food must pass in its onward course. It is common for these patients to have much less distress after meals if they lie down for an hour or two. This is known as "pyloric kink," and its treatment is operative. This never produces complete obstruction, but gives us a set of clinical symptoms indicative of a pyloric hindrance and causes continued trouble until relieved.

In duodenal obstruction above the papilla of Vater, we get the same symptoms as produced by pyloric obstructions. X ray pictures will often differentiate the two types, but the treatment of both is surgical. The cause here is likewise from ulcer

contraction and cancer in an intrinsic way, and extrinsically from adhesions, tumors, etc., the head of the pancreas may furnish the cause. If the obstruction is at the end of the common duct, a progressing jaundice will make its location known, while if the obstruction is below this point, bile will be found regularly in the stomach contents, which is not true of obstructions above the papilla. No intestinal contents, however, will be vomited in any of these cases, and there will be no obstructive intestinal distention. Stenosis in the upper part of the jejunum will not be differentiated as a rule from that low in the duodenum. Anders, in the September, 1912, issue of the *American Journal of the Medical Sciences*, reviews the literature of duodenal obstruction and reports 262 collected cases down to date of which 215 were nonmalignant; 185 were due to intrinsic causes. Kinking of the duodenum proper was present in three cases, but these cases no doubt are often overlooked, as adhesions about the duodenum are commonly met with. Of course, a great many cases of this trouble are never reported, so this does not represent a fair estimate of the frequency of duodenal obstruction. In our work we have met with four cases of duodenal obstruction proper. Two were cancerous, one due to the contraction of an ulcer scar, three out of the four having an intrinsic cause.

CASE IV. The fourth and very interesting case occurred in a lady, aged sixty-two years, who had had stomach symptoms of an ulcer type for four years. In the last year she was vomiting occasionally but had never had hemorrhage. She had lost thirty pounds in the last eight or ten months, was weak, dizzy, having headaches and scanty urine by spells. She came from another surgeon with a diagnosis of cancer of the stomach. On our examination, we found her appetite good and absence of the pain frequently complained of in cancer, blood pressure of about 160, a degenerated heart with accentuation of the second pulmonic and aortic sounds, cold and numb feet and legs, and urine showing well advanced interstitial nephritis. Her cardiovascular, renal, and calcareous degenerations then were evidently partly the cause for her great loss of weight and strength. The stomach condition was a separate factor and evidently not entirely responsible for her loss of weight, evidently not malignant, but it was producing an increasing amount of vomiting and disturbance. Many stomach analyses were made and all showed bile, and fifty per cent. increase of hydrochloric acid and some stasis, negative otherwise. Hypersecretion was present, but not marked, and the stomach was moderately dilated. An x ray picture showed dilated duodenum. Her white count was negative and her red count and hemoglobin were about fifty per cent. of the normal. A diagnosis of ulcer and duodenal obstruction was made. On opening the abdomen, an ulcer was found on the back wall of the duodenum in its first portion, but without any obstruction at this point. The duodenum itself was very large, extremely dilated, and loose, owing to an obstruction near its end, evidently from the pressure of the mesenteric artery. A posterior no loop gastrojejunostomy gave her a fine recovery and almost perfect freedom from gastric distress up to the present time. This operation was done over a year ago. On leaving the hospital she was placed on the proper diet and treatment to relieve her cardiovascular, renal, and calcareous degeneration, which did her a great deal of good and she has almost regained her normal weight.

Now as to the course and treatment of this particular type of obstruction, which Bloodgood terms gastromesenteric, as the stomach symptoms predominate. He thinks it is due to a loose mobile cecum and ascending colon which drops into the

pelvis, pulling with it the ileum, attached by a short mesentery, making tension on the whole length of the mesentery, which in turn pulls down the mesenteric artery obstructing the duodenum. For its cure, he resects the cecum, ascending colon, and portions of the transverse colon, uniting the ileum to the remaining transverse colon with good results, he believes. Ulcers, however, are frequently present in this type of obstruction, as it was in ours, hence the operation performed by us. There are other theories for this condition which will not be taken up now.

SUMMARY.

1. Of the patients with stomach complaints each one must be studied individually and completely by (a) a written history taking in all details; (b) complete physical examination, not only in relation to the stomach, but to all other parts, as the cause of ninety per cent. of all stomach distress rests outside the stomach; (c) associated with these the various test meals and special stomach and x ray examinations should be made regularly.

2. Clinically, pyloric or duodenal blockade begins to be important at the time when gastric drainage is interfered with, just as is the case in blockade in the vesical neck. In either case with retention once initiated, fermentation and added infection result, and the condition progresses from bad to worse, in proportion to the amount of retention, as determined from time to time by the obstructing lesion. In both organs we may have an early muscular hypertrophy, with cramps and spasms of the outlet, and pains due to irritation and inflammation of the mucous linings; and in both, as the degree of obstruction increases, we will get motor insufficiency and dilatation, together with a sagging down of the base of the organ; and, finally, a complete inability to function. A correct diagnosis can be made early of these conditions of retention, before great damage is done, and the proper treatment applied to the cause, which is better than to treat the one case indefinitely for chronic gastritis, and the other for chronic cystitis.

3. A diagnosis of chronic gastritis, nervous dyspepsia, dyspepsia and indigestion, hyperchlorhydria, hypersecretion, gastralgia, etc., in itself means nothing and these should be dropped as diagnostic terms.

4. It is as homicidal to wait for hemorrhage before we diagnose ulcer; or for tumor, emaciation, cachexia and coffee ground vomit, to diagnose cancer; or extreme emaciation, large dilated stomach, and daily vomiting to diagnose pyloric blockade; as it would be to wait for colic, jaundice, and passing of stones by the bowel to diagnose gallstone disease, or for abscess or peritonitis to diagnose appendicitis.

5. Most cases of pyloric and duodenal obstruction are clinically curable. The doomed malignant ones may receive much relief by gastric drainage, hence early diagnosis and proper treatment in these cases is a very important matter to the sufferer. Likewise more attention should be given to the timely treatment of the causative conditions.

ST. ANTHONY'S HOSPITAL.

FURTHER DEVELOPMENT OF THE USEFULNESS OF THE SANATORIUM.

A. In the Establishment of a Separate Reception Unit, with Increase of Infirmary Capacity. B. In the Establishment, at the Sanatorium, of a Social and Record Service for Discharged Patients.

By CHARLES B. SLADE, M. D.,
New York,
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In a paper read before the New York County Medical Society, January 23, 1911, I expressed the "opinion that the wisdom of admitting to the sanatorium only early cases is open to question." It is the purpose of this paper to show, by evidence and by argument, that my opinion was well founded and that increase of the present infirmary capacity of municipal and State sanatoriums, in order to care for more moderately advanced cases, is necessary to the best possible control of tuberculosis. Although there developed some opposition to my suggestion, three years ago, it had the valuable support of Dr. Hermann M. Biggs, among others, who was, at the time, general medical officer of the New York city department of health. Shortly after that time plans for an infirmary to contain 100 beds were drawn for the Otisville Sanatorium and the foundation was begun. This building has not been completed; although I feel quite sure that the desirability of the plan will insure its ultimate completion.

Originally I upheld my opinion upon grounds which three additional years of experience have fully justified and which have been very generally accepted; so I will not recount them here. However, the data hereinafter cited, beside being confirmatory of the above, are, I think, worth considering in connection with the most desirable lines of growth in sanatoriums.

Increased experience in this work has gone far to make me believe that it is unwise to maintain, at the public expense, any of those so called "incipient" cases in patients (who are more than fourteen years of age), whose sputum does not contain tubercle bacilli and in whom the diagnosis is honestly doubtful. In caring for such a case, the sanatorium renders no protection to the community, but frequently adds a confirmed pauper to the public burden.

REJECTED SANATORIUM APPLICANTS.

In order to determine the ultimate disposition of those applicants who were refused admission to a sanatorium, and thereby arrive at some approximate estimate of any bearing they may exert upon the control of tuberculosis, the following data concerning the last 165 cases which I rejected in examining for the Otisville Sanatorium have been collected. Of this number, sixty-six had negative sputum and do not play an important part in the spread of tuberculosis. The vast majority of these sixty-six sputum negative cases were rejected because careful and repeated examination showed that they either did not have any clinical tuberculosis or were suffering from some other disease which overshadowed an insignificant tuberculous lesion. The

remaining ninety-nine rejected cases all had positive sputum and were too far advanced to be admitted to Otisville (although we admit more advanced cases to Otisville than is customary with most sanatoriums.) All these ninety-nine sputum positive cases were advised by the physician in charge of the Tuberculosis Hospital Admission Bureau to enter a hospital, but only sixty-two entered hospitals, or said they would enter. The actual number who found their way into a hospital within one month after being rejected, was probably less, certainly no more. The remaining thirty-seven patients remained at home and at large, in streets, cars, and parks, known active distributors of tubercle bacilli. Only nine of the number could be induced to attend day camps, where a moderate degree of control could be exerted over them. Nothing but increase in the infirmary capacity of our sanatoriums will provide for, and protect the community from this class of cases.

MODERATELY ADVANCED CASES IN THE SANATORIUM.

Because we have very limited infirmary capacity in the Otisville Sanatorium, it frequently becomes necessary to transfer infirmary patients to the city. Naturally a strong effort is made to have these patients, nearly all of whom have positive sputum, enter hospitals. So strong is their dread of city hospitals that (in the past two years at the male unit and three years at the female unit) seventy-four patients thus transferred have absolutely refused to enter a hospital, and returned to their homes, usually too sick and discouraged to make any effective attempt to protect others from their disease. This should not be, and only increased infirmary capacity will make its discontinuance possible.¹

The resident medical staff at Otisville have collected statistics which show very conclusively that the time and money expended upon the infirmary (moderately advanced) patient is by no means wasted, even from the single viewpoint of the patient's own bodily welfare. In the time mentioned above we had 174 patients at Otisville, who received infirmary care within three weeks of their admission. These were, practically all, moderately advanced cases (beyond eligibility for admission to the average sanatorium) and 137 of them had positive sputum. Thirty of them had to be admitted directly to the infirmary upon their arrival. Of these 174 cases, 113 finally showed definite or substantial improvement; fifty-eight of whom have been able to perform useful work in the sanatorium. Fourteen of these are, or have been, on the pay roll and more than self supporting. This is a showing which, I think, compares not unfavorably with general sanatorium results, when all honestly doubtful cases are excluded. At Otisville we have cared for 3,961 patients in the past three years and have had fifty-six deaths, a death rate of 1.41 per cent., in

¹Doctor White, of Otisville, in mentioning the forty-five patients who had been transferred from the female unit to New York because they did not do well, and would not go to a hospital (Group No. 1), states the following: "The above does not include the twenty-two (22) patients who were transferred to Riverside Hospital; almost an equal number who were transferred to St. Joseph's and Seton, and a few others, probably ten (10), who were transferred to general hospitals for some surgical treatment, most of which could have been given at Otisville had we had accommodation. It also does not include some who failed to return on time from pass, and who were discharged for that reason, but who needed infirmary care. These groups should be considered with group 1 in considering any increased infirmary accommodation."

spite of the relatively large number of moderately advanced cases admitted to the sanatorium. The general death rate of New York city, in 1913, was approximately 1.63 per cent. An increase in our infirmary capacity could run our death rate up considerably and it would still compare not unfavorably with other sanatoriums, besides rendering more known protection to the community from the standpoint of segregation.

On the pay roll at the female unit of the Otisville Sanatorium, we have twenty-seven patients and ex-patients. Of this number sixteen are too advanced to be eligible for admission to a sanatorium for incipient cases, although they have improved sufficiently to be able to support themselves and, some of them, other people besides. Some of these people have been on our pay roll for five years and more.

The foregoing are some of the advantages to be expected from an increase in the sanatorium infirmary capacity. As I pointed out in my paper over three years ago, "their infirmary capacity can be materially enlarged without impairing the present value of sanatoriums as institutions for the arrest and cure of early cases." At that time I suggested that the chief infirmary be in a separate unit, on a lower level and almost out of sight of the other units. This new unit should be called the *reception unit*. It should contain, at least, two reception pavilions, one for male and one for female patients, situated at least one hundred yards from one another, with a capacious (twelve or fifteen per cent. of entire sanatorium capacity) and complete infirmary building between them. These two pavilions should be of a capacity which would enable them to hold all patients for at least two weeks from their admission. In this time the resident physician can determine which patients must receive infirmary care and transfer them directly to the infirmary, others going to their proper units up the hill. These two weeks of practical quarantine would obviate the possibility of introducing diphtheria or any contagious disease to the general units. Although we have been, thus far, fortunate in never having an epidemic of this character at Otisville, other institutions have not fared so well. This is a real danger which a separate reception unit would go far to obviate.

It is seen that, by the arrangement suggested, the movement of patients would be always in the hopeful direction. The small infirmary space already provided in the respective units would, of course, be retained, to accommodate the patients in these units who have to go to bed, now and then, from intercurrent conditions or slight temporary exacerbation of their disease. The patients in the main infirmary (in the reception unit) would be transferred to their proper unit up the hill, as they improved sufficiently for shack life. The establishment of such an infirmary would, as I have pointed out on a former occasion, render feasible the establishment of an autopsy service in the sanatorium, which is and always has been a much needed and unsupplied factor in this branch of the service.

I am glad to say that, since writing the foregoing, I have received from Dr. S. S. Goldwater, commissioner of health, an expression of his hearty

approval of the plan to increase the infirmary capacity at the Otisville Sanatorium.

SANATORIUM SOCIAL AND RECORD SERVICE.

As Koch said, "Tuberculosis has been frankly and justly called a dwelling disease." Landis, expressing a well recognized fault in our present efforts to control tuberculosis, said that we only remove "the patient temporarily from unsanitary surroundings, for the purpose of treatment, and then allow him to return to his unsanitary living conditions." It is true that considerable effort and money have been expended in the construction of model tenements. But, even if it was possible to construct enough model tenements to accommodate all the families that have one or more tuberculous members, could we induce these people to accept the label that residence in these houses would attach to them? I think not. Furthermore, would these model tenements contain model homes from a sanitary point of view, when occupied by people who have not been taught and learned order, cleanliness, the value and preparation of food, and a love of fresh air? It has been found that they do not. The report of the Edinburgh School Union, after eighteen years of study, states that the problem "lies in the people, not in the houses." Undoubtedly the best results will come from a combination of the best housing obtainable and encouraging instruction in home hygiene. For obvious reasons the giving of material aid should be closely and intelligently confined to cases of absolute necessity. Instruction should continue until it is found that the family has permanently acquired a good standard of home hygiene, whether this requires two or twenty visits by a social service nurse.

It is not the purpose of this paper to discuss the entire social service problem. I make the foregoing comments as a foundation for my remarks and suggestions upon the special application of this work to discharged sanatorium patients. Some efforts have been made to follow up, control, help, and instruct this class of the tuberculous, but with very unsatisfactory results. It has been found that these ex-patients carefully evaded all attempts which have been made to keep in touch with them. The successful development of this follow-up work is, I think, conceded to be the next logical step in the antituberculosis campaign. The failure of all efforts thus far expended, by correspondence, through clinics, social service workers, and health authorities has been due, no doubt, to a not unnatural resentment of surveillance by authorities and persons with whom they are only barely, or not at all, acquainted. After careful consideration of the subject from every point of view, I feel quite sure that the sanatorium itself, through social service nurses, who work in the sanatorium and establish there an intimate personal acquaintance with the patients, will be the successful agent in this field. In the sanatorium the patients acquire a close and trusting confidence in the doctors and nurses, to a degree not known in city hospitals, clinics, or day camps. The reasons for this are quite obvious and do not reflect in any way against the sincerity of those conducting the city institutions.

The Sanatorium Social and Record Service should have its home in and be part of the sanatorium. It would not be enough that it be called the Sanatorium Social and Record Service. If it is in the city or town where the patient resides after discharge from the sanatorium, he or she will feel the odium of surveillance, which has been the stumbling block to all former efforts. The following is a tentative outline for such a service:

1. Name; Sanatorium Social and Record Service.
2. Headquarters; in the sanatorium, under the immediate direction of the physician in charge.
3. Branch office; in the city (in New York, at the Tuberculosis Hospital Admission Bureau) one room.
4. Employees; 1 head social service nurse, 2 to 4 assistant nurses, 1 office clerk at sanatorium, 1 office clerk in the city.
5. Correspondence; with discharged patients to be conducted entirely at the sanatorium.
6. Records; to be kept in the sanatorium. Required data to be furnished to the hospital admission bureau.
7. All nurses, except the head nurse, to spend, alternately, one week at the sanatorium and two to three weeks in the city doing social service work and collecting records of discharged patients. Head nurse to spend most of her time in the sanatorium, the remainder at work in the city, as directed by the physician in charge.
8. A weekly paper to be composed and printed *in the sanatorium by the patients*, to be edited and supervised by the physician in charge, and to be mailed to discharged patients, the cover of this paper to contain no reference to tuberculosis or to the sanatorium.

245 WEST SEVENTY-FOURTH STREET.

THE TREATMENT OF DIABETES MELLITUS WITH BACILLUS BULGARICUS.

BY PHILIP HOROWITZ, M. D.,
New York.

(Continued from page 265.)

A WORD ABOUT QUANTITY.

It is important to take into account the quantity as well as the quality of the food given. While the patient may take care of his diet to the letter of the law, he may be taking such enormous quantities as to overbalance whatever good the diet may accomplish. It is important that the amount be specified and this amount must be worked out and judged by the needs of each individual case. I may cite the following case which will exemplify this both as to quality and quantity.

CASE. S. T. Q., aged eighteen years, native of the United States; family history negative as to diabetes. Previous history: Had the ordinary diseases of childhood, otherwise negative. Present history dated back to about three years ago, when he suddenly had the classical symptoms of polyphagia, polydipsia, and polyuria. The first analysis showed a sugar index of nine per cent. or over, and a daily output of 480 grams, and a marked acidosis, acetone and diacetic acid being present in large amounts.

He presented himself for treatment in April, 1913. At that time he was very weak, was unable to walk, and had to be carried about. The tongue was badly coated, and had a black fur on it. His eyes were jaundiced, heart and lungs negative, liver somewhat enlarged, and considerable thickening in the region of the cecum and the ascending colon. He was markedly emaciated and had lost about twenty-five pounds. The urine at that time showed an output of 294 grams in twenty-four hours.

He was put on appropriate treatment, but the condition was not very much improved. The sugar output varied between 200 and 400 grams in twenty-four hours, and the acidosis persisted. He admitted getting off the diet on various occasions, but in the main followed it very closely except that he ate considerably more than he was permitted. In February, 1914, he began to have trouble with his eyes, he could not see as well, and by the latter part of April was practically blind, having acquired a cataract on each eye.

The father thought it best to put the boy with me where I could watch him closely. He came on April 19th, and I put him under the care of a trained attendant, who received instructions to carry orders out closely and rigidly. In two days the glucose output came down from 226 grams to eighty-eight grams, and acetone and diacetic acid had entirely disappeared. In a week, the sugar output was down to forty-eight grams, in two weeks, thirty grams, and now, or about three weeks, the output is five grams. The acidosis has not recurred, and the boy's eyes will be operated on as soon as arrangements can be made, and I hope to have him sugar free in a short time.

Fresh air and exercise are very important in aiding sugar combustion, especially in cases with small percentages. Exercise helps to burn up the sugar, and cases that drag on indefinitely are thereby cleared up readily. I urge my patients to walk at least three miles a day, and if that is not possible they are ordered to go through certain calisthenic exercises daily, and if possible, they are urged to take part in outdoor games, golf, etc.

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NAME	SEX	AGE	DURATION OF DISEASE	SEVERITY OF THE DISEASE	DURATION OF TREATMENT	PERCENTAGE OF GLUCOSE ON STARTING TREATMENT	PERCENTAGE OF GLUCOSE NOW	ACETONE BODIES BEGINNING		ACETONE BODIES NOW		QUANTITY OF INDIAN ON STARTING TREAT.	QUANTITY OF INDIAN	PRESENT CONDITION		COMPLICATIONS	STILL BEING TREATED	GAVE UP TREATMENT	FOLLOWING DIET	FREE DIET	DATE WHEN STARTED TREATMENT	DATE WHEN STOPPED TREATMENT	FAMILY HISTORY	QUANTITY URINE VOIDED		BLOOD PRESSURE		
								ACETONE	Diacetic Acid	ACETONE	Diacetic Acid			IMPROVED	STATIONARY									MAXIMUM	MINIMUM		WHEN STARTED TREATMENT	NOW
A.H.	M.	66	2 MONTHS	SEVERE	10 WEEKS	4.7%	0	2	0	0	0	LARGE AMT.	TRACE	+	—	BRIGHT'S	0	+	0	+	FEB. 1911	APR. 1911	GOOD	4000	2000	185mm	140mm	
M.H.	F	48	2 MONTHS	MODERATE	2 MONTHS	1.6	0	0	0	0	0	LARGE AMT.	TRACE	+	—	0	+	0	0	+	+	APR. 1911	JUNE 1911	GOOD	—	—	—	—
G.K.	M	50	3 YEARS	SEVERE	4 MONTHS	5.8	0.2	0	0	0	0	MOD. AMT.	SMALL AMT.	+	—	0	+	0	0	+	+	APR. 1911	SEPT. 1911	BAD	5000	5000	—	—
M.V.	M	43	6 YEARS	MILD	1 MONTH	0.5	0	0	0	0	0	LARGE AMT.	TRACE	+	—	0	+	0	0	+	+	JULY 1912	AUG. 1912	GOOD	1500	1500	—	—
S.S.M.	M	41	3 MONTHS	MILD	2 MONTHS	0.5	0	0	0	0	0	0	0	+	—	0	+	0	0	+	+	SEPT. 1912	NOV. 1912	GOOD	8000	1400	—	—
J.C.P.	M	45	4 YEARS	SEVERE	3 MONTHS	5.6	0	0	0	0	0	VERY LARGE AMT.	SMALL AMOUNT	+	—	0	+	0	0	+	+	AUG. 1912	NOV. 1912	GOOD	2000	1500	—	—
A.S.	F	58	4 MONTHS	SEVERE	4 MONTHS	5.57	0	0	0	0	0	LARGE AMT.	TRACE	+	—	0	+	0	0	+	+	SEPT. 1912	JAN. 1913	GOOD	2000	1000	—	—
M.E.B.	M.	56	20 YEARS	GRAVE	4 MONTHS	0.96	0	3	0	0	0	VERY LARGE AMT.	TRACE	+	—	0	+	0	0	+	+	OCT. 1912	FEB. 1913	VERY BAD	3000	1800	—	—
M.R.	F.	48	3 YEARS	MODERATE	1 YEAR	5.0	0	0	0	0	0	LARGE AMT.	SMALL AMOUNT	+	—	0	+	0	0	+	+	OCT. 1912	OCT. 1912	GOOD	1500	1500	—	—
M.B.G.	M.	57	13 YEARS	MODERATE	6 MONTHS	1.54	0	0	0	0	0	VERY LARGE AMT.	SMALL AMT.	+	—	0	+	0	0	+	+	OCT. 1912	MAY 1913	BAD	2000	1000	250	160
G.H.	F	83	3 YEARS	GRAVE	15 MONTHS	8.75	0.24	3	0	0	0	0	0	+	—	0	+	0	0	±	?	OCT. 1912	—	GOOD	4000	1000	110	110
R.R.	F	18	2 YEARS	SEVERE	15 MONTHS	6.25	0.83	3	0	0	0	0	0	+	—	GOITRE	+	0	±	?	—	NOV. 1912	—	BAD	1000	1500	130	110
M.S.	M	9	4 YEARS	VERY GRAVE	4 MONTHS	7.14	4.35	3	0	0	0	LARGE AMT.	TRACE	+	—	DIED OF PNEUMONIA FOLLOWING GRIPPE	0	+	0	0	AUG. 1912	NOV. 1912	GOOD	3000	4000	—	—	
M.W.	M	77	5 YEARS	MODERATE	3 MONTHS	3.6	0	2	0	0	0	LARGE AMT.	SMALL AMOUNT	+	—	CANCER OF BLOOBER. BRIGHT'S EYES	0	+	0	0	OCT. 1912	—	GOOD	3000	1600	—	—	
J.S.	M	68	13 YEARS	MODERATE	7 MONTHS	4.12	TRACES	0	0	0	0	LARGE AMT.	SMALL AMOUNT	+	—	0	+	0	0	+	+	SEPT. 1912	APR. 1913	BAD	3000	1500	150	130
I.S.	F	11	2 YEARS	SEVERE	1 MONTH	7.3	2.	3	0	1	0	MODERATE	0	+	—	0	+	0	0	+	+	DEC. 1913	JAN. 1914	GOOD	1300	1500	180	160
M.T.	F	58	3 YEARS	MILD	2 WEEKS	0.5	0	0	0	0	0	0	0	+	—	0	+	0	±	±	±	OCT. 1913	—	GOOD	2800	900	110	120
L.B.	M	35	2 YEARS	MILD	5 MONTHS	1.0	0	1	0	0	0	MODERATE	TRACE	+	—	0	+	0	0	+	+	NOV. 1913	DEC. 1913	BAD	3000	2000	120	120
M.B.	F	32	10 YEARS	MOD. SEVERE	12 MONTHS	7.0	3	1	0	0	0	0	0	+	—	0	+	0	0	+	+	JAN. 1913	FEB. 1913	BAD	1500	1500	120	120
A.B.	F.	36	4 YEARS	MODERATE	3 WEEKS	3.5	1.6	1	0	0	0	LARGE AMT.	SMALL AMT.	+	—	0	+	0	0	+	+	FEB. 1913	AUG. 1913	VERY BAD	3000	1250	130	100
B.B.	F.	36	5 YEARS	SEVERE	6 MONTHS	6.6	3.5	0	0	0	0	0	0	+	—	0	+	0	0	+	+	JAN. 1913	SEPT. 1913	GOOD	2300	1200	140	115
S.C.	F	45	1 YEAR	SEVERE	6 MONTHS	5.8	5.+	0	0	0	0	SMALL AMOUNT	TRACE	+	—	0	+	0	0	+	+	AUG. 1913	NOV. 1913	GOOD	5300	4000	130	100
E.V.C.	M	19	2 YEARS	SEVERE	3 MONTHS	6.84	3.	3	0	0	0	0	0	+	—	0	+	0	0	+	+	MCH. 1913	AUG. 1913	GOOD	2200	1200	125	115
J.A.C.	M	53	3 MONTHS	MOD. SEVERE	6 MONTHS	5.0	0	2	0	0	0	LARGE AMT.	TRACE	+	—	0	+	0	±	±	±	JAN. 1913	OCT. 1913	BAD	1750	1000	140	110
M.H.C.	M	56	13 YEARS	SEVERE	15 MONTHS	4.6	0.53	3	0	0	0	LARGE AMT.	TRACE	+	—	0	+	0	0	+	+	MAY 1913	SEPT. 1913	BAD	2000	1000	155	130
R.D.	M	41	1 YEAR	SEVERE	10 MONTHS	4.0	0.8	0	0	0	0	SMALL AMOUNT	SMALL AMOUNT	+	—	0	+	0	0	+	+	JAN. 1913	OCT. 1913	GOOD	2700	1500	120	160
A.P.	F	45	6 YEARS	MILD	4 MONTHS	0.4	0	0	0	0	0	SMALL AMOUNT	SMALL AMOUNT	+	—	0	+	0	0	+	+	JAN. 1913	SEPT. 1913	GOOD	3000	8200	120	110
L.E.	F	19	2 YEARS	GRAVE	2 MONTHS	4.1	2.77	3	0	3	3	LARGE AMT.	SMALL AMT.	+	—	0	+	0	0	+	+	MCH. 1913	JUNE 1913	GOOD	1650	1200	120	120
J.F.	F	59	3 YEARS	MILD	4 MONTHS	1.4	4.28	0	0	0	0	LARGE AMT.	SMALL AMOUNT	+	—	0	+	0	0	+	+	FEB. 1913	AUG. 1913	GOOD	3028	1500	140	120
L.F.	F.	45	4 YEARS	SEVERE	6 MONTHS	4.1	2.24	0	0	0	0	LARGE AMT.	MODERATE AMOUNT	+	—	0	+	0	0	+	+	JULY 1913	OCT. 1913	GOOD	1500	1500	—	—
T.G.	M	52	5 YEARS	MODERATE	3 MONTHS	2.6	0	0	0	0	0	LARGE AMT.	MODERATE AMOUNT	+	—	0	+	0	0	+	+	OCT. 1913	NOV. 1913	GOOD	—	—	170	102
E.G.	F.	50	2 YEARS	MODERATE	1 MONTH	0.2	0.2	0	0	0	0	MODERATE AMOUNT	SMALL AMOUNT	+	—	0	+	0	0	+	+	OCT. 1913	NOV. 1913	GOOD	—	—	170	102
M.C.G.	M	50	2 YEARS	MILD	3 MONTHS	0.15	0	0	0	0	0	SMALL AMOUNT	SMALL AMOUNT	+	—	0	+	0	0	+	+	JAN. 1913	MCH. 1913	GOOD	1500	1000	110	110
L.G.	M	51	12 YEARS	SEVERE	3 MONTHS	3.47	0	0	0	0	0	0	0	+	—	0	+	0	0	+	+	FEB. 1913	—	GOOD	3700	2000	130	116

CLINICAL OBSERVATIONS.

TABLE OF CASES.

[illegible]

TABLE OF CASES.

CLINICAL OBSERVATIONS.

NAME	SEX	AGE	DURATION OF DISEASE	SEVERITY OF THE DISEASE	DURATION OF TREATMENT	PERCENTAGE OF GLUCOSE ON STARTING TREATMENT	PERCENTAGE OF GLUCOSE NOW	ACETONE BODIES BEGINNING		ACETONE BODIES NOW		QUANTITY OF INDICAN ON STARTING TREAT.	QUANTITY OF INDICAN NOW	PRESENT CONDITION		COMPLICATIONS	STILL BEING TREATED	GAVE UP TREATMENT	FOLLOWING DIET	FREE DIET	DATE WHEN TREATMENT STARTED	DATE WHEN TREATMENT STOPPED	FAMILY HISTORY	QUANTITY URINE VOIDED		BLOOD PRESSURE
								ACETONE	DIACETIC ACID	ACETONE	DIACETIC ACID			IMPROVED	STATIONARY									MAXIMUM	MINIMUM		WHEN TREATMENT STARTED	NOW
A.H	F	45	7 MONTHS	SEVERE	5 MONTHS	6.12	0	0	0	0	CONTINUOUS	LARGE AMOUNT	+	0	0	0	+	0	+	NOV. 1913	APR. 1914	GOOD	3000	2000	190	140
L.O.C	F	28	2 YEARS	VERY SEVERE	3 WEEKS	5.16	0	0	0	0	LARGE AMOUNT	SMALL AMOUNT	+	0	0	0	+	0	+	JAN. 1914	FEB. 1914	GOOD	4000	2800	105	90
J.P.M	M	60	12 YEARS	MILD	4 MONTHS	0.22	0	0	0	0	MODERATE AMOUNT	LARGE AMOUNT	+	0	0	0	+	0	0	DEC. 1913	APR. 1914	GOOD	1500	1500	130	130
F.A	F	42	7 MONTHS	MILD	4 MONTHS	0.26	0	0	0	0	0	SMALL AMOUNT	+	0	0	0	+	0	+	DEC. 1913	APR. 1914	GOOD	3000	2000	165	120
W.A.P	M	47	2 YEARS	MODERATE	2 MONTHS	0.77	0	0	0	0	LARGE AMOUNT	MODERATE AMOUNT	+	0	0	0	+	0	+	MCH. 1914		GOOD	1500	1500	150	120
J. J.	M	58	8 MONTHS	MODERATE	2 MONTHS	1.64	0	0	0	0	SMALL AMOUNT	0	+	0	0	0	+	0	+	DEC. 1913	FEB. 1914	BAD	2200	1200	120	110
M.M	M	52	1 MONTH	MILD	1 MONTH	0.77	0	0	0	0	LARGE AMOUNT	SMALL AMOUNT	+	0	0	0	+	0	+	JAN. 1914	FEB. 1914	BAD	1600	1500	215	180
G.B.O.	M	30	10 MONTHS	SEVERE	2 MONTHS	6.4	0.3	0	0	0	MODERATE AMOUNT	MODERATE AMOUNT	+	0	0	0	+	0	+	FEB. 1914		GOOD	3500	1700	122	115
E.N.L	F	58	3 YEARS	MILD	2 MONTHS	0.32	0	0	0	0	0	0	+	0	0	0	+	0	+	FEB. 1914		GOOD	1500	1500	190	130
E.F	F	45	12 YEARS	SEVERE	3 MONTHS	0.43	0	0	0	0	SMALL AMOUNT	0	+	0	0	0	+	0	+	JAN. 1914		GOOD	2700	1120	120	125
J.S.T	M	69	30 YEARS	MILD	3 MONTHS	0.57	0	0	0	0	LARGE AMOUNT	0	+	0	0	0	+	0	+	JAN. 1914		BAD	2500	1100	100	120
W.V.D	M	45	1 MONTH	MILD	5 MONTHS	0.4	0	0	0	0	MODERATE AMOUNT	0	+	0	0	0	+	0	+	NOV. 1913	APR. 1914	GOOD	4000	2000	135	120
J.R	M	57	8 YEARS	VERY SEVERE	4 MONTHS	4.2	0	0	0	0	MODERATE AMOUNT	MODERATE AMOUNT	+	0	0	0	+	0	+	JAN. 1914		GOOD	3180	2000	120	150
J.A	M	61	3 YEARS	SEVERE	4 MONTHS	3.75	0	0	0	0	0	0	+	0	0	0	+	0	+	JAN. 1914		GOOD	3000	1860	158	135
R.M.L	M	47	1 YEAR	GRAYE	2 MONTHS	5.21	2.4	3	3	2	LARGE AMOUNT	SMALL AMOUNT	+	0	0	0	+	0	+	JAN. 1914	APR. 1914	VERY BAD	4000	2500	180	110
GL.S	M	43	2 MONTHS	SEVERE	3 MONTHS	0.44	0	0	0	0	LARGE AMOUNT	LARGE AMOUNT	+	0	0	0	+	0	+	FEB. 1914		GOOD	3000	2000	150	120
J.A.S.	M	55	1 MONTH	MILD	1 MONTH	1.12	0	0	0	0	0	0	+	0	0	0	+	0	+	FEB. 1914		GOOD	1000	1000	135	130
E.G	M	40	1 YEAR	MILD	1 MONTH	0.4	0	0	0	0	MODERATE AMOUNT	0	+	0	0	0	+	0	+	MCH. 1914		GOOD	1500	1500	170	160
D.S	F	57	9 YEARS	VERY SEVERE	3 WEEKS	4.55	2.2	0	0	0	LARGE AMOUNT	SMALL AMOUNT	+	0	0	0	+	0	+	APR. 1914		BAD	3000		210	130
S.S	F	40	4 YEARS	MILD	4 WEEKS	0.53	0.19	0	0	0	LARGE AMOUNT	SMALL AMOUNT	+	0	0	0	+	0	+	APR. 1914		VERY BAD	1500	1500	170	160
B.M.S	M	54	7 YEARS	MILD	5 WEEKS	0.62	0.19	0	0	0	MODERATE AMOUNT	SMALL AMOUNT	+	0	0	0	+	0	+	APR. 1914		GOOD	3000		210	160
W.J.F	M.	44	7 YEARS	SEVERE	2 WEEKS	6.66	4.63	0	0	0	LARGE AMOUNT	SMALL AMOUNT	+	0	0	0	+	0	+	DEC. 1912	JAN. 1913	BAD	1500	1500	115	125
D.T	F.	58	1 YEAR	MILD	2 WEEKS	0.5	0	0	0	0	LARGE AMOUNT	SMALL AMOUNT	+	0	0	0	+	0	+	OCT. 1912	FEB. 1913	GOOD	2000	1500	187	—
M. B	M	39	5 YEARS	SEVERE	2 MONTHS	2.34	0.28	0	0	0	LARGE AMOUNT	SMALL AMOUNT	+	0	0	0	+	0	+	DEC. 1912	JAN. 1913	GOOD	2000	2000	190	160
D.W.B	M	53	5 MONTHS	SEVERE	3 WEEKS	3.38	0	0	0	0	MODERATE AMOUNT	SMALL AMOUNT	+	0	0	0	+	0	+	DEC. 1913	FEB. 1914	BAD	1750	1500	140	120
R.S	F.	40	5 YEARS	VERY SEVERE	3 WEEKS	8.53	1.25	0	0	0	0	0	+	0	0	0	+	0	+	MAY. 1914		GOOD	1000		115	—
											0	0	+	0	0	0	+	0	+	APR. 1914		GOOD	1600		160	120

ACETONE AND DIACETIC ACID: 0 = NONE OR ABSENT. 1 = SMALL AMOUNT. 2 = MODERATE AMOUNT. 3 = LARGE AMOUNT.

+ = YES. ± = DOUBTFUL. 0. OR - = NO.

CLINICAL OBSERVATIONS.

PHOROWITZ, N.Y.

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65 WEST SEVENTY-THIRD STREET.

A SPUTUM TRAP FOR LUNG EXAMINATIONS.

BY GEORGE EDWARD BARNES, B. A., M. D.,
Herkimer, N. Y.

During the examination of the lungs, when the patient is required to cough repeatedly, there is need of some contrivance which will effectually protect the physician's office from any spray that may be emitted from the mouth of the patient. I have constructed a mouth cover which looks like two cornucopias placed with their bases together and having an aperture at their junction.

A piece of strong, stiff, glazed wrapping paper, about fourteen by twenty inches, is used. In the middle of one of the longer sides is cut an elliptical indentation five inches long and two inches deep. On the opposite side is cut an indentation six inches long and three quarters of an inch deep. Then, as the paper lies spread on the table, the lower half of it is bent upward and held at the point *a'*; then the upper half is bent downward and the point *a* placed over the point *a'* so that the upper half overlaps the lower half, and the paper is held in that position between the index finger and thumb of the left hand. Then, while the left hand prevents further overlapping at its point of grasp, the right hand twists the upper flap of the paper as far as possible about the lower flap, thus converting one half of the whole sheet into a cornucopia. This form is retained by placing a pin at the apex and at the base of the cornucopia. The other half of the sheet is made into a symmetrical cornucopia.

A piece of gauze, in four thicknesses, measuring about sixteen by 7.5 inches, some library paste having been put along its edges, is placed inside the trap so that it lines that part of the trap which is in front of the opening for the mouth, and the

ends are brought through the opening and pasted by their margins to the outside of the trap. A strip of narrow bandage about ten inches long is pinned to the trap at points *a* and *b* in such a way that they can be tied around the patient's neck. Paste is then used to close tightly the overlapping sides of the cornucopias in which pins have already been placed. After the paste has dried the trap is ready for use.

That side of the opening in the trap which has the greater indentation is placed over the patient's upper lip and the other side is placed under his chin. If the paper used is sufficiently stiff, the trap, when tied behind the neck, will stay in place, but if it should buckle, a string may be pinned to its front and carried over the head and tied to the bandage on the back of the neck.

This trap is retentive and practically impervious to sprays of sputum. It is easily made, especially when several are made at once, and its destruction insures the freedom of the office from germs dislodged during examination. It is not a fussy thing and it is a very practical thing.

125 MARY STREET.

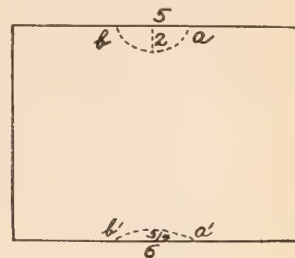


FIG.—Sputum trap.

Therapeutic Notes.

A New Rapid Cure for Scabies.—Ehlers, in *Paris médical* for March 7, 1914, recommends the use of an ointment of potassium pentasulphide prepared as follows: One part of sublimed sulphur is dissolved at a low heat in two parts of a fifty per cent. solution of potassium hydroxide. The resulting fluid is filtered and represents a 33.3 per cent. solution of potassium pentasulphide, with a beautiful orange yellow color. To an ointment base made up as follows:

℞ Petrolati albi, ...
Adipis lanæ anhydrosi, { āā žviiss (225 grams).
Misce.

are then added, little by little, 12.5 ounces (375 grams) of the potassium pentasulphide solution, forming an ointment. In the latter is further incorporated a little of the following preparation:

℞ Zinci sulphatis, ... žvii (28 grams);
Liquoris sodii hydroxidi (20%), ... 3x (40 grams);
Benzaldehydi, ... m lxxx (5 grams);
Petrolati liquidi, q. s. ad. Oii (1000 grams).
Misce.

The procedure in administering the treatment is as follows: The patient first takes a twenty minute cleansing bath, using neutral soap (not green soap). He is then rubbed with the ointment for half an hour, and a dusting powder applied, after which he puts on his clothes. Twenty-four hours later, another cleansing bath is taken, and clean clothes donned. Disinfection of the discarded clothing is unnecessary, the author holds.

The treatment is both harmless and invariably curative. The burrows are caused to vesicate by

the ointment—possibly because of liberation of hydrogen sulphide from contact with the sweat, acid, and burrow secretions—and the parasites are promptly destroyed. They can easily be obtained from the burrows and examined under the microscope. The only disadvantage of the method is an odor of hydrogen sulphide. The ointment is an eminently good one for rubbing in and can be washed off with astonishing readiness.

Previous to trying the foregoing procedure, Ehlers employed Weinburg's ointment in scabies:

R Styracis, ... }
Sulphuris sublimati, ... } āā pars i;
Calcii carbonatis præcipitati, }
Saponis viridis, ... } āā partes ii.
Unguenti simplicis, }
M. et ft. unguentum.

While there were only extremely few recurrences after the use of this combination, a longer period of treatment was required, three rubbings at twelve hour intervals being necessary.

Treatment of Pott's Fracture.—S. Freeman, in the *Therapeutic Gazette* for February, 1914, calls attention to the fact that in all Pott's fractures the astragalus is dislocated outward and also occasionally backward, and that improper reduction of the astragalus is the chief cause of painful joint and impaired function following this fracture. Where the astragalus remains at too great a distance (over one eighth inch) from the inner dependent portion of the tibia forming the inner malleolus, the body weight is transmitted to but one side of the astragalus, throwing an unaccustomed strain upon—and actual tearing of—the internal lateral, calcaneoastragaloid, and other ligaments, and causing pain and probably later flat-foot. The only positive proof of proper reduction of the astragalus is an anteroposterior x ray examination.

The best dressing for Pott's fracture, according to the author's experience is a correctly padded fracture box. The foot being held in the Dupuytren position by the surgeon, the assistant places a rectangular pillow in the fracture box. A large pad is placed under the pillow to support the heel and prevent posterior luxation. Two triangular lateral pads, about eight inches long, of the width of the fracture box, and with the largest end of the triangle four or more inches wide, are then placed on either side of the pillow, the internal one extending down to the inner malleolus (the large end of the triangle down), and the external one from the tip of the outer malleolus to below the foot. The foot is then lowered to the pillow, the heel resting upon the pad, and the sides of the fracture box are closed tightly, the footboard being left down until the foot has been fixed permanently by the lateral pressure. In closing the footboard a pad is placed between it and the foot, to keep the latter flexed upon the leg. Finally, a bandage is tied round the fracture box to increase the lateral pressure.

This dressing is easily applied, comfortable, and holds the foot firmly in the Dupuytren position. Passive massage can be readily applied without disturbing the position of the foot. The pads in

the box take care of the widened tibiofibular mortise when the ligaments are ruptured or when a fracture of the outer malleolus occurs. Excellent results were obtained in the cases in which the foregoing treatment was employed.

Treatment of Breast Abscess.—Morestin, in *Gazette des hôpitaux* for May 29, 1913, recommends that, where the esthetic result is of significance, incision in mammary abscess be confined to the areola. With this procedure the scar subsequently formed is in the great majority of cases practically invisible. The situation of the suppurative focus is first ascertained, the presence of a superficial portion of the abscess cavity being clearly recognized, and an incision then made from the base of the nipple to the margin of the areola in the direction of the portion of the gland involved. In the parturient woman the areola is larger than usual, so that an incision two to three cm. in length can almost always be made. The knife is next carried under the skin toward the superficial abscess cavity, which is opened. A grooved director, hemostat, or even the gloved finger, is then inserted in this cavity in order to explore it and find the channel by which it communicates with the deep, intraglandular portion of the abscess. This channel having been identified—which is very easily done if the abscess is well "gathered"—the knife is reintroduced and the tissues forming the walls of the channel are separated, even if a considerable thickness of mammary tissue has to be cut through. After making sure with the finger that the channel has been rendered as broad as the deep pocket itself, the latter is well evacuated, cleaned out with tincture of iodine or formaldehyde solution, and drained with a relatively thick roll of gauze issuing through the areolar incision. Bleeding is generally very moderate in amount and soon stops. Where several segments of the mammæ are simultaneously involved, each is dealt with as described. The areola being always more or less dependent during lactation, drainage takes place without difficulty. The results obtained with this procedure have been wholly satisfactory. Repair takes place very rapidly; in three to five days, rarely later, the drainage can be dispensed with, and complete recovery occurs in ten or twelve days.

A Soap Paste Useful for Purposes of Lubrication.—A. Labat, in *Journal de médecine de Bordeaux* for May 17, 1914, refers to the fact that the lubricant preparations in general use for vaginal and rectal examinations are usually of fatty nature and can be removed from the fingers or gloves only by vigorous brushing with soap and water. The following combination not only possesses the unctuous consistence of petrolatum, but can be removed by merely washing the fingers or gloves with water:

R Saponis pulveris, ... 3viiss (25 grams);
Glycerini, ... 3xiiss (45 grams);
Aquæ destillatæ, ... 3xviiss (61 grams).
M. et ft. pasta.

The soap is dissolved in the mixture of glycerin and water on a water bath. The whole is then poured into a mortar and beaten up for some time until a homogenous paste is obtained. The paste is then kept in sterile containers.

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NEW YORK, SATURDAY, AUGUST 15, 1914.

WAR.

It is not necessary to blame individuals for the present European conflagration; nothing is responsible save human nature naked and unadorned under a flimsy veneer of a few thousand years of culture. For primitive man war is the king of sports, the great panacea for the ennui induced by the monotonous cultivation of the ground, but faintly relieved by the hunt, ever growing easier as weapons improved. War was always a cheaper and more agreeable method of acquiring property than by grubbing it out of a reluctant soil; it also offered the quickest means of obtaining wives and other slaves to do the disagreeable work, while the owners made more war. So even today man secretly prefers war to a life made up of office hours and stultifying musical comedies. War belongs in the category of stimulants or narcotics, to the number of which civilized man has constantly added to relax the strain and confer temporary oblivion of actual existence. It is indeed a question worthy of debate whether the abstinence from alcohol and tobacco now enforced in many places for economic reasons, together with the adoption of merciless "speeding up" processes, has not so increased nervous disequilibrium as to render war a welcome relief. Force upon men unnatural speed and concentration, and take away their accustomed sedatives, and you drive them to a more potent Lethean stream.

Nothing can compare to the glorious intoxication of war in the mind of the healthy adult at his best—between the ages of eighteen and thirty years; middle age, like night, brings counsel. The normal young man fights and makes love, both occupations deplored and sneered at by the older, whose tissues are hardening. Warlike youth puts on its handsomest and most becoming raiment, takes along its most stirring music, heedlessly leaves property behind to be made good by justifiable loot, kisses its sweetheart goodbye in sure anticipation of more or less willing loves among the enemy's womankind. Even his horse is said to sniff the battle afar off and to laugh, Ha! ha!

Apart from the irresistible excitements of war, there are the healthful open air life, the coarse but wholesome food, the absence of any necessity for painful original thinking, all of which cause a superb euphoria. The chances of agonizing wounds, of death itself, are cheerfully accepted along with this tremendous joy of living.

The most highly civilized among the nations have, it is true, been the last to join in the present conflict, but events have proved that they were equally ready with the aggressors. Their enthusiasm is not less than that of the more precipitate. Already conflicts are becoming almost hand to hand; real fighting, this is, not the tiresome long distance practice of the Japanese and Russians. It is noteworthy how the war fever is breaking out in far distant Portugal.

War is abhorred of the old, but not of the old soldier; he may agree as to its horrors in mixed company, but with a former comrade in arms his eye glistens and his tongue is eloquent as he dwells with affection on the bloodiest and cruelest episodes of his campaigns. Where are now the privates who were going to desert, the socialists in various lands who were to refuse to fly at one another's throats? They are marching under their respective colors, and if they get near enough to the Hague, they will drop a few ironical shells into the Palace of Peace—not with ill will, but just for luck.

War is an irresistible temptation to man, still not quite civilized. Some day, perhaps, a boy caught playing at *Kriegspiel* will be treated like one who should today be found torturing a dumb animal; that will be a long time hence, when not only a new kind of education will be universal, but there will be comparatively fewer and wiser people. A scientifically regulated birthrate may furnish a world population that has had all childhood's rights and privileges and is consequently strong physically and self controlled mentally. Such a population may well believe that it is too good merely to furnish food for powder.

WOUNDS IN MODERN WARFARE.

Military operations now under way in Europe upon such a tremendous scale, arouse interest in the subject of gunshot wounds, and in the probable loss which will be sustained by the combatants. The increase in range, the rapidity and accuracy of fire developed in modern military firearms, supplemented by the relative increase in the strength of field artillery, will have an important bearing upon the character of the wounds and the number of casualties. Experience in recent wars has demonstrated the character of the injuries produced by modern military firearms. The European powers have all adopted rifles with similar ballistic properties. The bullet is jacketed, of small calibre, varying from 6.5 mm. to eight mm. (0.255 to 0.315 inch), and weighs from 150 to 220 grams. It is either ogival or pointed in shape, and has an initial velocity of from 2,000 to 2,700 feet a second. The pointed, or "spitz ball," has been adopted by England, Germany, Turkey, and the United States. The wounds inflicted are therefore of entirely different character from those inflicted by the rifle in use several decades ago. This weapon had a low velocity and carried a soft leaden bullet of large calibre.

The effects produced upon the tissues by projectiles depend upon the velocity with which the bullet impinges, its size, and the resistance encountered; the energy expended is directly proportionate to the velocity with which it strikes. If the resistance encountered is slight, as in soft tissues, the damage will be equally slight, while with a high velocity and great resistance, the damage will be relatively great. Explosive effect, that is, the effect that would be produced by the action of an explosive within the tissues, is not frequently met with on the battlefield, since it occurs only at the short range, say under 300 or 400 yards, when the bullet is moving at a high rate and when the resistance encountered in the tissues is great, as in bones and encapsulated organs, and in cavities filled with liquid or semi-liquid masses, such as the skull, stomach, heart, etc.

Experience in the Russo-Japanese and Balkan wars has demonstrated that at the greater ranges perforations of the abdomen, chest, and skull, may take place with astonishingly slight effects. This statement must be modified so far as the pointed bullet is concerned, since this bullet has its centre of gravity near its base and is usually "set up" on meeting with slight resistance, thus forcing its way through the tissues in its length instead of in its diameter. In the Balkan war the comminution produced in bones by the pointed bullet was found to be greater than that produced by the ogival shaped bullet. Injuries to the diaphyses of the long bones

are usually accompanied by great splintering and comminution. In the epiphyses of the long bones and in cancellous bones, the injury is more likely to be a perforation. Wounds of the soft parts inflicted by the modern rifle bullet and protected from infection by the prompt application of the first aid dressing, are usually trivial in character, and men so wounded are generally fit for duty at the end of two or three weeks, even when the lungs have been perforated.

Fatal primary hemorrhage occurs much more frequently than in earlier wars, because the small calibre jacketed bullet is more likely to sever vessels, while the large calibre bullet, moving with lower velocity, affords time for the vessel to be pushed away from its course. It has been estimated that eighty-five per cent. of the deaths upon the battlefield in modern warfare are due to hemorrhage. Secondary hemorrhage, which in former wars was of such common occurrence, nowadays rarely occurs, while traumatic aneurysm is much more frequent.

Amputations are much less frequently found necessary, and then only where there is extensive destruction of the limb, as in wounds by large shell fragments, or injury to bloodvessels completely arresting the circulation. During our civil war military surgeons considered that in all wounds of the larger joints amputation was indicated. Wounds inflicted by the modern rifle bullet, if properly protected against infection, never require amputation unless the circulation is arrested. In injuries to bones, even with the greatest comminution, if no infection ensues, repair usually will be very good, provided efficient fixation is employed; such, at least, was the experience of surgeons in the Balkan war. Machine guns use the rifle ammunition and the wounds inflicted by them are identical in character with those inflicted by other small arms.

The wounds caused by shrapnel bullets differ from those caused by the rifle bullet in that they are accompanied by greater contusion and involve a greater amount of tissue, shrapnel bullets being of greater size and having a much lower velocity. The shrapnel bullet of the three inch field gun of the United States is made of lead and antimony, has a diameter of one half inch, and weighs 167 grains; there are 250 bullets to each case. The velocity of the bullet at the end of its longest range, about 6,500 yards, is 865 feet, which is sufficiently great to kill a man or a horse. Shrapnel wounds are frequently multiple, and almost invariably suppurate, since they are very apt to carry foreign material from the clothing into the wound. Grenades produce injuries similar to those made by fragments of shells, and were used in action at close quarters by the Japanese

in the Russo-Japanese war, often with frightful effect. Wounds produced by them are usually multiple, often extensive, and may be caused by pieces of the casing as well as by the explosive action of the charge. At times, limbs may be shattered or completely torn away. Wounds produced by bombs and mines are similar to those produced by grenades. The great amount of contusion that is present in these injuries likewise increases their liability to suppuration. Shell wounds are produced by fragments of the bursting shell, which vary considerably in size and shape. Such wounds are always lacerated and may vary from a simple contused incision to a complete disruption of tissues. Like shrapnel wounds they are prone to suppurate.

Roughly speaking, battle casualties in recent wars have varied from ten per cent. to twenty per cent. of the number engaged. The ratio of killed and wounded has been about one to four. Of the casualties, from sixty-five to eighty per cent. were caused by rifle fire, and from twenty to thirty per cent. by artillery fire, chiefly shrapnel. Bayonet and sabre wounds apparently have been of rather infrequent occurrence, since little mention of them is made in reports. During our civil war, ninety per cent. of the total wounds recorded were caused by small arms, while the injuries from artillery amounted to but 9.87 per cent. of the total wounds.

THE WAR AND DRUG SUPPLIES.

The disturbance of commerce incident to the war will eventually affect every one of our readers in one way or another. All food products have already advanced in price, and there will probably be still further rises. A great many of our most useful drugs of botanical origin are drawn from central Europe, and the outbreak of the war has come at a time when the majority of these drugs have not yet been shipped, many of them not even garnered. We are also dependent upon Central Europe for many medicinal chemicals, including the various proprietary synthetic remedies of German origin. The supplies of these, as well as of botanical drugs grown in central Europe, have been completely cut off, and the prices of some of these products have been advanced in the New York markets to two or three times the prices which prevailed prior to the outbreak of hostilities. At least one of the New York agents for the German producers has given notice, however, that he will not advance prices, but will curtail all sales to the immediate requirements of the legitimate trade and, so far as he can do so, will not permit his products to get into the hands of speculators, so that supplies can be obtained at the normal quotations so long as any are available.

THE DETOXICATION OF THE BLOOD OUTSIDE THE BODY.

The principle of freeing the blood stream of toxic substances by means of intravenous saline solutions is not new. For several years past normal saline has been introduced into the system by various methods in acute septic conditions with a view of ridding the blood stream of the circulating toxins. The great drawback to this method, however, is that unless venesection is performed at the same time, the large amount of fluid forced into the circulation tends to engorge the blood stream and to tax the heart as well as the emunctories to the utmost. In cases of renal insufficiency the introduction of saline infusions is fraught with danger, to say nothing of the failure to accomplish the results sought—the washing out of the toxins. V. A. Urevitch and N. K. Rosenberg (*Roussky Vrach*, May 3, 1914) conceived the idea of removing a certain amount of the blood from the body, washing it, and returning it into the circulation. So far they have experimented on animals, with results which seem to be distinctly encouraging. They found that they could remove one half of the total volume of the blood, prevent its coagulation by sodium citrate, wash it with normal saline solution, and return the purified corpuscles into the circulation. It developed that it was not necessary to return the leucocytes and that most of the red blood cells retained their viability even after three or four hours of rather crude manipulation in the test tube.

The cultivation of tissues in vitro, the successful transplantation of organs from dead bodies (Lydston), the tissue studies of Carrel, the experiments just cited, form an entirely new chapter in experimental medicine—who can tell what the future has in store for us? There is one thing certain; the pursuit of beaten tracks in medicine has so far yielded but slight results, and our only hope lies in the daring exploits of the great investigators along the byways and hidden trails of experimental biology.

A DISCUSSION OF ABBOTT'S METHOD.

Dr. René Mesnard, an assistant in orthopedics at the Hôpital Trousseau, in *Journal de médecine de Paris* for July 25, 1914, writes favorably of the Abbott method in scoliosis. (See this JOURNAL for April 27, 1911.) Noting the conservative attitude of the French surgeons when Abbott first presented his theories to the International Congress of Physical Education in 1913, and the enthusiasm which arose subsequently, Mesnard points out two results which he believes may be confidently expected: 1. The form of the scoliotic thorax may be

appreciably modified and the costal flattening made good, the latter constituting the most unesthetic deformity; 2, even in the chronic forms of scoliosis, compensations may be secured, or they may be usefully modified by substituting for the natural body curves of long radius, smaller curves more favorable to stable equilibrium. For the temporary scoliosis or slight lateral inflections, kinetotherapy is often sufficient, while the scoliosis of rachitis in childhood and that due to paralysis, and certain cervical and lumbar curvatures are, according to Mesnard, not amenable to the Abbott treatment. In all cases subsequent careful physical training is of the first importance.

THE TREATMENT OF RINGWORM OF THE SCALP.

Dr. Douglas Freshwater, in the *Practitioner* for August, 1914, has an instructive article on ringworm. The number of remedies referred to is immense, including salicylic acid, thymol, oleate of copper, oleate of mercury, sulphur, naphthol, ammoniated mercury, carbolic acid, formaldehyde solution, sulphurous acid, picric acid, camphor, croton oil, creosote, etc. Doctor Freshwater states that the prognosis under such treatment is poor, two years often elapsing before a cure is obtained, an interval of one year being very common. Under x rays, however, the period of treatment may be reduced to six weeks.

We are reminded of an old fashioned domestic remedy, which has long borne the reputation of causing the disappearance of ringworm in one or two weeks. An ordinary copper cent is allowed to soak in vinegar until there is a perceptible deposit of verdigris or cupric acetate. This solution is then painted on the ringworm with, *crede populo*, magical results. Perhaps a more scientific prescription of the acetate, in solution or ointment, might be tried with good effect.

THE COST OF MEDICAL SERVICE IN WAR.

In Dr. David Starr Jordan's recent work, *The Waste of War*, are quoted some of the figures of Professor Charles Richet, of the University of Paris. Among these we find: Ambulances; 500,000 wounded or ill, \$1 per diem, \$500,000. This is a startling sum, but apparently it does not take into consideration the cost of feeding the doctors, nurses, and either chauffeurs or drivers and horses, connected with the ambulance service, while there is no estimate of the first cost of the elaborate paraphernalia, drugs, apparatus, instruments, etc., required.

News Items.

Typhoid Fever in Charleston, S. C.—During the two weeks ending August 1, 1914, thirty-four cases of typhoid fever were reported in Charleston, S. C., by Acting Assistant Surgeon Sams, of the United States Public Health Service, making a total of 139 cases reported since the beginning of the outbreak on June 1st.

Change of Address.—Dr. M. Morgenstern, for the past three years with the United States Public Health Service, in Mexico and the West Indies, to 457 Hopkinson Avenue, Brooklyn.

Wynnewood, Pa., Babies' Hospital.—This institution is in urgent need of funds from the charitably disposed; its running expenses are from \$3,000 to \$4,000 a month. The hospital received 2,190 babies during the third year of its existence, ending March 16th last.

Decreased Number of Marriages in Wisconsin.—Statistics for the first five months of the year 1914 show that 5,273 marriages were reported to the Wisconsin State Board of Health, while during the corresponding period in 1913 there were 6,707 marriages reported. It is possible that this decrease in the number of marriages in the State is a result of the new eugenic marriage law, and that marriages of Wisconsin citizens have taken place outside of the State.

Cholera in Austrian and Servian Armies.—It is reported that the Austrian Government has established a strict quarantine against cholera in Vienna. The disease is said to be prevalent among both Servian and Austrian troops, and none of the wounded will be brought to the Austrian capital. Additional physicians and nurses were sent to the front on August 10th, together with a large quantity of medical supplies. It is expected that an order will be issued soon to burn the bodies of all soldiers who die of cholera.

British Medical Association.—The eighty-second annual meeting of the association was held in Aberdeen, Scotland, on July 28th, 29th, 30th, and 31st, under the presidency of Sir Alexander Ogston, M.D., K.C.V.O., emeritus professor of surgery in the University of Aberdeen. Sir T. Clifford Allbutt, K.C.B., professor of medicine at Cambridge University, was elected president for 1915-16. Dr. W. Ainslie Hollis, president of the association for 1913-14, and Dr. W. T. Hayward, chairman of the Australian Federal Committee, were elected vice-presidents. Next year's meeting will be held in Cambridge, July 2d to 10th.

The Red Cross Hospital Ship.—Rear Admiral Aaron Ward, United States Navy, retired, has accepted the command of the vessel which has been chartered by the American Red Cross Society to carry relief to the sufferers from the war in Europe regardless of nationality. An energetic campaign for funds is being carried on throughout the United States. Among the larger donations received is one for \$10,000 from J. P. Morgan, and one for \$5,000 from Kuhn, Loeb & Co. The committee has also received \$1,500 in small contributions from residents of Newport, R. I.

New York's Low Death Rate.—The weekly bulletin of the Department of Health of the City of New York, issued on Wednesday, August 12th, shows that there were 132 fewer deaths last week than during the same week last year. The greatest saving was in infants under one year, which is due, according to the health department officials, to the cooler weather prevailing this summer. This opinion is borne out by the absence of deaths from sunstroke and the decreased number of deaths from drowning, falls from fire escapes, roofs, and windows. The death rate for the first thirty-two weeks of 1914 was 0.35 less than the rate for the corresponding period of 1913. If this decrease in the death rate continues until January, 1915, the city of New York will have enjoyed the lowest death rate in its history.

The Accuracy of the Department's Sputum Examinations.—The question has now and then been raised as to how accurate are the results of sputum examinations made by the diagnosis laboratory of the Department of Health of the City of New York. Two years ago sputums examined at the laboratory were, for a time, regularly sent to the research laboratory where they were reexamined by refined methods too time consuming to be employed in the routine examination at the diagnosis laboratory. Only about five per cent. more positive results were obtained by the use of the more elaborate technic. A similar comparative test was carried on this year. Up to date, a total of 151 specimens of sputum have been reexamined by the research laboratory, and only an additional two per cent. of positive results have been obtained.

American Physicians Registered in London.—With a view to relieving the anxiety of Americans whose family or friends are traveling in Europe a committee of Americans has been formed in London to look after the travelers and register and transmit to the United States the names of those who have arrived in London. Among these are the names of nearly four hundred American physicians, including many who are widely known. The number is, no doubt, larger than usual on account of the presence of many surgeons who were in attendance on the Clinical Congress of Surgeons of North America, which took place in London during the week of July 27th.

Plague in New Orleans.—During the week ending August 7, 1914, one case of bubonic plague in man was reported in New Orleans, La., and eleven cases in rodents. On July 25th, the board of health of the city, on the recommendation of the United States Public Health Service, adopted four ordinances, having for their purpose the prevention of the spread of plague in the city and its eradication from infected foci. These ordinances relate to the keeping of fowls and small animals, in rat proof buildings and cages; the position of vessels and water craft of all descriptions at docks and wharves and their manner of loading and unloading; the rat proofing of all new buildings erected hereafter in New Orleans in a manner approved by health authorities, and the collection and disposal of garbage.

A Merger of Hospitals in Detroit.—On Saturday, August 1st, Solvay General Hospital was merged with Harper Hospital and hereafter will be operated as a part of the latter institution. The union is the result of conferences extending over a period of three months between Dr. W. Blauvelt, president of the board of trustees of Solvay Hospital, Dr. Wayne Smith, superintendent of Harper Hospital, and officers of the Solvay company. Buildings and land owned by this company will be turned over to Harper Hospital, and under the new arrangement the Solvay Hospital will become a public institution for the west side of the city, under the direct supervision of Dr. Wayne Smith, who will also remain superintendent and general manager of Harper Hospital.

Personal.—The Order of St. Sava has been conferred upon Dr. Benjamin Jablons, of 216 East Fifteenth Street, New York, by King Peter I, of Servia, through the consulate general of New York.

Dr. Joseph A. Blake, formerly of New York, is reported to have joined the American ambulance service in Paris, which is under the direction of the American Hospital.

Dr. Michael J. O'Meara, of Worcester, Mass., has been appointed chairman of the new Massachusetts State Board of Insanity, his term of office being three years. Dr. L. Vernon Briggs, of Boston, has been appointed a member of the board for two years.

Major Thomas L. Rhoads, Medical Corps, United States Army, formerly aide to President Taft and President Wilson, has been appointed superintendent of the Colon Hospital, Canal Zone, Panama.

Dr. James K. Gleeson, of Washington, D. C., department commander of the G. A. R., has been elected president of the United Service Club, an organization recently formed in Washington by war veterans, representatives of veteran organizations, and members of the National Guard of the District of Columbia.

Dr. William J. Denno, of New York, and Dr. Charles W. Berry, of Brooklyn, have been appointed sanitary supervisors in the State Department of Health.

Dr. M. C. Woodruff, a member of the St. Louis, Mo., Board of Health, has gone to New Orleans to investigate bubonic plague conditions and sanitary regulations, with a view to determining whether or not there is a possibility of the disease spreading to cities on the upper Mississippi River. Doctor Woodruff's visit is made as a precautionary measure.

Dr. John H. Woodruff, of Barre, Vt., has resigned as city health officer and secretary of the local board of health, after serving two years in that capacity. The reason given by Doctor Woodruff for his resignation is the increasing demands of his private practice. He has asked to be relieved of his official duties on September 1st.

Dr. A. I. Ringer, instructor in physiological chemistry at the University of Pennsylvania, has been elected assistant professor in physiological chemistry in the University of Pennsylvania School of Medicine.

Gifts and Bequests to Hospitals.—The Pottsville, Pa., Hospital receives \$50,000 and the Children's Home \$25,000 by the will of the late J. Gardner Muir.

A gift of \$500 has been made to the building fund of the Floyd County, Ky., Tuberculosis Association, the donor not permitting his name to be made public.

The Clinical Congress of Surgeons of North America, which met in London during the week beginning July 27th, elected the following officers: President, Dr. Charles H. Mayo, of Rochester, Minn.; first vice-president, Dr. H. A. Bruce, of Toronto; second vice-president, Dr. Robert L. Dickinson, of Brooklyn; secretary, Dr. Franklin H. Martin, of Chicago (reelected); treasurer, Dr. Allen B. Kanavel, of Chicago (reelected); general manager, Mr. A. D. Ballou, of Chicago (reelected). A superbly illustrated report of the proceedings of the congress will appear in a later issue of the JOURNAL.

The Control of Tuberculosis in Minnesota.—At a recent meeting of the Minnesota State Board of Health, the following resolution in regard to the control of tuberculosis was adopted:

WHEREAS, Tuberculosis is now recognized as a communicable disease: Therefore be it

Resolved, That a case of open tuberculosis must be isolated, either in a sanatorium or at home.

Resolved, That all early cases shall be so cared for as to prevent, if possible, the disease reaching a stage that will become dangerous to others.

These regulations having been promulgated under authority of Minnesota Revised Laws of 1905, section 2131, have the force of law. To enforce regulations of this kind it is apparent that the State board of health must have some means of knowing of the occurrence of all recognized cases of the disease. This is provided for by a law enacted April 23, 1913, and regulations promulgated November 19, 1913, requiring the reporting of all cases of tuberculosis. The enforcement of these requirements will give the State department of health the necessary information in regard to the occurrence of cases and will make it possible to enforce the regulations regarding the isolation of open cases and the proper treatment of early ones.

A Lesson in Compulsory Physical Examinations.—A carefully matured plan for the periodical examination of employees of the department of health, adopted in the belief that such examinations would prevent the development of disease, promote health, add to the sense of well being of those examined and, perhaps, ultimately reduce the total period of absences from the department on sick leave, was put into operation in May, according to a recent number of the *Bulletin*.

Among the first 300 employees of the department to be examined, there were found: Six errors of nutrition, based on decided variations from normal weight in proportion to height; 7 decided defects of hearing, and one instance of suppurating otitis; 6 instances of uncorrected defects of vision; 10 instances of marked disorders of digestion, chiefly such as affect sedentary workers; 13 instances of defective teeth, needing dental care; 15 minor defects of the tonsils, throat, and upper respiratory tract; 20 instances of appreciable defects of heart action, among which appeared five needing particular precautions in regard to their manner of living; 14 instances of pulmonary defect, of which three were healed lesions resulting from previous tuberculosis, two were instances of early processes put under medical care, and the remainder were minor and temporary affections; 2 instances of anemia, needing medical care; 2 cases of high blood pressure, needing medical treatment or alteration in manner of living or personal habits, and associated therewith errors in kidney functions.

The following minor variations from normal were found, which did not appear to affect the health of the individual, namely: Palpable spleen, three cases; palpable kidney, one case; enlarged thyroid, one case; subacute skin affection, one instance.

Alimentary glycosuria was found in one case, but on re-examination had disappeared. A moderate albuminuria was found in a number of cases, but not to an extent to indicate pathological condition, except in the two cases referred to, which were associated with arterial hypertension. One severe disorder of the nervous system was found, which should respond to appropriate medical treatment and be permanently relieved.

Pith of Progressive Literature.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

July 2, 1914.

Recurrences in Experimental Trypanosomiasis.

—H. Ritz was able to demonstrate the development of twenty-two different modifications of a single original strain of these parasites brought about by repeated partial treatment of the infected animals with certain of the parasitocides. In a single animal no less than seventeen different strains were thus produced. In several animals after the production of a number of different strains one of the earlier strains would reappear. This is accounted for on the theory that the antibodies to this strain had disappeared with the lapse of time. The strains produced were found to reproduce indefinitely without loss of their immunological characters after many generations in a long series of animals. The identity of the several strains was determined by serological reactions for immunity production. The author believes that these results, proving the enormous variability in trypanosomes, will also hold good for other types of parasites, such as the treponema, and the spirilla of relapsing fever, and possibly also for certain types of bacteria. This being true, there is little hope for a practical method of immune therapy in these diseases unless the parasite happens to have a very limited range of modification. So far as these results go they seem to show that the greatest hope of cure lies along the lines of specific chemotherapy.

The Rise in Blood Sugar in Elderly Diabetics.

—F. Hirschfeld's observations lead to the conclusion that the rise in blood sugar in such patients is due to a diminished water excretion and a retention of nitrogenous waste products. When such patients are limited in intake to seventy grams of protein daily, there is a gradual improvement in the excretion of sugar and elimination of nitrogenous waste, along with an increase in the water output, and at this point the blood sugar also begins to fall to reasonable limits. The limitation of carbohydrate intake does not have this effect in such cases. As the kidneys are called upon to excrete less nitrogenous matter, they seem to improve in their functions as regulatory organs for the composition of the blood.

Experimental Investigation on "Spleen Tissue" in the Liver.—G. Lepelne extirpated the spleens from rats, and was able to demonstrate the rapid appearance of large deposits of free iron in the Kupffer cells in the liver and also in the endothelial cells of its blood capillaries. In addition there seemed to be a solution of hemoglobin in the blood and a secondary phagocytosis of the red cells by the Kupffer and endothelial cells. After the lapse of several days iron began to appear in the kidneys and urine in excess of the normal. It is apparent that there was an excess of free iron in the circulating blood in these animals, from which the author concludes, that, while the Kupffer cells can undertake the functions of the spleen to a limited degree, they cannot completely replace the functions of this organ.

Critical Remarks on the Abderhalden Reaction.

—A. Bisgaard and A. Korsbjerg observed every possible precaution in the conduct of their tests, but

they were unable to obtain uniform results in the controls, the colors differing when constant amounts of the reagents were used. This they have found was due to slight alterations in the solutions. Particles of dust, or molecular particles present in the solutions, alter the absorption of light rays and produce differences in color reactions. As a result of this, the authors do not believe that the ninhydrin reaction can be accepted as the standard for the precise determination of small amounts of protein split products. In a series of tests, otherwise controlled, they were also unable to find ferments in the serums in a large number of insane cases, as reported by others.

The Abderhalden Reaction with Koch's Tuberculin B. E.—O. Melikjanz finds that the bacillus emulsion contains no dialysable substance which gives the ninhydrin reaction and that the emulsion in amounts of 0.5 c. c. provides an excellent means of testing for tuberculosis by the Abderhalden method. Positive reactions were obtained with eight tuberculous patients and negative with two nontuberculous.

Friedmann's Remedy.—Schultes records observations in forty-six cases in the several stages of the disease. He saw no single case in which improvement resulted in a period of five months, while in a number of the patients, the condition was made decidedly worse. The formation of abscesses was particularly troublesome, and was noted in no less than eighteen of the cases. In another paper, Ernst Meinicke describes forty-six cases, three of which seemed to be improved, fifteen improved only to the extent which was to be expected from their residence in a sanitarium, sixteen were uninfluenced, and twelve were made decidedly worse. Abscess formation was frequent in this series also. "The Friedmann remedy is, according to my experience, a decidedly dangerous agent."

July 9, 1914.

Pulmonary Emboli.—Hugo Ribbert finds that pulmonary emboli differ materially from thrombi usually found attached to the walls of injured vessels. The latter are made up of large numbers of blood platelets and large amounts of fibrin which has gradually been deposited, entangling with it a small number of red cells and leucocytes. These are very firm masses and are strongly attached to the vessel wall. The thrombi which lead to pulmonary embolism, on the other hand, are composed of large numbers of red cells and a relatively small proportion of fibrin which is arranged in long strands attached loosely to the basal clot on the vessel wall. These thrombi are very soft and friable and reach a considerable length, often lying free in the blood stream except at their attached ends. Their structure closely resembles that of the clot formed in shed blood, and the author believes them to be the result of some disturbance in the composition of the blood by which clotting is facilitated. There is a possibility, therefore, that we may be able to prevent the formation of such clots by measures which diminish the coagulability of the blood.

Abderhalden's Reaction.—Ed. Mosbacher and Fr. Port found that of 100 of the best membranes, the individual ones when tested with peptone solution of a constant strength, showed extremely wide

variations in their permeability to this substance. A single membrane, when tested with the same solution on successive days, or even successively on the same day, frequently showed marked differences in the amount of peptone which it permitted to pass. In spite of these insuperable deficiencies of the method, the authors tested serums of fifty pregnant women; seventy per cent. of the serums gave positive reactions and twenty per cent. negative; serums of twenty-five men, fifty-six per cent. of which gave positive and thirty-six per cent. negative reactions; and serums of twenty-five certainly nonpregnant women, twenty-eight per cent. of which were positive, and an equal proportion negative. They do not believe that positive reactions among the serums from men or nonpregnant women could be attributed to the defective character of the membranes. Possibly the explanation lies in the nonspecific nature of the protective ferments involved in the production of substances which give positive reactions.

Specificity of Ferments against Plant Protein.

—B. Issatschenko used the proteins from flax, nuts, wheat, and avenin, administering them parenterally to guineapigs and subsequently testing the specificity of the resulting protective ferments by the Abderhalden reaction. He found that the ferment developed for any one of these proteins was specific for that and no other protein tested, which included the whole range enumerated, as well as normal horse serum.

Clinical Observations on Strophanthin.

—Johannessoehn and Schaechtl used a pure preparation of crystalline strophanthin of Thoms both orally and intravenously in a number of cases and arrived at these conclusions: The cardiac action was similar to that of digitalis, but the general vascular action differed, for strophanthin did not appreciably raise the general blood pressure. Noteworthy was the more rapid action by mouth. There was a striking diuretic action, which produced remarkable results in cases of edema and ascites in the briefest time. Internal administration is certain, for the drug seems to resist the action of the digestive ferments. No cumulation was observed, and is far less to be feared than with digitalis, for the union of the drug with the heart tissues is much looser than in the case of digitalis.

Paravertebral Conduction Anesthesia.—P. W. Siegel reports at length on his experiences with this method of anesthesia covering more than 150 gynecological and twenty obstetrical cases. Sixty-eight per cent. of the gynecological operations were carried out without the use of a general anesthetic, and of those requiring this none took more than the most insignificant amount to complete insensibility. The method employed calls for the preliminary administration of scopolamine and morphine about two hours before the operation, with perhaps a smaller dose of each just prior to starting. The conduction anesthesia is produced by novocaine and epinephrine, the former in one half per cent. solution. From twenty to forty c. c. of this solution are injected about each nerve which is to be anesthetized. With the patient seated and the head bent slightly forward and the shoulders also drawn forward, the iliac crests are marked out to give the

level of the fourth lumbar vertebra, and the tips of the scapulæ for that of the sixth or seventh dorsal. Then lines are drawn on each side four to five cm. from the middle line and parallel to it between these points to mark the sites of insertion of the needle. This is inserted along this line at the level of each spinous process until its point impinges on the rib or the transverse process. Then the needle is directed at an angle of about twenty degrees inward and shoved 1.5 to 2.5 cm. farther. The injection is then made as the needle is slowly withdrawn. A somewhat modified technic is required for the injection of the sacral nerves. It is necessary to have a fairly precise knowledge of the innervation of the region in which one is planning to operate so as to be able to limit the anesthesia to the nerves which are concerned. The author gives a tabular scheme of the innervation of the fields of the usual operations for which this method is suited. The method has no contraindications and the secondary symptoms are both infrequent and very trivial. The complete anesthetization of certain regions in the pelvis is often somewhat difficult on account of the mixed innervation of this region, but it can be carried out successfully if one is careful.

Quantitative Albumin Determination and Ferments in Gastric Contents.—M. Trallero applied the phosphomolybdic acid test of Wolff and Jung-hans in a number of different gastric ailments with the following results: 1. In carcinoma large amounts of albumin, averaging 320, were found, together with a reduction in the amounts of pepsin and rennin. 2. These albumin values were not, however, constantly found, three cases with palpable tumors and occult blood in the stools having normal amounts of albumin. 3. In chronic gastric catarrh the albumin values are alone often productive of incorrect diagnosis, quite analogous findings to those in carcinoma having been observed. In such cases, however, there were large amounts of mucus. 4. In cases of atrophic gastritis normal albumin content is sometimes found. 5. Nervous achylia occasionally gives high values. High albumin values as well as deficiency of hydrochloric acid are not of value in the diagnosis of early carcinoma, and low or normal albumin values do not exclude carcinoma. Nervous achylia can be distinguished from those due to gastritis by their inconstancy in the excretion of ferments.

WIENER KLINISCHE WOCHENSCHRIFT.

July 6, 1914.

Clinical Meaning of Blood Plasma Granules.

—Weltmann observed that these granules appear in the blood when fat is taken and only sparingly or not at all when carbohydrates and proteins are ingested. When there is a delay in the appearance of these granules in the blood after fat has been eaten, it usually points to a disturbance of the liver function. The diminished or defective production of these bodies according to his experience indicates an obstruction to the biliary flow. When there is an entire absence of these elements in a patient partaking of a diet containing a moderate amount of fat, the absence of bile pigment in the feces is usually observed, pointing to a complete exclusion of bile.

Genuine Epilepsy.—Bolten maintains that of the many cases reported as genuine epilepsy, a large portion, sixty-five per cent., belong to the group of cerebral, secondary or symptomatic epilepsies, as their primary cause is some process in the brain. The remaining thirty-five per cent. belong to the group of genuine, essential or idiopathic epilepsies. Clinically it is impossible to differentiate genuine epilepsy from many cases of cerebral epilepsy. Genuine epilepsy is a chronic autointoxication brought about by a reduction in the fermentation in the intestinal tract and by a reduction in the intermediary metabolism as a result of a hypofunction of the thyroid and the parathyroid glands or of their nervous elements. Genuine epilepsy can be cured, or, better, the symptoms can be made to disappear, by giving rectal injections of juice obtained from the fresh organs, the secretion of which has been found to be deficient.

Vagotony.—Neugebauer describes this condition as a neurosis in which a stimulation of the nervous system causes marked objective symptoms to appear in predisposed individuals, often accompanied by severe pain, whereas normally it would produce only a slight reaction or none at all. The condition is seen mostly in young individuals, having a rather weak constitution, and seems to affect both sexes equally. The symptoms complained of are cardiac phenomena, loss of appetite, eructations, nausea, vomiting, constipation and occasionally diarrhea. Objectively, dermatography, changes in the respiratory and cardiac action, of which bradycardia is the most frequent, are observed. The pulse rate is affected by position; it is usually more rapid when the patient is standing erect than when lying down, although the reverse may be observed. Extrasystoles are seen in some cases. The stomach usually shows a hyperacidity and at times the symptoms complained of suggest ulcer or spasm of the pylorus. Of the intestinal symptoms, constipation is most frequent, although diarrhea may at times be present. Dysmenorrhea is quite constant, the menstrual periods occurring at intervals of about three weeks, and accompanied by marked pelvic and sacral pain. In the therapy of this condition atropine has given the best results.

Treatment of Gas Phlegmon.—Goldschmidt reports a case of gas phlegmon in a soldier who was shot in the right gluteal region, the bullet emerging on the inner side of the thigh near the knee. On admission to the hospital two days later, the patient was in collapse, with elevated pulse and temperature. The entire left thigh was under considerable tension, the edema extending beyond Poupart's ligament, and the part was extremely painful. The bullet wounds discharged a foul smelling secretion. Amputation of the thighs could not be performed, as the process had spread on to the abdomen. Four long incisions were made down to healthy tissue and frothy, foul smelling pus discharged. The extremity was kept at rest and elevated. The wounds were covered with loose gauze, no bandage applied, and irrigated four or five times daily with a six per cent. solution of peroxide of hydrogen. Electrar-gol injections were given daily. The next day the patient's condition had improved. The improvement continued steadily, only one subsequent ab-

dominal incision being necessary. The same method of treatment was carried out in a number of cases with the most satisfactory results.

July 16, 1914.

Spirochætæ in Rabbits.—Arzt and Kerl found in rabbits spirochætæ similar to *Spirochæta pallida* present in flat ulcers of the genitals. A few animals showed enlargement of the neighboring lymph glands, spirochætæ being demonstrated in these glands in one rabbit. Another animal also showed a papule of the mouth from which spirochætæ were obtained. These organisms were injected into healthy animals, and one rabbit after an incubation period of twenty-seven days showed small ulcerations in the region of the clitoris. The spirochætæ could not be demonstrated in artificially inoculated monkeys. Whether this is a syphilitic infection cannot be definitely answered. The period of incubation, the location of the initial sore, the neighboring glandular enlargement, and the appearance of the organism would seem to speak in favor of its being syphilitic, but the inability successfully to inoculate monkeys would speak against it.

Alimentary Chyluria in Exophthalmic Goitre.—Szel has found that in a large percentage of cases of exophthalmic goitre chyluria exists. In very many, the amount of chyle excreted is considerable. Alimentary chyluria is frequently associated with alimentary diabetes, but there are cases where it exists alone. However, the reverse is not true, as he has seen no cases of alimentary diabetes where chyluria was absent. The exact cause of the chyluria in exophthalmic goitre is not known. The liver probably plays an important part in its production, as this organ is associated with carbohydrate metabolism, and disturbance of its function is supposed to bear some relation to the pathogenesis of exophthalmic goitre. Furthermore, in parenchymatous diseases of the liver alimentary diabetes is very often seen. The kidney is another organ that has to be taken into consideration, and, before the disturbance of the liver can be regarded as the cause of alimentary chyluria, the kidney will have to be excluded.

Abortive Treatment of Syphilis.—Saphier reports a series of cases observed some time after abortive treatment, and the results were very favorable. The cases treated presented themselves in the fourth or fifth week following infection. Spirochetes were demonstrated in some, and whenever possible, the primary sore was excised. At first he used salvarsan followed by mercury; later, neosalvarsan in place of salvarsan. Moderate doses were first employed, later larger doses—0.9 gram neosalvarsan a dose and three grams for the cure, which lasted about three to four weeks. Lately he has employed neosalvarsan in doses of 0.15 to 0.6 gram, as a fatality occurred on his service following an intravenous injection of 0.9 gram. The average cure consisted of three to four neosalvarsan injections, amounting in all to 2.5 grams, and from twenty to thirty mercurial inunctions of four to five grams each, followed by two to three injections of 0.5 c. c. of a ten per cent. solution of mercury salicylate.

Postoperative Jejunal and Anastomosis Ulcer.

—Barsony observed that there is a similarity between the symptoms of duodenal ulcer and postoperative jejunal ulcer; also between those of pyloric ulcer and anastomosis ulcer. The symptoms that differentiate duodenal ulcer from pyloric ulcer also help to differentiate postoperative jejunal ulcer from anastomosis ulcer. He reports four cases of jejunal ulcer in which the history closely resembles that of duodenal ulcer. The pain is strongest when the stomach is empty, diminishes after taking food, and reappears after two to four hours. At first, the pain is present only in the afternoon; later, also in the evening and at night. Vomiting is seldom seen, but the periodical return of the symptoms is noted. A diagnosis of postoperative jejunal ulcer can only be made, if after operation there is a circumscribed area of tenderness on the left side or a painful resistant mass can be felt. The history of an anastomosis ulcer is very similar to that of a pyloric ulcer. The symptoms of stenosis are predominant and vomiting is seen quite often. These symptoms point only to a narrowing of the anastomosis. If there is tenderness in addition to these symptoms the probability is that an ulcer is present. The Röntgen rays in the cases of jejunal ulcer show a shaded area, which can plainly be seen through the contents of the jejunum, and which projects beyond that of the neighboring intestine. It is not influenced by massage, and tenderness is present over it. In the anastomosis ulcer the x rays show a dilated stomach, and the area over the anastomosis is either tender or a resistance is to be felt. In cases of postoperative jejunal ulcer, the food remains in the stomach for only a short time. The peristaltic action of the stomach is of no diagnostic importance. The stomach analysis and the examination of the stool for occult blood play a subordinate part. It is impossible to diagnose a postoperative ulcer until some time following the operation, and then at times it is difficult to determine whether it is a jejunal or an anastomosis ulcer. It is important to bear in mind, however, that, as a rule, jejunal ulcers do not present symptoms of retention.

PARIS MÉDICAL.

July 4, 1914.

Permanent Arterial Hypertension and Cardiac Valvular Disease.—L. Gallavardin points out that rheumatic endocarditis in no wise affords immunity from subsequent hypertensive disturbance; the valvular heart may become also a renal heart. This combination of disorders is met with either in mitral or aortic disease, and nearly always occurs in cases where the valvular lesions are slight and well compensated. Clinically, such cases run a course resembling that of high pressure renal disease rather than of valvular disease. The twofold morbid condition referred to at times gives rise to difficulties in diagnosis. One should be cautious in asserting the combined presence of an organic mitral lesion and vascular hypertension when a systolic murmur suggests the former condition, for such a murmur is generally a manifestation of functional insufficiency through dilatation of the left ventricle. Especially serious in its consequences as regards treatment is the assertion of the presence of a

syphilitic nephroaortitis on the basis of an aortic insufficiency murmur in a high pressure case. A coexisting organic mitral lesion, a history of rheumatism, the absence of specific infection, and, in particular, the knowledge that the aortic murmur had been present a long time before, in many instances permit of obviating such an error.

July 11, 1914.

Leucocytosis in Hepatic Colic.—E. Parmentier and L. Salignat emphasize evanescent fever and leucocytosis as signs of hepatic colic. As regards leucocytosis, cases of this disorder can be divided into three groups: 1. Those entirely free of infection—cases of hepatic colic exclusively of mechanical origin; 2, a large group with a mild infection, more or less persistent or even chronic; 3, cases with severe infection, which may at any time begin to follow a rapid course. Treatment differs according to the group. From study of the leucocytes, it was found that medical treatment alone suffices in cases with moderate leucocytosis. In one case under medical treatment, the leucocyte count dropped from 15,000 to 9,000 in six days. Treatment must be continued for some time after disappearance of colic; cases of biliary infection are exposed to recurrence after long intervals. Medical treatment may fail, being instituted too late, or because a severe infection had existed from the outset. In severe cases the leucocyte count rises considerably. When leucocytes are above 15,000, supuration is almost the rule and surgical treatment is nearly always indicated. On the whole, study of the leucocytes permits of tracing accurately the progress of the gallbladder infection, whether violent or insidious.

PRESSE MÉDICALE.

July 11, 1914.

Anaphylactoid Phenomena in Asthma.—F. Widal, Lermoyez, P. Abrami, E. Brissaud, and E. Joltrain report a case of asthma in which paroxysms were regularly brought on by the odor of sheep. Study of the blood at the time of the paroxysms showed that they were accompanied by leucopenia, by a fall in blood pressure, increased coagulability, and diminution of the refractive index of the serum. These changes actually occur before the clinical manifestations of the paroxysm begin, and when the dyspnea appears, the blood commences to regain its normal condition. The anaphylactoid nature of the phenomena observed led the authors to attempt intravenous autoserotherapy in this case. Sixteen injections of twenty-five to sixty c. c. of the patient's own serum were given, and at the close of the treatment, complete immunity to the odor of sheep was established. A few days later the sensitiveness began to return. The observations demonstrate more conclusively than previous work the close relationship of asthmatic attack to anaphylaxis. Of the blood changes and the dyspnea, the former clearly constitute the primary manifestation of asthma.

July 15, 1914.

Excision of Cancer of the Colon.—P. Cruet recommends Quénu's procedure in exposing and delivering from the abdominal cavity, the portion of intestine involved prior to its ablation. After in-

cising the two leaflets of the mesentery, near their intestinal insertion, they are separated from the vasculoganglionic pedicle of the gut as far as their parietal insertion and then sutured, respectively, to the right and left margins of the anterior peritoneum which have previously been detached. By placing large compresses between the vasculoganglionic pedicle and the leaflets of the mesentery, separated and sutured to the parietal peritoneum, a species of peritoneal well, in which the pedicle referred to is isolated from the peritoneal cavity, is formed. Removal of this pedicle will be readily effected at the second operation. By this procedure the insufficient removal of mesentery which militates against the value of Hochenegg's method, is obviated, such removal being now rendered safe because it is extraperitoneal. Excision of the growth is followed by anastomosis of the open ends of gut in their posterior semicircumferences, a single artificial anus resulting, bounded by the anterior semicircumferences, sutured to the skin.

ROUSSKY VRATCH.

April 26, 1914.

Muscle Sign of Chronic Appendicitis.—N. M. Volkovitch described in 1911 a condition of the abdominal muscles which is associated with chronic appendicitis, namely, a weakness and slight atrophy of the right abdominal muscles. In the present contribution he argues for the pathognomonic nature of this sign. He affirms that in chronic appendicitis, a comparison of the two sides will show less resistance on the right; the muscles are found softer, and are smaller in volume. The atrophy is even apparent on inspection. The more chronic the appendicitis the more pronounced the sign. It is not observed in any other pathological state. In young people there is in addition a left sided scoliosis which is produced by the habit of leaning toward the affected side.

An Artificial Eye from a Celloidin Film.—R. A. Katz describes an ingenious method of covering up a partly destroyed eye with a film of celloidin of proper curvature and appearance, thus obviating the necessity of enucleation. The celloidin film is pressed into shape by a die, the iris is painted on fine silk, which is placed between two thin films, which are glued together with a solution of celloidin in acetone, and the completed film is placed over the defective eye, where it is held securely by the eyelids. The cosmetic effect, the author asserts, is perfect.

Technic of Staining the Negri Bodies.—S. M. Kotsevalow has employed for the past four years the following method: The paraffin sections are treated with xylol and alcohol, and dried. They are then stained with a diluted Manson's stain (methylene blue 2.0, borax 5.0, boiling water 100 c. c.). The stain is applied for one minute, washed in water and dried, first with filter paper and then over the flame. The section is then washed with methyl alcohol for a half minute, dried quickly, and mounted. The nerve cells are stained pale blue, the nuclei a deeper blue, and the nucleoli a very deep blue, almost black. The Negri bodies are retained with the exception of the formations, which are stained a deep blue or black.

BRITISH MEDICAL JOURNAL

July 25, 1914.

Serum Diagnosis of Pregnancy and Cancer.—Archibald Leitch says: "However favorably we view these fundamental experiments, we cannot fail to notice that the reactions observed are against substances, quite foreign to the animal, which have gained access to the circulation in an abnormal way." And just as there were "reaction bodies elaborated against proteins quite foreign to the animal body, scarcely any at all when the proteins were foreign to the animal but proper to the species, and none whatever when the proteins were derived from the animal itself, so it behooves us to be cautious before accepting a sweeping theory in which similar experimental links are wanting, all the more so because Abderhalden recently has brought his protective ferments into line with the immune bodies." Others have shown that the normal serum of an animal has the power of splitting the muscle peptone from the same or allied species of animals. "If this observation is correct, then the polarimetric readings which have been relied on in the diagnosis of pregnancy and diseased conditions must be received with great suspicion. Human serum will break down placental peptone, not because the serum is that of a pregnant woman and the peptone is derived from a placenta, but just because the serum *and* the peptone are from human beings." In an effort to determine the actual value of the method for diagnostic purposes, Leitch conducted a large number of tests, running them in duplicate. Of these he has discarded the first half on the ground that he may be accused of not having perfected the technic at that time. The latter half includes one group of thirty-six known pregnant women, in thirty-four of whom there was a more or less clear positive result. The remaining two gave negative results throughout. The serums of eleven women with gynecological conditions, and known not to have been pregnant, gave decided positive results in both tests in six instances and negative in five. Leitch believes that these are "practical demonstrations of the unreliability of the reaction." Serums from twenty-two cases of cancer (the female cases being from nonpregnant women) gave positive reactions to placental tissue in sixteen instances. Control reactions were performed with serums from normal persons and persons ill with a variety of diseases with sixteen positive reactions from thirty-one serums. A marked difference in reaction was often observed with the same serum when amounts of one and 1.5 c. c. were compared. Taking only the results obtained in duplicate, and "making allowances for all the hypothetical fallacies, we still have seventeen most glaring mistakes in diagnosis, which of itself is a large percentage, sufficient to destroy the diagnostic worth of the reactions." These seventeen errors occurred in a total of 100 cases. Leitch ends by saying: "But if we apply to the good results the same code of ethics by which we reject the undesired, then the whole theory becomes worthless."

Sprue.—P. H. Bahr discusses sprue as it occurs in Ceylon with special reference to the question of

etiology and concludes: "1. Sprue is a specific disease of tropical and subtropical countries, though it is possible that cases occasionally originate in temperate zones. 2. It is a prevalent disease in Ceylon, especially among the Europeans. Contrary to the opinions hitherto held, it occurs among the natives irrespective of race or mode of life. 3. This fact, together with the occurrence of the disease in people closely associated with one another, suggests some local influence or some communication of the specific cause from man to man. 4. Sprue is a variable disease. It may occur in a mild or in a particularly virulent form, and, in common with many other serious diseases, is prone to sudden exacerbations, remissions, and periods of latency. 5. There is evidence that the disease may occur as distinct clinical forms, according to the portion of the alimentary canal attacked. 6. Researches on the composition of the stools point either to a complete absence or inadequacy of the intestinal digestive ferments. 7. Researches on the blood and on the urine suggest that certain of the more important clinical features of sprue are dependent on an alimentary toxemia. 8. The pathological findings are also in favor of such a conclusion, and, if anything, point to an invasion with the thrush fungus (*Monilia albicans*) as being concerned in their production."

Controlled Use of Tuberculin.—G. V. Stockdale and Ronald Hodson took only such cases as had bacilli in the sputum, and they attempted to select them in pairs having as closely similar physical signs and general reactions as was possible to obtain. By lot one case of each pair was chosen for tuberculin, the other being treated without. Only T. R. was used, and it was given in ascending doses so as to avoid a reaction. Observations were carried on for three months in each case. In the afebrile cases tuberculin seemed to exert some good effect on the local lesions, but it was apparently harmful to the intermittently febrile cases. It had no effect in increasing the weight or in improving the general condition, in both of which respects the balance lay in favor of the cases treated without tuberculin.

Vaccine Treatment of Typhoid Fever.—W. P. MacArthur finds from an experience in sixty-three successive cases that the early administration of autogenous vaccines in doses of from 160 to 1,500 million organisms at two to three days' interval rendered the disease milder and removed all symptoms except pyrexia. Among the group of cases not coming under treatment until after the fourteenth day of the disease, no such beneficial results were observed.

Hernia of Uterus, Vagina, and Fallopian Tubes in a Boy.—L. R. Braithwaite and William Craig describe the occurrence of the exceedingly rare phenomenon of the presence in a boy fourteen years old of a well formed uterus and Fallopian tubes of normal size, together with a rudimentary vagina. In the place of the ovaries, there were found two similar bodies which proved to be testicles, which were devoid of the vasa deferentia and epididymis. The whole mass was found in the sac of a left inguinal hernia. In respect of general development and disposition, the patient was normal for a boy of his age.

LANCET.

July 25, 1914.

Cerebral Localization.—Eugene Dupuy cites evidence that, "the elements of the localization doctrine as regards the effects of motor impulses from the centres in the hemispheres along continuous strands of fibres crossing in the medulla pyramids are not in accordance with well ascertained facts, and must be accordingly rejected." Observations on man show that we must admit that the so called motor centres are not necessary for the normal functional activity of the parts which they are supposed to govern, "and yet it is not possible to deny that irritation produced by experimental methods in animals and by disease in man is followed by movements or paresis in the limbs." Dupuy has seen many cases in which Broca's area has been destroyed without the occurrence of aphasia and hence denies the accepted function of this area. Dupuy offers an explanation of the mechanism of the production of symptoms in brain lesions. He says, "The area of the seat of definite function . . . is erroneous. In the light of the examples which I have recorded it appears that there are no supplementary centres, but that all the cortex is endowed with the faculty of acting in specific and differentiated manner, and that at most disease or destruction of a given area brings on, say, motor paralysis or aphasia by an inhibitory influence, acting both on other parts of the cortex as well as on the ultimate processes, to the nucleus of the nerves which through the muscles manifest the function externally. This inhibition would naturally imply alteration of the muscular sense." Further, "inhibition is not a process of a mysterious nature. It does not consist either, as Claude Bernard taught, in a phenomenon of interference familiar to physicists, nor do I believe it to consist in the action of a synapse, for that implies an organ with a special function, whereas inhibition is a property of the whole nervous system, and one cannot imagine an organ generated by an irritation. But it is most presumably, as Brown-Séquard taught, *une transformation de forces*. As I have never seen a lesion made in the brain cortex in any special area not followed by distant and appreciable alteration of tissue elsewhere, it appears to me that by such a process the activity of parts may be altered or inhibited, and one proof thereof consists in the fact that there always elapses a certain length of time before the manifestation of inhibition after irritation and before the restoration of the activity in the part inhibited after the removal of irritation."

Reduction of Virulence of Tubercle Bacilli.—Leonard S. Dudgeon prepared cultures of tubercle bacilli, tested their virulence on animals using measured doses, and then transferred the bacilli to sterile saline solution, preparing an emulsion of the living organisms. These saline emulsions were stored in dark brown bottles in a cupboard at room temperature for different lengths of time before the virulence of the contained organisms was again determined. Storage of a virulent human strain for five months greatly reduced its virulence for guineapigs. Fifteen weeks' storage had a similar effect on another strain, while a third was found to have undergone only moderate reduction in three

and a half months. Human bacilli which had previously been treated by exposure to immune tuberculous serum showed no loss in pathogenicity in five and a half months' storage. In eight months a fully virulent strain of bovine organisms was rendered nonvirulent to guineapigs.

Epidemic Catarrhal Jaundice.—E. A. Cockayne brings forward some evidence, from study of two outbreaks in schools, that catarrhal jaundice may be due to some form of transmissible organism, which is conveyed either directly or indirectly from person to person.

Technic of Abderhalden's Reaction.—W. E. Bullock found that the best dialysing tubes were exceedingly variable in their permeability to substances reacting with ninhydrin, and that on this account, they could not be satisfactorily used for accurate tests. To obviate this difficulty, he prepared collodion sacs by coating extraction thimbles inside and out with three layers, and found that such sacs were impermeable to egg white and easily permeable to Witte's peptone. They did not vary rapidly in their permeability, but this gradually increased with repeated use so that they were at their best after they had been sterilized a few times. After about twenty sterilizations they began to pass albumin so that they were thereafter worthless.

BOSTON MEDICAL AND SURGICAL JOURNAL.

July 30, 1914.

Cæsarean Section.—Thomas F. Greene says that an indication for Cæsarean section generally exists when the child can be born only after instrumental or other delivery that may cripple it for life, if not cause its death, or when delivery subjects the mother to the possibility of extensive laceration, with shock and probably impairment of her future health. Formerly there was but one indication, and that was the so called absolute indication; but today it may be truly said, without employing confusing terms, that all indications are absolute. Unfortunately there is no set of rules to guide us in determining these indications, and each operator must rely upon the results of his own experience. He must consider the size and shape of the pelvis; the relative size of the child, its position, and the extent of the ossification of the head; he must also estimate the ability of the mother to force that child through the maternal canal within a reasonable period of time. Still, the operation is not one of choice. Opening the abdomen of a woman exhausted by a long labor and exposed to the risk of infection, is a task from which any operator may well shrink.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

August 1, 1914.

Parenteral Protein Digestion, by V. C. Vaughan.—This paper was abstracted in our issue for July 4th, page 47.

Experimental Chronic Gastric Ulcer, by J. C. Friedman and W. W. Hamburger.—This paper was abstracted in our issue for June 27th, page 1310.

A Few Practical Points on the Treatment of Leg Ulcers, by A. Ravogli.—This paper was abstracted in our issue for July 4th, page 51.

Notes on Cases of Sprue Invalided from the Tropics; Will It Become Endemic Here?—This

paper was abstracted in our issue for June 27th, page 1306.

Value of Abderhalden's Biological Reactions to the Obstetrician and Gynecologist.—H. Schwarz states that it is now possible, with Abderhalden's dialyzation reaction and his optical method, to demonstrate the strict specificity of the so called protective ferments; showing thereby, at the same time, that the protoplasms of the various organs and tissues differ sufficiently from each other in chemical structure to be recognizable with the aid of these ferments, even after they have been boiled or have been reduced to the peptone stage. It is possible to prepare placental albumin and placental peptone which will be readily cleft by pregnancy serum, but which will not be cleft by serum from a cancer patient; on the other hand, it is possible to prepare coagulated cancer tissue which will be cleft by cancer serum and will not react with the serum of pregnancy. Thus, by making a number of cross examinations, and finding that under these conditions cancer serum reacts with cancer tissue only, and pregnancy serum with placental tissue only, one proves the specificity of the protective ferments and the specific structure of the various protoplasms.

Salvarsan in Nonsyphilitic Diseases.—W. H. Best concludes: 1. Salvarsan is specific in diseases caused by any variety of spirillum. 2. It has curative properties in those diseases in which the infecting organisms are found in the blood or lymph, or in other locations where they can be easily reached. 3. It has great therapeutic value in those diseases in which arsenic has been successfully used. 4. Used with caution in repeated doses over a long period, it has a therapeutic value in those diseases in which arsenic previously gave indifferent results. 5. Used as an adjuvant to some other drug or drugs, it is useful in those diseases in which a decided and quick tonic, stimulating, and alterative effect is desired, depending on other drug or drugs for the ultimate result. 6. The mode of administration is important, and should be as follows: Intravenous in those diseases in which a specific action is desired; full dose intramuscular injections, repeated once or twice at long intervals (eight weeks), in those cases in which the tonic, stimulating, and alterative effect is desired, as well as a certain specific action; small repeated doses (every week or ten days) intramuscularly, over a long period, in those chronic diseases in which a purely tonic, stimulating, and alterative effect is desired. The diseases treated by the author include cases of chancroid, chyluria, elephantiasis, epithelioma, erythema multiforme, leprosy, lupus vulgaris, pityriasis rubra, trichinosis, and tuberculosis. He gives a review of the literature.

Pelvic Varicocele.—W. E. Darnall describes six typical cases and states that all medical treatment is palliative. Temporary relief may be secured by raising the level of the organs by tampons or a pessary, and with rest in the recumbent position. Surgery is the only means of cure. The abdomen having been opened, the veins should be ligated at both ends, in the middle, and freely cut across between the ligatures. Excision of the veins is essential to secure their collapse and prevent their restoration after the absorption of the ligatures.

Diphtheria of the Skin of Unusual Types.—L. D. Frescoln states that diphtheria of the skin may occur in several forms, in addition to the false membrane type—the ulcerative, gangrenous, eczematous, pustular, impetiginous, erythematous, vesicular (varicellalike), bullous, like dermatitis herpetiformis, tumors, and abscesses. Inoculation of the skin occurs by autoinoculation, by means of infected articles, and from one person to another. It may occur primarily on the integument, remain limited to it, spread to the mucous membranes, or, more commonly, is secondary to throat, nasal, or laryngeal diphtheria. The Klebs-Loeffler bacillus has always to be distinguished from the pseudodiphtheria (Hoffmann) bacillus. The two organisms differ somewhat morphologically, culturally, and in animal inoculations. The diphtheria bacillus is particularly distinguished by the metachromatic granules (polar bodies), as best shown by the Neisser stain, by the acid producing qualities, and by the fatal results of inoculating animals. These diphtheritic skin lesions are a constant source of contagion, because they are frequently unrecognized for a considerable period. They may last a long time or run a rapidly fatal course. The author reports two cases of the bullous impetigo type, one of which terminated fatally.

MEDICAL RECORD.

August 1, 1914.

Serum Treatment of Pneumonia.—J. C. Roper reports six cases as follows: Striking was the abrupt terminations of the disease after administration of the serum in two cases; probably the natural deferescence must be borne in mind. It would be a satisfaction to think that in the cases having chills the serum had furnished bacteriotropins enough to cause phagocytosis, and consequent lysis of the pneumococci. In this way enough endotoxins to cause the disturbance might be liberated. This disturbance might be likened to the pseudocrisis which occasionally occurs near the termination of a pneumonia. The reactions did not seem to be anaphylactic in nature. To the patient who had shown the most marked reaction, a second dose, fifty c. c., was given three days later with no result. However, so many factors enter into the interpretations of the result of therapy with a polyvalent serum that speculation is fruitless. Until our knowledge has progressed, attention should be confined, as Neufeld and Haendel advise, "to the action of high value serum in typical cases only until value in typical cases has been established. Strains from cases resisting treatment should be identified and classified."

Sigmoid Diverticulitis Simulating Malignancy.—Robert Abbe reports this case, and states that the specimen removed was distended and hardened by formalin, so as to dilate any pockets in the diseased part. The picture was a brilliant demonstration of bismuth showing diverticulitis; each group of shadows was situated precisely as shown in the sigmoid specimen.

Ulcer of the Lesser Curvature.—J. R. Verbrycke, Jr., says that gastric ulcer at some distance from the pylorus differs considerably from pyloric and duodenal ulcer, as regards symptomatology and treatment. The thread test and the radiograph

afford us the only reliable means of localizing an ulcer. In the last two years, he has had twenty-five cases of ulcer of the lesser curvature definitely localized, and he reviews the histories of the patients with reference to the probable duration of the ulcer, the principal symptoms, and the diagnostic signs present. None of them had much hemorrhage as a complication, and only one had had hematemesis in the past. Two of the patients, however, had perforation. Prognosis of ulcer of the lesser curvature with medical means is as good or possibly a little better than that of pyloric ulcer; surgery, the most universally employed measure, has not accomplished its best results in ulcer at this site. Those with the largest experience believe that gastroenterostomy not only cannot be expected to cure these cases, but is often detrimental. Excision of the ulcer is certainly the operation of choice in cases which have resisted medical treatment, and those who have mastered the technic, and are doing this difficult operation report brilliant results.

Primary Carcinoma of the Vagina Treated with Radium and Röntgen Rays.—I. Levin reports a case thus treated, and states that at present the condition of the patient is greatly improved both clinically and anatomically.

Conservatism in the Treatment of Disease.—Beverley Robinson, while freely acknowledging the many practical benefits resulting from recent advances in medical science, believes that we must recognize that very many diseases are not as yet prevented, cured, or even favorably affected by these; so that it is the part of wisdom to depend on those agencies which long experience has shown to be of the most service. Incidentally he refers to the clinical effects of alcohol, especially in pneumonia and diphtheria. "No matter what the laboratory reports now state, great clinicians like Todd and our own Jacobi prove that in these diseases it is food and stimulant of the very best sort when life hangs as by a thread. I well remember that when Dr. Edward G. Janeway was critically ill with pneumonia several years before his death, he owed his life essentially to the frequent taking of the best old brandy; and we must remember that in the best Cognac we have, not merely alcohol, but possibly ethers which are valuable additional stimulants. Surely this is true, and even more so, of some of the purest old wines of France, Spain, and Germany."

SURGERY, GYNECOLOGY AND OBSTETRICS.

June, 1914.

Diagnosis and Surgical Technic of Acute Abdominal Conditions.—J. Y. Brown believes that, as many of these patients are received profoundly intoxicated, it is advisable, unless the patient has vomited blood, to wash out the stomach before the anesthetic is given; the removal of the stomach contents will greatly aid both anesthetist and operator. The abdomen should be prepared in the usual way and the wound of entrance should be carefully explored. No information whatever can be obtained by the use of the probe. As soon as the abdomen is opened, the liver and spleen are examined, and if hemorrhage from either organ exists, it should be properly dealt with. If such hemorrhage cannot

be controlled through the median incision, it is advisable to cut the rectus at right angles. This procedure, while by no means ideal, will enable the operator quickly to control the hemorrhage, and produces less shock than would follow the forcible retraction of the median incision and the rough handling of the injured viscera. The anterior border of the stomach is now examined for perforations. If no perforations are found, a rent is made in the gastrocolic omentum, opening into the lesser peritoneum. Through this opening, the posterior wall of the stomach is examined and any injury to the stomach or pancreas is noted. If the patient is profoundly shocked, it is generally the writer's custom to start irrigating the abdominal cavity with saline, as soon as the peritoneum is incised. A stab wound is made above the pubis with the drain placed in the vesicorectal pouch and the saline flows from the tube. This irrigation is not done for cleansing, but for stimulation. In the repair of perforations of the bowel, he has found that they can best be closed either by a purse string suture or by a through and through stitch, supplemented by the Lembert stitch. Not infrequently multiple perforations are found in close proximity, necessitating bowel resection. It is far better to resect in such cases than to repair with suture if there is the slightest question regarding the blood supply to the bowel. The after-treatment of all of the cases above considered should be as simple as possible. It is his custom unless there are special contraindications to allow such patients to have all the water they desire. Strychnine is never used and morphine is rarely needed. Proctoclysis, tap water being used by the Murphy method, he has found of value. The Fowler position is practically abandoned as a method of treatment, not only in the types of injuries above discussed, but in other acute work.

Surgical Uses of the Bone Graft.—F. H. Albee concludes that his experience as to the trustworthiness of the bone graft, as surgical agent, when taken with its enveloping membranes, periosteum and endosteum, and connected with bone, has been borne out by Murphy, McWilliams and others, who have obtained practically 100 per cent. of successes. The endosteum, marrow substance, and periosteum should be included on the graft, as they play a most important rôle in aiding to establish an early and sufficient blood supply from the recipient tissues to the cortical part of the graft. The endosteum is also actively osteogenetic as well as the inner layer of the true periosteum. A rapid and complete union between graft and recipient bone should be, in many cases, enhanced by the interposition of numerous small grafts in which the periosteum may be disregarded because of the easy access of blood supply to their interior osteoblasts. These coalesce with each other and also with the recipient bones and the large graft. The bone graft when well affixed becomes immediately adherent to the recipient bone by newly formed tissue, which changes to solid bone within four weeks' time. This, together with its bacteria resisting property, strongly favors, in the author's opinion, the substitution, when feasible, of the bone graft in place of all metal internal splints, especially when it is

appreciated that metal has the opposite effect to the graft, in that it inhibits callus formation, produces bone absorption, and favors infection.

Streptococcic Infections with Reference to Arthritis.—F. G. Dyas draws the following conclusions after clinical and experimental observations: 1. In an animal each multiple suppurative arthritis developed in from twenty-four to seventy-two hours, depending upon the amount of streptococci injected, and this occurred regardless of whether attempts had been made to protect certain joints by injections of different solutions or to protect the entire animal by intravenous injections of sodium salicylates. 2. Swelling and stiffness of the larger joints were noticed after twenty-four to forty-eight hours in all cases. 3. Post mortem, thick purulent material was found in the joints which could be scraped away leaving the synovial membrane dull and lustreless. 4. Destruction of articular surfaces of bones, ligaments, and cartilages may occur when the animals do not succumb too early to streptococcic septicemia. 5. Cultures from the heart's blood and from the pus from joints in the animals used gave pure cultures of streptococci. 6. The greatest pathological changes occurred in those joints in which attempts had been made to protect them by injections of formalin or iodoform. 7. Intravenous or intraarticular injections of sodium salicylate in solutions as strong as twenty-five per cent. have no permanent effect upon streptococcic arthritis. 8. Intraarticular injections of solutions of formalin in glycerin or iodoform emulsion do not protect the joints so treated. 9. Aspiration of the pus and injection of antiseptic solutions after infection of a joint had taken place, did not give favorable results in the animals injected intravenously with streptococci.

Proceedings of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS

Twenty-ninth Annual Meeting, Held at Atlantic City, New Jersey, May 12 and 13, 1914.

The President, Dr. SIMON FLEXNER, in the Chair.

(Continued from page 298.)

Pernicious Anemia.—Dr. WARREN COLEMAN and Dr. JOHN A. HARTWELL, of New York, reported a typical case of pernicious anemia that grew steadily worse in spite of four months' treatment with arsenic, iron, hydrochloric acid, and four transfusions. Splenectomy was performed as a last resort. Ten weeks later, January 13th, neosalvarsan was administered. The use of neosalvarsan made it impossible to draw any conclusion as to the effects of the splenectomy, except in the interval before its administration. In this interval there was no evidence of more than temporary improvement. At the present time, April 24th, six months after the operation, the patient, while looking better and feeling better, was just beginning to sit up.

Dr. HERBERT C. MOFFITT, of San Francisco, had been able to collect thirty-one cases of splenectomy for pernicious anemia from the literature, and he reported eight which were done in San Francisco,

one in his own service. The results had been variable. In eight cases death had resulted either immediately or soon after operation. A number of other cases had not improved. In still others, reported in the literature, surprising improvement had taken place. In his own case, paresthesia, which was obstinate before operation, disappeared at once afterward. There were other striking changes in the blood regeneration which followed soon after operation in many cases. He had had opportunity to study the spleens after operation in eight cases, and the picture was practically the same in all. Contrary to clinical observations, the weight of the spleen was considered greater than normal, varying from 450 to 500, and from that point down to 350 to approach the normal of 280 grams. Most observers recorded the size of the spleen in pernicious anemia as not increased, while operative results showed the spleen was considerably larger than normal. The recent work on splenectomy should not distract attention from the ultimate causes of the disease. He had mentioned some time ago the similarity between pernicious anemia in man and pernicious anemia in animals, such as horses. Since that time he had had opportunity to observe some cases in animals and to make sections from the liver and spleen in certain cases. The microscopic appearance of the spleen and liver in these cases was that noticed in the organs removed at the operation for pernicious anemia. From a spleen removed in January, an emulsion was made and injected hypodermically into a horse, with no change in the anemia. The operation of splenectomy in horses was difficult. Many arteries went into the spleen and possibly the operation could not be successfully done. He had in mind tying the arteries of horses whose spleens were affected with pernicious anemia, and it would be interesting to observe whether, as in human cases, cutting off the circulation in horses would have any effect in stopping hyperhemolysis, which was characteristic of the disease in animals as it often was in human beings.

Patent Ductus arteriosus with Infective Pulmonary Endarteritis.—Dr. W. F. HAMILTON and Dr. MAUDE E. ABBOTT, of Montreal, reported a case and drew the following conclusions: 1. This case illustrated in a remarkable manner what hitherto had not been fully emphasized, namely, that a vegetative process was commonly associated with congenital cardiac defects. 2. These vegetations in the present case, and probably in the majority of such processes occurring in conjunction with cardiac defects, were not a simple thrombosis of mechanical origin, with secondary infection supervening, but from their onset were inflammatory in character, the result of an invasion of the vessel wall by infective organisms at the seat of maximum strain. 3. The inflammatory process present in this case manifestly did not arise as a result of an embolic infection through the vasa vasorum, but began by the invasions of the intima at a single point, the pulmonary end of the ductus, which was probably the seat of maximum strain from the two combined causes, the eddying blood stream within its lumen, and the rigid calcareous gland which lay in close juxtaposition without. 4. The present, so far as they knew, was the only recorded case in which the

ductus and pulmonary artery in the neighborhood were the sole seat of the disease, and in which the pulmonary orifice of the ductus had been demonstrated to be the initial seat of the lesion.

Dr. W. S. THAYER, of Baltimore, had had a case very closely similar to the one related, in which there was an increased area of dullness in the second and third interspaces, a thrill, and a prolonged murmur, beginning in sympathy and lasting over diastole with an accentuated second pulmonic sound. The diagnosis was open ductus arteriosus. As time went on the patient manifested paralysis of the left recurrent laryngeal nerve, and was sent to a well known radiologist who took an x ray and, in sending the plates back, wrote an exact diagnosis of the condition from his standpoint, stating, "this is an instance of mitral stenosis with dilatation of the left auricle, and pressure upon the recurrent laryngeal nerve," but it did not occur to the radiologist that there were other methods of making the diagnosis.

Dr. ABRAHAM JACOBI, of New York, knew a case in a baby only a few months old. He was now a boy twelve years of age, and his ductus had been closed nearly three years. He saw him once or twice every year and always found the same symptoms, the murmur getting less and less marked, until finally it disappeared, not only from the carotids but also from the pulmonary artery from below up.

Tests of Renal Function.—Dr. W. S. THAYER, of Baltimore, related eighteen instances of severe advanced chronic nephritis, and concluded that where he had been able to correlate the anatomical and clinical observations, they tended to fortify and to verify his previous opinion that the phthalein test was a reliable one of considerable diagnostic and prognostic value, especially in the study of chronic nephritis.

Dr. CHARLES F. WITHINGTON, of Boston, reported that one of his patients, a man, brought into the hospital unconscious, showed unmistakable symptoms or evidence of acute nephritis. There was a history of convulsions and coma. Twenty-four hours after he was brought in, the phthalein output was seventy per cent. His condition proceeded to clear up and he went out about two weeks after he was brought in, showing a surprising phthalein output, although manifesting signs of nephritis.

Dr. JOSEPH L. MILLER, of Chicago, stated that a man came to the hospital, not very ill, in whose case a definite diagnosis of chronic interstitial nephritis was made. He was passing 2,000 c. c. of urine a day. He could not get a trace of phthalein through in two hours. In forty-eight hours and up to the time he went into coma, he passed a large amount of urine, and at the end of that time went into coma and died. Autopsy showed a high degree of interstitial nephritis.

Doctor THAYER said there were many instances of hydropic nephritis with very few grave subjective symptoms, excepting the hydrops. One found sometimes large quantities of albumin and casts in the urine, yet there was perfectly normal renal function if they estimated it by these tests, excepting the question of salt retention.

Syphilitic Nephritis.—Dr. ALFRED STENGEL

and Dr. J. HAROLD AUSTIN, of Philadelphia, had examined the urine with the polarizing microscope fifty-eight times in forty-six cases. Of these forty-six, twenty-three showed nephritis with an abundance of albumin and casts in the urine. Of twenty-three cases, six had positive Wassermann, three had strong presumptive evidence of syphilis, but no positive Wassermann; fourteen had not the slightest evidence of syphilis. The six cases with positive Wassermann, all showed lipoids in the urine. The rest of the forty-six cases studied were made up in part of nephritis cases of the interstitial or arteriosclerotic types, with only traces of albumin in the urine, and a few hyaline and granular casts, some with syphilis and some without, any number of cases of syphilis, but with no nephritis, and any number of control cases with neither syphilis nor nephritis. None of these cases showed lipoids in the urine. One of the six syphilitic cases with nephritis showing lipoids in the urine, had not received any mercury. They found of further interest the fact that of their last eighty-four cases of nephritis, for forty-six cases there could be recognized from the histories such accepted etiological influences as infections, lead, alcohol, excessive work, exposure, senility, etc., but that for eighteen cases no such factors could be determined. Of these eighteen, there existed in eight, either an unquestionable history of syphilis or a positive Wassermann or both, and in six more of these cases no Wassermann had been secured. In order to determine whether the common experimental degenerative nephritides of animals would be associated with lipoids in the urine, three rabbits were given uranium nephritis and one dog a chromate nephritis. The four experiments were negative; no lipoids were found in the urine. Further experiments with mercurial nephritis, phosphorus and chloroform lesions and syphilitic inoculations were in progress.

X Ray Evidence in Early and Latent Cancer of the Stomach.—Dr. FRANKLIN W. WHITE and Dr. RALPH D. LEONARD, of Boston, said their material consisted of 114 hospital and private patients suspected of having cancer of the stomach, thoroughly examined within a year by clinical and x ray methods. In forty cases cancer was proved; in sixty-six it was ruled out; in eight the diagnosis remained doubtful. The group of cases was studied to determine how far the x ray evidence had helped to detect early or latent cancer. Recent cases were chosen because of recent improvements in technic. The x ray evidence in early cancer was very scanty; in latent cancer it was abundant and important. In the group of cases of cancer operated in, a comparison of correct diagnosis before and after x ray examination showed the latter to be distinctly higher.

Pathological Evidence of the Relationship between Gastric Ulcer and Gastric Carcinoma.—Dr. LOUIS B. WILSON, of Rochester, Minnesota, stated that any existing disagreement as to the relationship between gastric ulcer and gastric carcinoma depended on, 1, failure to understand the pathological data; 2, inappreciation of the bearing on the clinical data; or, 3, failure to appreciate the correlation existing between the two. Small gastric

ulcers were usually simple, and large cauliflower cancers usually showed little evidence of previous ulceration, but between these two lay a large group of ulcerated lesions of the stomach, some of which were ulcers only, while others resembled ulcers in all respects, except that, in addition, they also showed cancer. So far as the pathologist was concerned, he could not positively distinguish, in many such specimens, between simple ulcer and ulcer plus cancer, except with a microscope. When, in such a specimen showing cancerous areas, no cancer cells were found in the base of the ulcer, one was warranted in assuming that the ulcerative lesion preceded the cancer. A review now in progress of all the tissue removed from the stomach and duodenum in the Mayo clinic since 1905 showed that approximately sixty per cent. of the specimens which showed cancer, gave more or less pathological evidence of the precedence of ulcer in the same area. Of the specimens of gastric tumors examined pathologically and diagnosed either as cancer or as cancer on ulcer, there was agreement between the clinical diagnosis and the pathological diagnosis in more than eighty per cent. of the cases.

Etiology of Some Infective Tropical Granulomata.—Dr. RICHARD P. STRONG, of Boston, stated that among the infective granulomata which occurred more commonly in certain tropical countries and which were perhaps of unusual interest from an etiological point of view, were *Verruga peruviana*, ulcerating granuloma of the pudenda, and frambesia. The relation of these forms to one another was considered. *Verruga peruviana* and oroya fever had been considered to be merely different stages of the same disease, oroya fever having been regarded as the initial stage of the granulomatous verruga stage. The two diseases, however, were quite distinct and had a very different etiology. *Verruga peruviana* was due to a virus which might be transmitted to some of the lower animals, while oroya fever owed its origin to a parasite of the red blood corpuscles. The two diseases also had a very different pathology. The etiology of ulcerating granuloma did not seem to be definitely determined. In view of the recent work in the transmission of the virus of verruga to some of the lower animals, it was recommended that more extensive experiments be carried out with the idea of transmitting ulcerating granuloma to monkeys.

A Differential Study of Coccidioidal Disease and Blastomycosis.—Dr. P. K. BROWN and Dr. W. T. CUMMINS, of San Francisco, had found cats and white rats to be markedly insusceptible to infection. Rabbits and guineapigs appeared to be somewhat more susceptible to coccidioidal than blastomycetic infection. Coccidioidal involvement was noted in two rabbits, while the cerebrospinal tissues remained unaffected in all animals in advanced disease. Passage through animals exalted the virulence of the organisms. Highly acid and alkaline agar offered but little inhibition to the growth of the organisms. There was profuse aerobic growth in, but no fermentation of eighteen sugars. Fifty dyes were studied for their inhibiting effect upon the growth of the organisms. Crystal violet was found to be the most inhibitive, and in concentration forty times greater than the minimum

inhibitory dose, was not toxic for guineapigs and white rats.

Influence of Benzol Inhalations on Experimental Pulmonary Tuberculosis in Rabbits.—Dr. WILLIAM CHARLES WHITE, of Pittsburgh, stated that benzol was the best solvent for the fat portion of the tubercle bacillus. It extracted a greater percentage of fat than any other single solvent would take from the bacillary substance. Because benzol could be easily vaporized and used as an anesthetic, it was thought possible in this way to dissolve living tubercle bacilli after their entrance into the pulmonary capillary system, by way of the ear vein and before the formation of the tubercle. It was hoped in this way to obtain a solution of all the living portions of the tubercle bacillus within the body, the possible retardation of the process produced by a fatal dose of tubercle bacilli, and the establishment of an immunity to a further dose of the organism. Contrary to the desire expressed in the theory, he found that in every instance, whether the infecting tubercle bacilli were of low virulence or of high virulence, the resulting infection in rabbits was very much more severe in those treated by inhalation of benzol than in those infected with the same weight of infecting organism. The symptoms produced in rabbits by the inhalation of benzol were similar to those described by Torald Sollmann for the inhalation of gasoline vapors. Animals might be given benzol inhalations, five c. c. every second day, for periods up to three and even four weeks, without resulting in death. The resulting leucopenia varied very much, the lowest white cell count being 3,800 per cm. The red cell anemia was variable, the lowest in their series being 3,600,000 per cm. The majority retained a normal red cell count. The blood smears and counts exhibited changes similar to those described for the injections of benzol by Selling and others. In all, thirty-three animals were used; twelve controls and twenty-one treated. The pathological findings in many of these animals were striking. In thirty per cent. of the treated animals, after receiving five c. c. inhalations of benzol every second day for three weeks, and then being allowed to live two to three weeks longer, extreme enlargement of the spleen was found. In one instance the spleen measured 13 by 3.5 by 3 cm., and the circumference of its largest part was 9.5 cm. There was a large hemorrhage in the substance of this spleen. There were, in all, twenty-one treated animals, but only a single case of purpura with hemorrhages into the mucous membrane of the stomach and bowel. There were marked fatty changes both in the liver and the kidneys of the treated animals.

Some Relations of the Brain and of the Olfactory Apparatus to the Processes of Immunity.—Dr. HENRY SEWELL, of Denver, drew the following conclusions from his experimental work on this subject: 1. Guineapigs sensitized to horse serum might be desensitized by living in a horse stable. 2. It was probable that this reaction might be rapidly achieved through the olfactory sense or more slowly by absorption through the respiratory membrane. 3. The period of antianaphylaxis was less than two days in duration. 4. The converse of this, sensitization of normal guineapigs in stable

air, he had not been able to achieve. 5. Removal of part of the brain of a sensitized guineapig produced much more severe shock than the same amount of injury in a normal animal. 6. This shock was apt to be followed by a period of anti-anaphylaxis of short duration. 7. Section of the olfactory nerves within the cranial cavity preceding the brain operation by a day or more abolished the tendency to shock. 8. Such nerve section in the normal animal also seemed to reduce the shock arising from definite brain injury. The body as a whole might be sensitized through the peripheral application of horse serum after a definite latent period, which did not seem to be affected by previous general sensitization.

Diastatic Ferment in the Urine and Feces; Variation in Diseases of the Pancreas.—Dr. THOMAS R. BROWN, of Baltimore, from his study of the diastase content of urine and feces in normal and in certain pathological conditions, had drawn the following conclusions: 1. In healthy individuals the diastase content of the urine fell within quite definite limits. Markedly small amounts of this ferment in the urine, in the absence of renal changes, were suggestive, although not diagnostic of pancreatic disease, but the real value of these normal limits would probably be in furnishing criteria in testing the renal function by the diastase output of the urine. 2. The stool, if rigorously exact methods were carried out as to food (milk), purgative employed, preservation of specimen, estimation of ferment, etc., also furnished a content within definite limits. He could not insist too strongly upon the procedure being exactly the same in all cases. The effect of waiting too long after the stool had been obtained before making the examination, the influence of variations in temperature in the place where it was kept, and of different laxatives and different foods, was so great as to render the results obtained by methods in which insistence upon such a rigorous technic had not been made, of much less value. 3. Extensive carcinoma of the pancreas showed no diastase in the tube of least dilution, in his method, and this absence of ferment should prove of help in the diagnosis of this condition. 4. In chronic pancreatitis, diastase was present in the stool, but in markedly diminished amounts. 5. In achylia gastrica the diastase content of the stool was practically normal in all the cases examined. This, in the first place, suggested that in the absence of hydrochloric acid some other method of pancreas invasion was called into play; and, in the second place, that the diarrhea met with in certain of these cases of achylia gastrica—the so called gastrogenous diarrhea—was not of pancreatic origin. 6. If all the controllable factors were standardized, the results obtained by the study of the diastase content of the stool should be of real value in the diagnosis of pancreatic disease and in the study of functional disturbances of this gland.

Aconite as a Vasodilator.—Dr. WILLIAM HANNA THOMSON, of New York, after many years of experience in the use of aconite in chronic interstitial nephritis, regarded it as the most efficacious vasodilator which they possessed, when given systematically in full doses. Aconite thus administered reduced, at once, the blood pressure, pro-

duced a full and compressible pulse, and greatly increased the percentage of the elimination of urea in interstitial nephritis. The most important action of aconite, when administered in interstitial nephritis, was to increase the elimination of urea. The beneficial effects of aconite were particularly pronounced in mental derangements of the nature of melancholia with high blood pressure.

Infectious and Toxic Forms of Transverse Myelitis.—Dr. B. SACHS, of New York, reported five cases of complete transverse myelitis. Of this number, four ended in complete recovery and one proved fatal. The first of these cases he reported two years ago, with the idea that the transverse myelitis was due to the poliomyelitic virus, that statement being based on the fact that the case appeared during the epidemic of poliomyelitis in New York, and in many respects was similar to poliomyelitis. There was some peculiar form of infectious transverse myelitis, which in four out of five cases led to recovery. The condition was more common than heretofore supposed and should receive further consideration.

Streptococcus Sore Throat.—Dr. JOSEPH A. CAPPS and Dr. J. D. DAVIS, of Chicago, described an epidemic of streptococcus sore throat in Jacksonville, Illinois, which was traced to the milk of cows affected with streptococcus mastitis.

Dr. GEORGE M. KOBER, of Washington, D. C., pointed out that he made his first collection of milk borne epidemics in 1894, and at that time was impressed with the studies made in England by Kline, Crookshank, and others, in regard to so called epidemics of scarlet fever, which they attributed at that time to an inflammatory condition of the teat or udder of the animal. In analyzing the situation, he concluded and ventured to express the opinion, in 1895, that these were not true cases of scarlet fever, but typical instances of either staphylococcal or streptococcal infections, because he had seen a great many instances where an eruption similar to that observed in cases of scarlet fever was due to streptococcus infection. With their present knowledge of milk borne diseases, nothing short of pasteurization of milk would confer immunity from these infections. The eruption noted was erythematous. Four of the cases were described and diagnosed by very good clinicians as erysipelas.

Election of Officers.—The following officers were elected for the ensuing year: President, Dr. S. J. Meltzer, of New York; vice-president, Dr. Henry Sewell, of Denver, Colorado; Secretary, Dr. George M. Kober, of Washington, D. C., reelected; recorder, Dr. Thomas McCrae, of Philadelphia, reelected; treasurer, Dr. J. P. Crozer Griffith, of Philadelphia, reelected.

Letters to the Editors.

BERIBERI IN NEWFOUNDLAND.

BARIN NORTH, NEWFOUNDLAND, July 23, 1911.

To the Editors:

This communication was actuated chiefly by the reading of an editorial article on beriberi in the JOURNAL for June 27th. It may not be generally known that for some years a disease similar to the description of tropical beriberi has been endemic in Newfoundland. During the last four

years the number of cases occurring annually has been decidedly on the increase. This disease is confined chiefly to the outposts, and is not solely an affliction of the poorer class.

I have treated twelve cases during the past two years, most of them of the intermediate type, there being usually a slight amount of edema and always neuritis with atrophy. The chief symptoms are neuritis of the legs from the knees down, and of the hands, marked tenderness along the course of deep nerves, especially in the calf; and shortness of breath. There is also numbness of the skin over the abdomen and a feeling of tightness in some cases. The soles of the feet are usually very tender, so that walking, especially on an uneven surface, is exquisitely painful. Associated with the foregoing are weakness of muscles, and occasionally slight pleural and peritoneal effusions. The blood pressure is generally lower than normal. There has been one case of sudden death, and recently a man died during a third recurrence of the malady.

The usual duration of the cases has been from eight to fifteen months, and recovery is the rule. In some cases men have returned to work, but suffering from cold extremities, and occasional attacks of lassitude and weakness, lasting a day or two. In all cases but one, the onset was without fever.

An interesting fact is that last summer there were a large number of cases of diarrhea among adults, one girl, aged eighteen years, dying. Practically all of these patients on recovering from bowel symptoms, manifested numbness of hands and legs, and abdominal wall, associated with great debility. All these patients recovered in from one to three months.

Osler speaks of beriberi among the fishermen on the Grand Banks, but about all the cases here are among the shoremen, that is, men fishing two or three miles from land in small boats.

I have seen only two cases in women. The treatment has consisted in giving strychnine in ascending doses along with other tonic treatment, keeping the intestinal tract as healthy as possible, and massage.

Presuming the cause to be a dietetic one or partly so, some men have recommended the use of coarse food, especially whole wheat biscuit and bread, and a good deal of this is now being used. There is a tremendous amount of wheat bread consumed in this country, and it is said that the flour is very much whiter and more refined than formerly, when it had a noticeably yellow tinge.

There is here a good field for the government to assist medical research work, as many able bodied men are at present totally incapacitated.

GILBERT PARKER.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Manual of Military Hygiene. For the Military Services of the United States. By VALERY HAVARD, M. D., Colonel, Medical Corps, United States Army, Retired; Former President, Army Medical School. Published Under the Authority and With the Approval of the Surgeon General, United States Army. Second Edition. Thoroughly Revised and Greatly Enlarged. Illustrated with Seven Plates and Two Hundred and Fifty-one Engravings. New York: William Wood & Co., 1914. Pp. xiv-786. (Price, \$5.)

Although this is a manual of military hygiene and intended particularly for medical officers, it is worthy of careful perusal by all who are concerned with questions of sanitation. This second edition has been extensively enlarged until it thoroughly meets all requirements. One slight omission is noted; nothing is said concerning *Dibothriocephalus latus*, the fish tape worm. Although not common, it has been reported by Warthin as occurring fairly frequently in several places on the Great Lakes. Typhoid fever and vaccination against it are well reviewed. In fact, everything bearing upon the health and well being of the soldier is carefully presented. The volume is a most excellent one and can be recommended highly.

A History of Laryngology and Rhinology. By JONATHAN WRIGHT, M. D., Director of the Department of Laboratories, New York Post-Graduate Medical School and Hospital. Second Edition, Revised and Enlarged. Philadelphia and New York: Lea & Febiger, 1914. Pp. xiii-357.

The just popularity that has been accorded this very instructive and interesting book on the history of laryngology and rhinology, is indicated by the appearance of the second edition, enlarged and revised. The author's reputation as a writer, his record of scientific attainments, and his ability should recommend his work to those who enjoy history. Extensive details are necessarily impossible in a book of this character, but the subject matter is presented in the characteristic, pleasing style of the author, and the reader is not particularly conscious of any enforced curtailment of the points of historical interest. It is not a book that one can pick up and read through with advantage at one sitting. To appreciate it the pages must be perused, in order properly and advantageously to gather in the vast number of historical facts. It is interesting to make a comparison of certain methods of treatment of the ancient authorities with those of the present time, and to see what little change in some cases has taken place. In the time of Hippocrates, the finger dissection was used for the evulsion of the faucial tonsils. This is one of the accepted methods of today. Very little advance seems to have been made in the treatment of fracture of the nose. On the other hand, the manifestation of medical knowledge by the ancients along certain lines is quite amusing in view of our observations on the same subjects. The author is to be congratulated on his successful efforts in producing such an interesting work.

Medical Research and Education. By RICHARD M. PEARCE, of the University of Pennsylvania; WILLIAM H. WELCH, W. H. HOWELL, FRANKLIN P. MALL, LEWELLYS F. BARKER, of Johns Hopkins University; CHARLES S. MINOT, W. B. CANNON, W. T. COUNCILMAN, THEOBALD SMITH, of Harvard University; JAMES EWING, of Cornell University Medical College, et al. Volume II, Science and Education, which constitutes a Series of Volumes for the Promotion of Scientific Research and Educational Progress, edited by J. McKeen Cattell. Pp. vi-536. New York and Garrison, N. Y.: The Science Press, 1913.

Many of the papers which make up this work have been published in scientific literature, but presented in the present form, and admirably edited, they constitute a precious study of the trend of modern medicine and of the best means to utilize the resources now available. It is refreshing to note that no spirit of harsh criticism darkens these pages, even though the work is from the pens of men far more competent than others who have not been as discreet. That our laboratories are quite as good as those available in Germany or France is only recognized; it is conceded, however, and rightfully, too, that even though our results in the field of research are steadily increasing in value and weight, the clinical side of our teaching methods is still deficient and that even our clinical teachers are lacking in the laboratory knowledge which would give them that preeminence that the great German clinicians possess, and which contributes so much to the development of those they are called upon to instruct. Methods calculated to overcome the defects of our educational system are discussed, and those best calculated to succeed are emphasized, but in a way designed to enlist the enthusiastic support of the reader. Thus in turn are treated among other germane subjects The Interdependence of Medicine and Other Sciences of Nature, Medicine and the University, The Relation of the Hospital to Medical Education and Research, Liberty in Medical Education, Certain Ideals of Medical Education, The Educational of Hospitals and the Hospital Year, The Medical School of the Future, etc., all admirably set forth, and constructive in trend. This aggregate of documents has commanded the respect of all men who have at heart the scientific status of the American continent; it represents a solid formation for constructive work soon to place us on a level with Europe's best.

Les Préjugés en Art Dentaire. Par le Docteur E. CHARÉZIEUX, Directeur de l'Ecole Pratique de Stomatologie ou des Hautes Etudes Dentaires de Paris. Prix: 3 francs. Paris: A. Maloine, 1913. Pp. 120.

Charézieux believes that every dentist should be a stomatologist, in other words a medical specialist like those who limit their practice to other parts of the system. He has found that a good deal of ignorance coexists with some common sense about the teeth, and begins by stating the pain is a sure sign that expert advice is demanded. Advanced caries by no means always requires extraction of a tooth, but jagged roots should invariably be removed. Rough brushing so as to cause bleeding of the gums is a foolish practice. An abscess demands tooth extraction; in no other part of the body would the medical adviser permit an abscess to remain unopened. These are a few of the points discussed by the author. He reminds us that the teeth are not independent structures, but are intimately related to the rest of the organism by bloodvessels and nerve supply. He derides such popular superstitions as that cotton placed in the ears will prevent toothache and that lesions of the eye teeth are more serious than those of others. The author concludes with much valuable advice regarding prosthetic dentistry and the indications for its performance.

La Pratique de L'Héliothérapie. A. AIMES, Chef de Clinique à la Faculté de Médecine de Montpellier. Paris: A. Maloine, 1914. Pp. 224.

This volume gives, in small compass, the essential features of the subject of heliotherapy. The first part of the book is taken up with a brief historical review; this is followed by a discussion on the physics of light; and the largest portion of the work deals with the physiological and therapeutical action of sunlight. The author wisely draws attention to the contraindications as well as to the indications for heliotherapy. The various forms of tuberculosis constitute the main, but not the only indication for the application of this therapeutic measure. The use and value of sun baths and the bactericidal action of the sun's rays have been well known for a long time; but the beneficial effects of sunlight in general are not as widely appreciated as they should be. The volume is well written and adequately illustrated, and should prove useful.

Interclinical Notes.

Walter Hurt, who edited the poems of the late Dr. James Newton Matthews, some of whose verses we have already published, says enthusiastically in his introduction to the volume, *The Lute of Life*:

"Genius dwells not always in populous places; and it consecrates surely whatever spot where it abides. For Shakespeare's sake is Stratford on the Avon hallowed ground, and because of Burns does the world make its pilgrimage to Ayr. And so in after years may the obscure hamlet of Mason, in southern Illinois, for that was the home of James Newton Matthews, become the Mecca of mankind. And as in later time the genius of Tennyson and Swinburne and Rossetti illumined England's empire, so in days to come will the work of James Newton Matthews give an added lustre to American letters."

One of Doctor Matthews's poems is of a kind that one rather expects of a medical poet:

WITH THE DOCTOR.

"Mother, make room in the bed for me,"
A shivering child in the garret cried,
As the plague swept up like a crimson sea
To his face so faded and hollow eyed.

Into her lifted and withered arms
He crept, and there on her wasted breast
Was cradled away from the world's alarms,
To the dreamless calm of a perfect rest.

It mellowed my heart like a shower of prayers,
When the morning rose with a lurid glare
On the empty town, and I climbed the stairs
And gazed on the pale, cold sleepers there.

As I galloped away with a stifling sigh
From the pest-house gates, I fashioned this plea,
With a sad face fixed on the sunless sky,
"Thus, Father, O Father, make room for me."

We seem to be in some danger of losing a useful word. Those who have read *The Sonnet* by the late Doctor Matthews, which appeared in the JOURNAL a short time ago, may have noted that he used the word, *disinterestedness*, in the sense of lack of interest. A well known New York daily paper poet recently avowed his inability to use *disinterested* properly. Yet the word plainly means impartial, uninfluenced by personal considerations, and ought not easily to be confounded with *uninterested*.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending August 5, 1914:

Billings, W. C., Surgeon. Granted three days' leave of absence, on account of sickness, from July 20, 1914. **Foster, M. E.,** Surgeon. Leave of absence for one month from July 15, 1914, amended to read "one month's leave of absence from August 3, 1914." **Francis, Edward,** Surgeon. Relieved from duty as assistant director of the Hygienic Laboratory, effective August 4, 1914. **Frost, W. H.,** Passed Assistant Surgeon. Granted seven days' leave of absence from July 31, 1914, under paragraph 193, Service Regulations. **Gassaway, J. M.,** Senior Surgeon. Granted one month's leave of absence from August 5, 1914. **Grubbs, S. B.,** Surgeon. Granted two days' leave of absence from July 30, 1914, under paragraph 193, Service Regulations. **Guiteras, G. M.,** Surgeon. Granted three days' leave of absence from July 28, 1914. **Gwyn, M. K.,** Surgeon. Granted four days' leave of absence, on account of sickness, from July 18, 1914. **Hamilton, H. J.,** Acting Assistant Surgeon. Granted six days' leave of absence from August 20, 1914; leave of absence for two days from July 6, 1914, revoked. **Harrington, F. E.,** Assistant Epidemiologist. Directed to proceed to Cambridge, Md., and vicinity for duty in investigations of rural sanitation. **Lavinder, C. H.,** Surgeon. Granted two weeks' leave of absence from July 30, 1914, under paragraph 193, Service Regulations. **Preble, Paul,** Passed Assistant Surgeon. Granted twenty-seven days' leave of absence from August 3, 1914. **Safford, M. V.,** Assistant Surgeon. Leave of absence for twenty-six days from July 6, 1914, amended to read "twenty-three days' leave of absence from July 6, 1914." **Stiles, C. W.,** Professor. Detailed, at request of the County Health Officer of Columbus, County, N. C., to deliver a lecture before the Teachers' Institute to be held at Whiteville, N. C., August 10, 1914; authorized to deliver a series of lectures before the Teachers' Institute of Ponder County, N. C., and the citizens of Burgaw, N. C., August 24, 1914. **Stimson, A. M.,** Passed Assistant Surgeon. Detailed as assistant director of the Hygienic Laboratory, effective August 5, 1914; granted three weeks' leave of absence from August 3, 1914. **Stimpson, W. G.,** Assistant Surgeon General. Granted two days' leave of absence, August 4 and 5, 1914. **Trask, J. W.,** Assistant Surgeon General. Granted twenty days' leave of absence from August 10, 1914. **Turnipseed, D. C.,** Passed Assistant Surgeon. Granted three days' leave of absence on account of sickness, July 7, 8, and 15, 1914.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending August 8, 1914:

Bingham, E. C., Captain, Medical Corps. On return to his station, Fort Winfield Scott, California, First Lieutenant H. N. Kerns, now on temporary duty there, will be relieved and is ordered to proceed to Calexico, California, relieving First Lieutenant H. H. Van Kirk, Medical Corps, who upon being thus relieved will return to his station, Presidio of Monterey, California. **Ekwurzel, G. M.,** Major, Medical Corps. One month's leave of absence granted him upon the termination of students military instruction camp at Burlington, Vermont. **Falkner, L. W.,** First Lieutenant, Medical Re-

serve Corps. Relieved from duty at Fort Niagara, N. Y., and from active duty in the Medical Reserve Corps. **Ford, Joseph H.,** Major, Medical Corps. Leave of absence extended two months. **Johnson, H. H.,** Captain, Medical Corps. Granted four months' leave of absence with permission to go beyond the sea. **Jones, E. C.,** Captain, Medical Corps. Joined his station at Madison Barracks, N. Y., on August 5th. **Jones, Harold W.,** Captain, Medical Corps. Ordered to proceed to Jackson Barracks, Louisiana, for temporary duty, and upon completion thereof will stand relieved from duty at that post, and will then proceed to Fort Sam Houston, Texas, for duty with Ambulance Company No. 7. **McBrayer, C. E.,** Captain, Medical Corps. Upon expiration of present leave of absence will proceed to Presidio of Monterey, California, for station and duty. **McDaniel, A. A.,** First Lieutenant, Medical Reserve Corps. Ordered to active duty and assigned to Port of Embarkation, Galveston, Texas. **Miller, A. C.,** First Lieutenant, Medical Corps. Two months' leave of absence granted about August 1st. **Mitchell, Leopold,** First Lieutenant, Medical Corps. Ordered to proceed to Fort Casey, Washington, by August 1st, to relieve Captain J. D. Heysinger, Medical Corps, and then to return to proper station.

Births, Marriages, and Deaths.

Born.

Cohane.—In New Haven, Conn., on Monday, July 27th, to Dr. and Mrs. Timothy F. Cohane, a son. **Striegel.**—In Pottsville, Pa., on Thursday, July 30th, to Dr. and Mrs. John Striegel, a son.

Married.

Buffum—Arnold.—In Providence, R. I., on Wednesday, July 29th, Dr. William P. Buffum, Jr., and Miss Constance Arnold. **Wilder—Clarke.**—In New York, on Wednesday, July 20th, Dr. Willis Allin Wilder and Miss Louise McKee Clarke.

Died.

Appleton.—In White Haven, Pa., on Sunday, August 2d, Dr. Walter F. Appleton. **Barwick.**—In Baltimore, Md., on Saturday, July 25th, Dr. G. Irvin Barwick, aged forty-five years. **Beaugrand.**—In Fremont, Ohio, Dr. Peter Beaugrand, aged one hundred years. **Bolgiano.**—In Baltimore, Md., on Sunday, August 2d, Dr. Walton Bogliano, aged forty-six years. **Carr.**—In Lancaster, Pa., on Monday, August 3d, Dr. William H. Carr, aged fifty-three years. **Church.**—In Wormleysburg, Pa., on Thursday, July 30th, Dr. Robert R. Church, aged sixty-nine years. **Cloyd.**—In West Alexandria, Ohio, on Wednesday, July 29th, Dr. S. H. Cloyd, aged sixty years. **Collins.**—In Strasburg, Mo., on Monday, July 27th, Dr. Robert Collins. **Curry.**—In Kansas City, Mo., on Monday, July 27th, Dr. W. A. Curry, aged eighty-seven years. **Fabian.**—In Reed's Lake, Mich., on Tuesday, July 28th, Dr. Jacob J. Fabian, aged twenty-nine years. **Jones.**—In Niagara Falls, N. Y., on Tuesday, August 4th, Dr. Frank Jones, aged thirty-eight years. **King.**—In New York, on Monday, August 3d, Dr. Marcus King, aged forty-two years. **Mothersbough.**—In Altoona, Pa., on Saturday, August 1st, Dr. Henry H. Mothersbough, aged seventy-four years. **O'Callaghan.**—In Dorchester, Mass., on Wednesday, July 29th, Dr. Dennis F. O'Callaghan, aged fifty-one years. **Phillips.**—In Linton, Ind., on Wednesday, July 29th, Dr. John L. Phillips, aged eighty years. **Rowley.**—In Portville, N. Y., on Thursday, July 30th, Dr. R. F. Rowley, aged sixty-five years. **Sargeant.**—In Carlos, Minn., on Thursday, July 30th, Dr. A. P. Sargeant. **Stillwell.**—In Sag Harbor, L. I., on Thursday, August 6th, Dr. Cleveland S. Stillwell, aged sixty-one years. **Stratford.**—In Chicago, Ill., on Tuesday, July 28th, Dr. Henry Knox Stratford, aged ninety-three years. **White.**—In Centre Sandwich, N. H., on Sunday, July 26th, Dr. Charles H. White, aged seventy-six years.

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Original Communications.

PRACTICAL APPLICATION OF THE LUETIN TEST.*

BY HIDEYO NOGUCHI, M. D.,
New York.

(From the Laboratories of the Rockefeller Institute for
Medical Research.)

A little over two years ago, it was shown that certain cases of syphilis give a distinct local reaction to an endodermal injection of a sterile extract of the pure culture of *Treponema pallidum*. Among nonsyphilitic individuals there was no such reaction. From this fact it was made probable that the luetin reaction, as it has since been called, is specific for syphilis and that it depends upon the allergic condition of the skin, comparable to the tuberculin reaction in tuberculosis. The early experience with the luetin showed that the reaction is more uniformly present in chronic cases than in primary or secondary forms of acquired syphilis. In congenital syphilis the reaction is more frequently found to be positive among late cases than among newborn infants.

During the last two years a large number of observations have been made in connection with the luetin test by different investigators, both in this country and abroad, and it is my intention to dwell very briefly upon these reports.

Based upon the observations made by about fifty investigators,¹ we obtain the following statistical estimation of the practical value of the luetin reaction:

Primary syphilis. The reaction is present in less than thirty per cent. of cases and the intensity of the reaction is usually very mild.

Secondary syphilis. The reaction was reported positive in forty-seven per cent. of 630 cases. The reaction is usually mild.

Tertiary syphilis. The reaction was found in about eighty per cent. of cases. The reaction is very severe in this stage of the disease (usually pustular form). Herzberg and Dönitz reported 100 per cent. positive in 170 cases which were under

observation at the University Clinic of Professor Bier, in Berlin.

Congenital syphilis. The reaction was reported to occur in about seventy per cent. of cases. Brown, who made the largest series of tests, found it present in ninety-three per cent. of seventy-five cases studied. The reaction becomes more distinct after energetic treatment.

Syphilis of the nervous system. The reaction is less frequently present in acute syphilitic meningitis than in the parenchymatous affections, such as general paralysis and tabes, where it has been reported positive in about sixty per cent. of cases.

Visceral syphilis. The reports of Wolfsohn, Stoll, and others show that the reaction is present in nearly ninety per cent. of cases; especially is it marked in the cases of aortic insufficiency.

We will now briefly discuss the relation of the luetin reaction to the Wassermann reaction. All investigators agree upon one point, viz., that the two reactions do not always run parallel in the same cases. Thus the luetin reaction may be absent when the Wassermann is strongly positive, or the reverse. Both reactions, however, are frequently found to occur in the same patient, especially in cases of congenital syphilis and general paralysis. This discrepancy is easily explained, I believe, by the fact that the luetin reaction indicates the allergy and the Wassermann the presence of an active syphilitic process. Moreover, it is not difficult to explain the reason why a patient in whom the Wassermann reaction was, by a recent energetic treatment, reduced to a negative, should respond more readily to the luetin reaction than before the foregoing treatment, and in this particular respect the luetin reaction is able to furnish the physician with a prognostic measure in a restricted sense.

We are familiar with the methods of sharpening the Wassermann reaction, such as the provocative test (after Milian and Gennerich) or the fortification of the ordinary reaction by means of the addition of cholesterol to the antigen² (according to Sachs and Browning). But the principle of the reaction remains the same, whether its sensitiveness is modified or not, and it differs essentially from the principle underlying the luetin reaction. According to some investigators, neither the provocative (Nichols) nor the cholesterolized Wassermann reactions (Joltrain) surpass the luetin reaction in the matter of delicacy in detecting latent or tertiary lues.

²This means of fortification does not, however, offer any advantage to a selected sample of the acetone insoluble fraction of tissue lipoids.

*Read before the Genitourinary Section, New York Academy of Medicine, April meeting, 1914.

¹Cohen, Orleman-Robinson, Fox, Pusey, Rytina, Kaliski, Boas and Ditlevsen, Schmitter, Nichols, Foster, Desneux, Löwenstein, Baermann and Heinemann, Kämmerer, Nobl and Fluss, Weil and Alcock, Giroux, Cederceutz, Gavini, Fagiuoli and Fisichella, Wolfsohn, Joltrain, Izanck and Alcock, Lagane, Jeanselme, Burnier, Bruck, Herzberg, Herxheimer, Jadassohn, Atkinson Wood, Stoll, Moore, Benedek, Brown, Weygandt, Boardman and Gorham, Much and Delbanco, and others.

From the statistics of the luetin reaction one can easily see that the Wassermann reaction is much more constant among the primary and secondary cases, as well as in general paralysis, but the reverse is the case in the chronic cases, especially in those under treatment. The significance of the luetin reaction in regard to the prognosis of syphilis appears to be a matter of great importance to the physician. I have, myself, often speculated as to why some paretic cases give a positive and others a negative reaction. Can we not read something in this phenomenon? I should think it not at all improbable that paretics with a positive luetin reaction are still capable of deriving some benefit from an antisymphilitic treatment, since the reaction is in a measure indicative of a mesenchymatous tertiary process. The future will determine this point.

The preparation of the luetin necessitates a perfectly equipped modern biological laboratory, but its application may be entrusted to a larger number of physicians than in the case of a complicated serological test. Nevertheless, a certain amount of experience is required before anyone is able to interpret this reaction in a reliable manner. The luetin reaction, as well as other means of diagnosis, may occasionally offer difficulties in the matter of determining a dubious result, but this should not prove an impediment to its practical value.

PRESENT STATUS OF THE COMPLEMENT FIXATION TEST IN THE DIAGNOSIS OF GONORRHEAL INFECTIONS.*

BY A. McNEIL, M. D.,

New York.

When the serological laboratory of the New York city health department was officially established, May 1, 1914, the complement fixation test for gonorrhea became one of the routine tests to be made for physicians without charge. From January 1, 1913, to April 1, 1914, 5,381 specimens of blood were received for examination. Of these specimens, 971, or eighteen per cent., were positive, 1,314 were doubtful, and 3,096 gave negative reactions. Unfortunately, it has been impossible to obtain a reliable clinical history in many of these cases, but a number of physicians, in their private practice and in connection with various clinics and institutions, have checked up our work from the clinical standpoint, and I am pleased to say that our results have amply confirmed the statement made by Schwartz and McNeil in papers published in May, 1911, and December, 1912, that "a positive reaction denotes the presence or the recent activity in the body of a focus of living gonococci."

In many instances where a positive reaction has been obtained in the absence of clinical symptoms, and where all history of infection has been denied by the patient, cultures made from the sediment of freshly voided urine after a thorough massage of

the prostate, have shown the presence of the gonococcus. In a certain percentage of these cases, smears prepared after prostatic massage will show the presence of the gonococcus, but in a considerable number of cases, positive cultures can be obtained from the urine sediment even when the smears are negative.

The technic of the test is identical in every respect with the Wassermann test for syphilis, with the exception that an antigen prepared from pure cultures of gonococci is used, and the tests are placed in the ice box for six hours to fix complement instead of the usual one hour in the incubator at 37° C. While a negative result does not absolutely exclude the presence of gonorrheal infection, it may be accepted as a very strong evidence that infection does not exist, excepting in acute cases where the infection is confined to the anterior urethra. A positive reaction persists from seven to eight weeks after a cure has been effected.

Preparation of antigen.—At the present time the antigen is prepared from ten of the Torrey varieties of gonococci. Eighteen to twenty-four old cultures grown on salt-free veal agar slants in Blake bottles are washed off with ten c. c. distilled water to the bottle, and the resulting suspension is heated in the water bath for one hour at 56° C., followed by one hour at 80° C. It is then filtered through paper pulp in a Buchner filter, and then through a Berkefeld filter, when, after being made up to the proper tonicity by adding ten per cent. of a nine per cent. saline solution, it is standardized and is ready for use. In the test, when complement is bound at ice box temperature, one quarter the amount of antigen that is anticomplementary in itself, is used. Our observations indicate that in persons whose blood contains no gonococcic antibodies, it is impossible to produce antibodies by injection of gonococcic vaccines.

The following conclusions were published by Schwartz and myself in 1912. Other workers have since confirmed them, and nothing has occurred in our own work to cause us to modify them in any particular:

1. A positive reaction denotes the presence or recent activity in the body of a focus of living gonococci.
2. A negative reaction does not exclude gonococcus infection, but, for the reasons stated, should be accorded considerable importance.
3. A strong positive reaction is not to be expected earlier than about the fourth week, and then only in very acute cases with some complication.
4. A positive reaction is not obtained if the disease is limited to the anterior urethra.
5. A positive reaction does not entirely disappear until seven or eight weeks after cure.
6. In other words, if a strong positive reaction is obtained seven or eight weeks after apparent clinical cure, the patient should be looked upon as still harboring gonococci.
7. The technic of a complement fixation test is simpler than that of isolation of the gonococcus in culture, and the possibilities of error are less.

HEALTH DEPARTMENT, CENTRE AND WALKER STREETS.

*Read before the Genitourinary Section, New York Academy of Medicine, April meeting, 1914.

THE INFANTILE ROOTS OF MASOCHISM.*

BY DR. PAUL FEDERN,
Vienna, Austria.

Freud of Vienna has given a new foundation to the study of normal and abnormal psychology, and to all science as far as it deals with the development of mentality and civilization. The topic of my communication is connected with all these great sciences, but I shall limit myself to the discussion of a few aspects of this important matter.

All scientific progress has been accomplished by men who have not feared to question what others considered obvious. So Freud, twenty years ago, was anxious to know the meaning of certain neurotic manifestations and was not content to believe such disturbances to be merely the working of over-tired and dissociated brain centres. With the help of the method of psychoanalysis he found characteristic unconscious processes underlying neurotic symptoms. These unconscious processes have their particular laws and mechanisms which are different from the rules of conscious psychic activity. In the unconscious, instincts find a more unbroken manifestation than in the conscious psyche. And of these, the sexual instincts play the foremost part. Although Freud has never asserted that no other instincts are important, many scientific men, as well as laymen, have been much stirred by this statement of Freud. They believe that the influence of Freudians and their eccentric and monomaniac insistence upon sexual causation, will cause to deteriorate and even destroy the higher moral and esthetic feelings. But they forget that the postulated sexuality works in the unconscious and more instinctive psyche, and that ordinarily it is well controlled by the conscious part of the personality. If, then, the psychoanalyst assumes that neurotic diseases are due to the eruption of repressed instinctive desires, it does not follow that he attributes more conscious sexuality to normal and neurotic individuals than is generally admitted. We are not justified in contradicting Freud's statements on sexuality without following him to the study of unconscious processes. Psychoanalysis is one of the methods to enable the normal powers of the human soul to govern unconscious tendencies without disturbances of the mental equilibrium. Concede the possibility that Freud is right in his statement that sexuality plays a very important part in the unconscious, and that sexuality appears earlier and with greater intensity in childhood than is generally supposed, and I am confident that unprejudiced observations will lead to an acceptance of Freud's main conclusions.

It is one of the chief tasks of medical science to prevent disease and to secure the normal development of the individual. To this end it is absolutely necessary to decide by all available methods whether sexuality begins long before adolescence, as it is impossible to judge correctly and to influence properly children who are considered asexual, while as a matter of fact they are under the sway of intense sexuality. Therefore, I will give some proofs of the existence of infantile sexuality, and

with this I will begin my real theme—the explanation of the symptoms and nature of masochism.

You are familiar with the cases of declared masochism, the cases of sexual perversities reported in many publications, particularly in Krafft-Ebing's standard work. Masochists are individuals who get sexual pleasure from processes which seem far removed from the aim of the procreative instinct. The declared masochist finds his sexual satisfaction in his moral slavery to some overwhelming compulsion of some individual and by his deprivation of all volition, even to the extent that he fancies to be bound or tortured or forced to vile and inhuman services. Frequently there is combined with masochism also passive algolagny—that is, sexual pleasure gained from physical pain.

In subjecting such an individual to psychoanalysis, that is, in retracing the chain of forgotten or repressed events and images that has developed in his masochism, you will invariably discover, to your astonishment, that his sexual perversity reaches back to childhood. As you know, Binet has suggested the generally accepted theory that such children have been injured by some painful trauma combined with sexual excitement. The child has then associated the sensation of pain and sexuality so vividly that this association could not be destroyed by the later trend of normal sexual development. Psychoanalysis, however, has developed deeper causes for these so called autosuggestions. In many cases masochistic fancies have already preceded the trauma; in others the child has neither suffered any cruel experiences nor has it been influenced by the sight of unusual cruelty. Many of these individuals declare that these masochistic fancies first arose in them suddenly and spontaneously, without external suggestion. Later they were astonished to learn that other people experienced the same abnormal desires, and it was then that they discovered the sexual origin of their perversities. Before psychoanalysis has enabled the patient to fill in the gaps of memory, he recalls only the more marked external impressions, while he has totally forgotten some preceding spontaneous fancies or has changed the sequence of his various impressions.

Masochism frequently can be traced back to infancy. This explains why the adult masochist finds sexual gratification in the fancies and terrors and desires of his nursery days. In connection herewith are characteristic the fancied relations of the masochist to the strong willed and tyrannical teacher, the unjust or cruel governess, the sensation of being ridden upon or treated like some domestic animal or being occupied with tasks that come from his memory of his training, as a very small child, in hygienic cleanliness.

Usually the masochist goes no further than to indulge in fancies. Only comparatively few masochists try to realize their perverse inclinations. For the most part they are content with their imaginings, ever widening and making them more fantastic and increasing to a higher and higher degree their passive slavery to some irresistible and compelling power. I myself have observed the remarkable fact that masochists, whatever their social position or education, of whatever race or nation, be

*Read before the New York Neurological Society, June 2, 1914.

they princes or beggars, famous inventors or humble clerks, philanthropists or thieves—all weave the same masochistic fancies, born of some internal compulsion. Great as is the volume of suggestive and indecent literature, its influence alone cannot make a masochist out of a normal person, although I do not underrate its corrupting effect on the esthetic development of the individual. To the masochist this literature suggests new images and facilitates more frequent relapses to his day dreams.

Investigation has proved that the sensation of pain is not essential to masochism. What is essential is the idea of passivity. While the normal male instincts tend to action, the masochist only finds pleasure in passive acceptance. The extreme masochist tries to intensify his degree of passivity, imagining circumstances absurdly improbable in themselves, which create a situation where, by the greatest compulsion, he resigns himself to the most grovelling passivity.

One of my patients suffered from a very peculiar but typical fancy. He imagined that he was forced to undergo all sorts of humiliations from some fragile boy of contemptible character, for fear that the boy might remove his hand from the table, in which case terrible things would happen. His fancied pretext was the idea that the movement of the boy's hand would bring about some great disaster, the murder of a family or the destruction of a city. To prevent these consequences, he had to continue suffering. And this led him to construct a complicated chain of sequences which would make such strange occurrences necessary. A less striking example is the case of a man who fancied that he was retained in an humiliating manner by a young, severe looking girl teacher in school. As the man was thirty years of age, this illustrates the degree of compulsion in which the masochist finds sexual satisfaction.

But not only in masochists, in nearly all cases which for any reason have been subjected to psychoanalysis, masochistic tendencies were discovered to have existed in some period of childhood and to have disappeared spontaneously later. As those examined had sexual instincts common to most neurotics, we are justified in assuming that masochism is a general quality of children who are inclined to neurosis. And even in normal children of normal heredity, we discover, usually in the years preceding puberty, marked masochistic tendencies. In observing such cases, exception must be made of carefully guarded children who are directed in their play. These tendencies should be looked for only in the free and spontaneous play of children and in their natural preferences, in the gruesome stories they choose and the pleasure they derive from fancied scenes of cruelty and suffering, and from improbable and tyrannical situations. The commercially successful writer of children's stories has long utilized these elements. Take for instance the *Bibliothèque rose*, a well known children's library in France, with its veiled suggestion and appeals to the sadomasochistic tendencies in children. While I do not assume that all individuals, who as children were excited by these suggestions, subsequently became masochists, it is my con-

clusion that *masochism is a continuation of a sexual passive tendency which in childhood may be normal.*

I regret that here my theme becomes more complicated. Following Freud's suggestion to me, I have found in many cases that in the same child this passive masochistic sexuality is preceded by a period of active sadistic sexuality. In his sadistic period the child manifests sexual pleasure in the active role of domineering and even of cruelty. With normal puberty the active sexuality regains its dominating role in the male. Then these early active as well as passive components of sexuality become subordinated to the normal sexual desire, but still play a part in the preparation for normal intercourse. They dominate the individuals to a greater or less degree only in times of sexual abstinence. In those who develop along perverse lines, either the passive or active infantile sexual tendencies get the upper hand and render the individual either masochistic or sadistic. In neurotics, however, these tendencies, while partly subdued, find their outlet in certain neurotic symptoms.

It is but rarely that we find masochistic tendencies without any sadistic tendencies in the same individual. Usually both tendencies are combined in more or less degree, in normal as well as in neurotic individuals and as in sexual perverts. The differentiation is only in the quantity of each factor. This remarkable fact was first reported by Krafft-Ebing, but he considered it an unique and inexplicable case. Psychoanalysis, which has given us a more accurate and detailed knowledge of the psychic structure, has shown that this condition is quite common. To mention one case out of many, I have treated a woman, twenty-six years of age, who complained of chronic depression. I found that she suffered greatly from sadomasochistic fancies. She continually imagined scenes of torture inflicted by a woman on a boy and she alternated in both parts. Now she was the slave and now she was the mistress. It is most interesting that the same person will show sadistic inclinations toward a woman of yielding or masochistic appearance and masochistic desires toward the individuals of the opposite character. I have even found that such persons may display a normal sexual attitude toward certain other groups of persons. But in spite of these common combinations, generally one of the three attitudes is the principal one and gives to the whole personality a normal or a sadistic or a masochistic character. Please bear in mind that we must deal here with the *sexual* desire for domination or passivity, and not with the *usual* desire for physical or mental domination in which other motives play a greater part.

From these typical cases of combined masochism and sadism I have drawn a number of significant conclusions. I found that the individual who can assume both sexual attitudes, not only plays the active and passive roles in his fancies, but is experiencing some of the characteristic sensations of both sexes in his genital organs. I discovered, and other psychoanalysts, particularly Freud, to whom I communicated my observations, have corroborated me, that the sadistic sensations are localized in the glans and the anterior portion of the penis,

while the masochistic sensations are usually localized in the perineum and the scrotum. My findings agree with the statements made to me by normal individuals in regard to the masochistic and sadistic period of their childhood. I cannot at this time enter into a discussion of the complicated processes of masturbation in children, but I will say that most children in the passive period masturbate without touching their penis. They accomplish it either through mental excitement without any somatic help or by pressing some object against the perineum and scrotum.

That the masochistic sensations are localized behind the penis and not at the penis itself, is the first direct proof of Krafft-Ebing's theory which has been contradicted by later authors. Freud, however, has accepted the theory and has said: "On the other hand, it may be attempted to connect such simultaneously existing contrasts with the united contrast of male and female in sexuality."¹

Krafft-Ebing has explained masochism by maintaining the existence of female tendencies in men. You are aware also that Fliess, in Berlin, has suggested the theory and supported it by many arguments, that the bisexual *Anlage* exists as a normal condition. The localization of sexual sensation in the perineum and scrotum can be explained only by the probable fact that this part is homologous to the female external organ. In the male child the monosexual prevalence is not yet fully developed and the female *Anlage* is less abortive than in later life. Therefore in the male child female tendencies exist and in certain persons may be periodically even prominent. In the *adult* masochist the perineum is *abnormally* sensitive and these sensations have the masochistic character.

It has been proved that these organic conditions give only the predisposition to the type of sexual sensations. These can generally be influenced by psychical treatment. In men our method consists in liberating the repressed male sexuality by removing the psychic resistance which unconsciously has hindered its normal development. Often the whole bringing up is in complete opposition to the child's active sexuality. Often moral hindrances prevent the manifestations of active sexuality in the child's general life and reverse his whole active intellectual and social disposition into a passive one, and the intimately connected sexual disposition too is thwarted by this breaking of a boy's activity.

So the bisexual constitution predisposes to masochism and it is such inhibition of the normal male sexuality that leads to the development of the passive predisposition to full masochism. In neurotics who are cured of masochism, the normal sensations in the penis, which were absent before, return. From the facts I have cited we conclude that sadism is a mode of activity accompanied by sexual pleasure gained by some form of intellectual or physical dominance or of the exercise of the will, and that sadism originates in the fancies of immature male active sexuality. Masochism, on the other hand, is the shifting of the passive female sexuality to other psychic spheres, and it is therefore the female sexual component in man that leads

him to find sexual pleasure in passivity and suffering.

This, however, does not explain the already mentioned fact that sadists, and still more masochists, never cease to intensify their fancies. All sado-masochistic imaginings are always developed so that the compulsion and tyranny become greater and greater and the circumstances more and more improbable, so that the contrast between passive victim and merciless tormentor becomes more and more exaggerated.

This unappeasable straining for greater and greater sexual culmination is as apparent in children as in adolescents. Freud has stated the difference between *Vorlust* and *Endlust*, the pleasure of sexual anticipation and the pleasure of sexual culmination. While in mature normal sexuality the *Vorlust* is soon followed by *Endlust*, the long duration of the *Vorlust* is characteristic of immature sexuality. The constancy of the *Vorlust* produces in the individual a continually increasing sexual tension which finds relief only with difficulty. As the masochist conserves that infantile and childish character of sexuality, the predominance of unsatiable *Vorlust* remains in him unchanged. In the child the sensations in the immature sexual organ are much more connected than in later age with the sensations in the terminal organ of the urinary system and, in many cases, of the anus. These organs create special sensations of tension, which in abnormal cases have longer duration and a distinctly libidinous character. To these "erogenous zones" sadomasochism owes one part of its libidinous tension. Another causation of the sexual abnormal tension is the origin of masochism in the female portion of the bisexual constitution, because final gratification of female sexuality by the orgasm of masculine organs is only obtained after cumulative sexual excitement. For this reason the masochistic individual is helpless in his attempts to satisfy his yearnings. Often masochistic fancies lead to complete exhaustion. I believe that the elements of *Vorlust*, that feeling of sexual tension and of yearning for unattainable culmination, is represented in a symbolical way by the tendency of the individual to the unrealizable and his striving in some tragic way toward deeper and deeper suffering, toward greater and greater contrasts.

It seems an important fact that in extreme cases of sadism and masochism I have found that the individuals had suffered some painful affection of the genital organs in childhood. Balanitis, phimosis and paraphimosis, eczema, urethritis, cystitis, and worms, according to my observation, have had an influence on these sexual perversities. Especially cases of extreme algolagny may have their origin—without conscious knowledge of the sufferer—from smarting affections in the undeveloped organs. To those who are interested in the mechanism of dreams it will be a valuable proof to know that even perfectly normal adults may have sado-masochistic dreams when they acquire some painful disease of the genital organs, like gonorrhea. From a paper, which I published a year ago I quote the following dream of a man: "I felt I was unable to proceed with the duel. Then suddenly I thought

¹Freud: Three Contributions to the Sexual Theory, translated by A. A. Brill 1910.

I should fight just the same and involuntarily made ready for the struggle. I was talking with a lady and the desire seized me to open her blouse. Instead of a beautiful bosom, I saw only great lacerated wounds and blood flowing in streams." The dreamer was an ordinary man of quite normal sexuality. He had acquired some painful prostatic inflammation.

I am compelled by lack of space to confine myself to the explanation of the organic and infantile origin of masochism, and I cannot enlarge upon the various social, educational, and purely domestic causes. All of these precipitate masochism so far as they favor the passive attitude and are opposed to the active development of the individual. On investigation, extreme cases will most frequently be found in the more feeble members of a family where sadism and general cruelty are familiar traits. By finding masochism connected with the bisexual disposition and with general cruelty in the family, we have a satisfactory explanation of the fact that extreme cases of masochism are frequently combined with signs of degeneration.

Considering that I speak to neurologists, I shall not proceed to the general topic of masochistic manifestation in civilization and social organization, but I will call attention to the interrelationship of masochism and neurotic troubles. Here I should like to deal with the relationship of masochism to all neuroses so far as they are due to a repression of active sexuality and with the relationship of masochism to neurotic anxiety. But it would lead us to many questions which are still unsettled. I refer to Freud's paper on *Angstneurose*, to Stekel's monograph, *Nervöse Angstzustände*, and to Ernest Jones's monograph on *Nightmare*, and I will present a brief discussion of some distinct symptoms.

Being an inhibition of virile sexual activity, masochism in itself is a disturbance of the normal sexual life, and its symptoms will be found in all degrees, beginning in a slight reduction of the libido and ranging to sexual anesthesia, and even to true sexual impotence.

As the masochist is inclined to assume a passive attitude in all affairs of life, you can observe the effects of his masochistic tendencies in his undertakings. In many patients this is manifested in the great disturbance of their social life, or of the energy with which they strive for success, while their sexual life is almost normal. Such men, whether pictured in fiction or met in life, strike us with the poor results of their endeavors, notwithstanding their industry and sometimes exceptional ability; always they seem to yield to stronger, more sadistic characters. My explanation of such cases is obviously not an exhaustive one. There are other complicated psychological causes working to create such effects, of which a great deal has been described at length by Dr. Alfred Adler, of Vienna. In extreme neurotic cases, the symptoms of inhibition of activity by masochistic influences attain pathological dimensions.

Very few masochists submit tamely to the sexual abnormality and to their instinctive passivity without fighting. Most of them feel deeply humiliated by their childish and absurd method of sexual

gratification. The more refined and otherwise normal a man is, the more depressed he becomes by this conflict. This rising depression is another reason for interruption in his work, whenever the complex of masochism is touched upon, though never so slightly. Moodiness and continuous depression are therefore common neurotic consequences of intense masochism. Frequently masochism is not apparent and only psychoanalysis will discover the causes of the emotional disturbances complained of. By this method we get an understanding of the affliction and are often able to relieve the patient. Repressed masochistic tendencies often cause, aside from depression, somatic psychogenic symptoms, for instance, headache and neuralgia, dizziness, feelings of fatigue, and paresthesias. Such cases are treated as neurasthenia by the physician. To sum up briefly, the chief neurotic consequences of masochism are impotence, depression, abulia, and so called neurasthenia.

In the introductory part of this paper, I laid particular stress on the importance of the question whether children are periodically sexual or not. The affirmative answer shows the way to a most important part of prophylaxis. In most cases neurosis can be traced back to comparatively slight disturbances in infancy and childhood as infantile fear, extreme sulkiness, incorrigibility, bad habits, sudden inability to learn, self isolation, and brooding. You must agree with me that these different phenomena call for quite different treatment, especially when we know that the child at this time is passing through a period of sexuality. That is why it feels everything more intensely and is excitable, with a secret sense of guilt. I submit that every reasonable and known method of mitigating sexuality should be employed in such cases. I emphasize that all coercive or humiliating measures have the worst influence on the development of the sexuality and of the character of the child. I will shortly mention diet, sport, and in cases of physical illness, medical treatment. Children frequently do not mention pains of their genital organs. In many cases only the change of some companion or of the whole surroundings will be successful. Of vital importance is some relief of the secret which upsets the child. Again and again we are distressed to learn by psychoanalysis of the great and avoidable suffering which neurotics have gone through in childhood, when the torture of abortive sexual expression is much increased by the contempt or harshness or the indifference of their guardians. In New York it is hardly necessary to suggest that it is infinitely preferable to have clean minded adults inform the children, than to allow them to get their information from chance reading and irresponsible associates. Freud's psychoanalysis laid bare another harmful consequence of the want of sexual knowledge in childhood by its facilitating the invention and fixation of false, especially of cruel, sexual theories. It is the ignorance and the sexual complex of the adult that forces children to make a secret of their greatest conflicts and to bear their burdens unaided. I repeat that all masochists have been troubled by the same fancies through the years of their childhood, with the thought that they were the only sufferers. Not one dared to apply to

any one for advice and his assumption grew that he was an outcast from the family. Discussion with a reasonable physician, or layman who has studied the development of sexuality, would have been a relief.

I have noticed in this country, with ever increasing admiration, how many noble minded men and women are devoting their lives to the service of childhood. Psychoanalysis, in the sense of Freud, furnishes us a deeper insight into the meaning of mental disorders and a better understanding of the child's normal development, than any other type of investigation, and by deepening and spreading this knowledge, we shall clear a new road for the progress of mental hygiene.

CLINICAL TYPES OF ADIPOSIS AND LIPOMATOSIS.

Report of a Case of Adiposis dolorosa Presenting Unusual Symptoms.

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Many individuals present a marked tendency toward the accumulation of adipose tissue, yet their flesh is firm, they experience no discomfort, are active, and often possessed of more than average strength. Their bodily activities not being restricted or disturbed, the adiposity can hardly be considered pathological.

Physiologically, we note that a healthy baby is plump, that women as a rule are fatter than men, and that both sexes tend to become obese after the period of sexual involution. Other factors having to do with the relation of fat to body weight are race, climate, occupation, and habit. If Cæsar, therefore, "liked men about him that were fat" he should have found his ideals among Hebrew gentlemen from the South, of sedentary occupation, who "had lived not wisely but too well." A tendency toward obesity is apt to follow castration in the male or removal of the ovaries in the female.

Pathological accumulation of fat is a symptom appearing in varied conditions and in numerous guises. It may be diffusely distributed or may be limited to certain definite areas, which may or may not be symmetrical. Moreover, this fat infiltration may occur without other symptoms or may be associated with a wide range of both subjective and objective disturbances.

In 1910, Lyon, in an exhaustive monograph (*Archives of Internal Medicine* 6, pp. 28-120, July, 1910), presented the following classification of adiposis and lipomatosis: 1. Adiposis dolorosa; 2, obesity; 3, nodular, circumscribed lipomatosis; 4, diffuse symmetrical lipomatosis; 5, neuropathic edema, pseudoedema; 6, adipositas cerebialis.

To the writer, it would seem best to begin with the consideration of simple obesity, then to take up the discussion of lipomatosis, circumscribed and diffuse, and to conclude with the more complex types of adiposity; Froelich's syndrome and Dercum's disease. As to Lyon's group 5 (neuropathic edema, pseudoedema), the writer hesitates to include

it under the general classification of adiposis and lipomatosis. It would seem to be stretching the boundaries of our classification to the limit, to include, as does Lyon, such conditions as the hysterical edema of Charcot.

Simple obesity or adiposity.—As already stated, this condition may exist without any associated symptoms. It is well known, however, that it is not unusual to find some slight tenderness in the fat of persons who are only moderately fleshy. In addition to this, there may be present as occasional symptoms, a moderate degree of asthenia, minor mental disturbances, and a tendency toward arthritic involvement.

Simple obesity is frequently hereditary, although not all members of the family may be similarly affected. In 1908, Anders described under the title, Adiposis tuberosa simplex (*American Journal of the Medical Sciences* cxxxv, 325, 1908), the presence of localized fatty tumors or masses in cases of sim-



FIG. 1.—Unreported case of adiposis dolorosa from the service of Dr. F. X. Dercum, Jefferson Hospital.

ple adiposity. These nodules would be found scattered here and there in otherwise normal adipose tissue, having a special predilection for the abdomen. Upon pressure they were more or less painful and would disappear as the general obesity diminished under treatment. This condition is considered by Lyon as a variety of simple obesity and is included by him in that group, while McCarthy (Osler's *Modern Medicine*, vi) gives it a separate classification. To the writer, it would seem to come midway between simple obesity and the following group.

Nodular circumscribed lipomatosis is characterized by clearly defined single or multiple fatty tumors, which may be symmetrical in site or irregularly distributed. They are most frequently located about the neck, in the axillae, over the trunk or on the extremities. That this type may be accompanied by a variable list of constitutional symptoms, especially arthritic disorders, was probably first recorded by Koettwitz (quoted by Lyon), who separated his lipomata into two groups, depending upon the presence or absence of general symptoms.

Diffuse symmetrical lipomatosis.—It is characteristic of this group that the fatty masses have no capsule, but fade into the surrounding adipose tissue and are also symmetrical in distribution, although not always simultaneous in appearance. This form is somewhat selective as to location, the tumors usually appearing in pairs in corresponding positions upon either side of the neck (*Feithals-Madelung*), although other parts of the body are by no means exempt. It appears, as a rule, during adult life and

almost invariably in the male sex. The individual affected may be, and in fact usually is, of average weight. A history of alcoholism is common. Pathologically, lymph nodes have been found within the fatty tumors ("adenolipomatosis," Launois and Bensaude), but they are by no means limited to this condition and their presence does not seem to be of any special significance.

As in obesity and in nodular circumscribed lipomatosis, constitutional symptoms may appear in a small percentage of the cases. In confirmation of this, Lyon cites a formidable list from this group, having one or more of the symptoms characteristic of *adiposis dolorosa*, also a number of cases of Dercum's disease of the diffuse symmetrical type. He furthermore makes a broad generalization and asserts, with apparent justification, the unity, not only of the forms of *adiposis* and *lipomatosis* described above, but also includes Froelich's syndrome and *adiposis dolorosa*.

At this place it would seem fitting to mention the condition described as cervical adenolipomatosis of tuberculous origin (Allbutt and Rolleston, *System of Medicine*, IV). It consists of masses of fat occurring in the submaxillary and cervical regions, surrounding tuberculous glands. Unlike diffuse, symmetrical lipomatosis, it is most frequently found in females.

Adipositas cerebialis.—Froelich's syndrome or dystrophia adiposogenitalis, is, as the name indicates, of cerebral origin and the result of disease of the hypophysis. Our recognition of this condition dates from Froelich's publication in 1901 (*Wiener klinische Rundschau*, xv, 1901, 883, 906), although prior to that time it was known that in some cases of cerebral tumor obesity would be present. The adiposity in this condition is general and accompanied by sexual infantilism, also at times by optic atrophy (as in Froelich's original case) and somnolence.

The following case from Doctor Dercum's service at the Jefferson Hospital is evidently one of hypophyseal disease, although lacking in sexual infantilism.

CASE I. F. S., male, aged forty-two years, white, laborer by occupation. *Family history*, negative. *Personal history*. Denied venereal infection and the use of alcohol. When eleven years of age he fell ten feet and was unconscious for ten minutes, but had no other symptoms.

Seven years ago, he was struck on the head by a mass of earth, but was not rendered unconscious. His general health had always been good. *Present illness*. Six years ago, he noticed failing vision in his left eye; six months later, the right eye became involved. This became worse until he only retained light perception. Associated with this loss of vision was a drowsy feeling so that he slept most of the time. Headache and vomiting were not present. He stated that vertigo was present when he rose from a stooping position. Lately there had been a gain of thirty-five pounds in weight and his wife stated that his disposition had changed (become more effeminate). There was no history of convulsions or spasms. Hearing in the left ear had been impaired. The right testicle was undescended and he had had a right inguinal hernia for the past three years. He stated that his sexual function was normal.

Upon examination, we found no physical signs of any importance. The reflexes were present but slightly diminished. Babinski's sign and ankle clonus were absent. There was no incoordination, astereognosis, nor sensory change. The patient was obese, the fat being evenly and generally distributed. The eyeballs were prominent. Genitalia were of normal size.

The eye report by Doctor Fritch was as follows: Double optic atrophy, vision limited to light projection. Pupils 4 mm. and showed very little reaction to light or accommodation. Rotations markedly limited in all directions. Tension normal. He fixed with the right eye, the left deviating inward 10°. Ophthalmoscope: O. D. media clean, disc pale throughout; arteries much contracted. Pigment deposits to temporal sides of disc. O. S. same.

A Wassermann test was negative. The carbohydrate tolerance was increased. An x ray examination revealed no lesions about the sella turcica.

Adiposis dolorosa, or Dercum's disease. This condition was described by Dercum in 1888 (*University Medical Magazine*, 1888; *American Journal of the Medical Sciences*, 1902), and has as its chief characteristics an accumulation of fatty masses variously situated, which are either spontaneously painful, painful upon manipulation, or both. Two other symptoms, but little less important and included among the four "cardinal symptoms," are asthenia and psychic disturbances. The latter vary greatly and no one of the reported mental symptoms can be considered characteristic of the disease. Accessory or secondary symptoms are numerous and include motor, sensory, trophic, vasomotor, and secretory manifestations.

It is not the purpose of this paper to discuss in detail the symptoms of *adiposis dolorosa*, so only a few of the most common accessory symptoms will be mentioned: Changes in the reflexes, paresthesias, bruising of the flesh without apparent adequate cause, flushing, hemorrhages from mucous membranes, menstrual



FIG. 2.—Case (unreported) of *adiposis dolorosa*, diffuse, localized.



FIG. 3.—Another view of patient in Fig. 2.

disorders, changes in the cardiac rate and rhythm, and arthritic changes are all more or less frequent. The disease is not hereditary, occurs usually in females, and while varying as to time of onset, occurs, as a rule in middle life.

Pathological changes have been found in the thyroid and pituitary glands, peripheral nerve fibres and, less frequently, nerve trunks. Sclerotic ovaries and undeveloped testicles have been reported. Other findings, including hemolymph glands in the fatty masses, seem unimportant.

At first thought to be the result of deranged thyroid function, adiposis dolorosa is now considered to have a wider etiology. The writer in a former paper (*American Journal of the Medical Sciences*, CXXXVII, 705, 1909) called attention to the fact that sufficient importance had not been given the hypophysis and suggested the possibility of the disease resulting from a primary disturbance of either gland, the other being affected secondarily. We now recognize, however, that others of the ductless gland chain contribute some of the symptoms.

The following case which has been under the writer's observation for five years illustrates the multiplicity of symptoms, points strongly toward functional disturbance of the parathyroid glands, and shows alternating periods of increased and diminished thyroid activity.

CASE II. C. B., female, white, an American, aged thirty-two years, single. When first seen, in January, 1909, she complained

of shortness of breath, marked general weakness, and depression without adequate cause. Her appetite was fair, her sleep irregular, and there was no complaint of headache. Her flesh bruised readily, her menses at this time were normal, and her weight was 237 pounds. She gave a history of the usual diseases of childhood, including diphtheria, and a very severe attack of rheumatic fever at the age of sixteen years. Prior to this latter illness, she had been below average weight, but after the fever she commenced to take on flesh. In 1907, she had frequent attacks of epistaxis. Menstruation had been very irregular; at times it would be absent for several months, then she would have both menorrhagia and metorrhagia. There were also attacks of abdominal pain and vomiting, accompanied by an irregular temperature.

The family history was of interest from the standpoint of tuberculosis, the father, two paternal uncles and a paternal aunt having had tuberculous disease of lungs, throat, or joints. The patient's mother died in childbirth; three sisters died in infancy; one sister was living and well. Upon examination, the patient was found to present general obesity with additional masses variously distributed over the abdomen, hips, and about the knees (generalized, diffuse). These masses had the "bunch of worms" feel and were exquisitely painful on pressure.

During the time this case has been under observation, the following interesting phenomena have occurred. First would be periods of excessive weight, slow pulse, and normal or subnormal temperature, which condition would be greatly benefited by thyroid medication. Following this would be a period of comparative comfort of several months, during which all medication would be discontinued. Next would come a period of irregular temperature ranging from normal to 101° F., with rapid pulse, vomiting, diarrhea, marked flushing, and extreme perspiration. She would also present a fine intention tremor of the hands, an excited, anxious mental state, and her weight would diminish rapidly, on one occasion reaching 182 pounds and on another 187 pounds. There was never any evidence of exophthalmos during these attacks. This condition would clear up slowly under rest in bed, sedatives, and digitalis; next would come a comfortable intermission of a few months, then with an increase in weight, the cycle would commence all over again. The patient has passed through several of these circular phases while the writer has been attending her.

The second interesting feature presented by this case is the development of muscular cramps, which would appear during or just after the symptoms of hyperthyroidism. These cramps appeared in the extremities, chiefly in the feet and hands, which would at times flex so they could not be straightened voluntarily. The cramps during one attack recurred intermittently for about a month, then gradually disappeared. The patient had one or two similar attacks of variable duration.

MEDICAL AND BACTERIOLOGICAL EXPERIENCES DURING THE LATE BALKAN WAR.*

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The American contingent to the Red Cross units in Serbia was not sent there by the parent organization at Washington; it was recruited from the American physicians in Berlin taking postgraduate courses during the time of the Balkan War.

Servia has a population of a little over two million inhabitants, and the number of physicians practicing there does not total much over two hundred. It is conceivable how, with the increased demand for physicians made necessary by the fairly large number of men put into the field, the entire number of medical men available was far behind that actually required. This was likewise the case with Bulgaria. These countries had to appeal to the Red Cross organizations of the different nations of Europe, which responded by sending full complements of trained help well equipped with the necessary materials.

The continuation of hostilities when Europe felt that they were in a fair way to be settled, put an extensive drain on the treasuries of the different Red Cross organizations. The beginning of the second stage of the war between the Allies and

*Read before the Eastern Medical Society of New York.



FIG. 4.—Case (unreported) of diffuse generalized adiposis dolorosa from the service of Dr. F. X. Dercum, Jefferson Hospital.

Turkey found Europe pretty well disgusted with the dilatory tactics of the Balkan Allies. Thus Serbia as well as Bulgaria found herself without sufficient medical aid at a time when she needed it most. The American minister to the Balkan States, Mr. Jackson, while on a visit to Belgrade was impressed by the great amount of suffering and sickness visible on all sides, and telegraphed the American consuls at Hamburg and Berlin for medical aid.

Adrianople had just fallen after a siege of nine months and an engagement in which 250,000 men had taken part. The number of wounded and sick can very well be imagined, when one considers the ferocity which characterized most of the battles of the Balkan War. It was all the Servian medical

a number of peasants clad in their native garments and armed to the teeth, lent a somewhat terrifying appearance to the scene. There is a large military hospital in Belgrade, also a large civil hospital. These have a fairly extensive and modern equipment. The military and civil hospitals were all filled. The majority of the public buildings such as armories, public schools, gymnasiums, and other institutions had been converted into reserve hospitals. They were also filled to overflowing, and the scarcity of physicians was such that it was found necessary to assign one physician to two and even three hospitals.

Conditions, although far from pleasant at Belgrade, became almost insupportable the further inland one went. The surgical Bolnitzas in Belgrade



FIG. 1.—Servian village in the immediate vicinage of Nisch with Servian national dance by women of the village.

corps could do to take care of the wounded. As far as sanitary and prophylactic measures were concerned in the control of the epidemics of typhoid, typhus, dysentery, and cholera which were beginning to appear, none of any lasting value could be taken. It was for this reason that Serbia sent out a call for surgeons, physicians, and bacteriologists to supplement their own insufficient forces.

Of the eleven men who responded to this call, six were surgeons, one a member of the Medical Reserve Corps of the United States Army, and of the remaining four, one was a medical student. The others were bacteriologists. The first contingent were sent to Pirot, a border town between Bulgaria and Serbia and close to the old Turkish border. The second contingent was sent to Kragouyevatz, an inland town, the former capital of Serbia. Owing to the entire first (Pirot) contingent having to return to Berlin, a vacancy was created at Nisch, where I was detailed.

On our arrival in Belgrade the scene was anything but inspiring. The station was not what might be considered strictly modern, and the appearance of

contained for the most part minor surgical wounds, fractures, etc., which had not required immediate operation, or minor injuries which as a result of later infection demanded complicated surgical procedures. Of these the greatest number consisted of abdominal abscesses secondary to gunshot wounds of the abdomen, and brain abscesses secondary to perforating wounds of the skull. In addition, there were quite a number of soldiers who, as a result of the long winter siege of Adrianople, had suffered very severe frostbite of the extremities. Many of these cases required amputations, and such cases were almost invariably sent back to the larger and more populous centres.

The medical cases up to the fall of Adrianople, consisted for the most part of inanition and exhaustion fever, not a little typhoid, and intestinal affections such as dysentery of the Shiga and Flexner type. Weil's disease was also occasionally met with. The amebic form of dysentery may have prevailed over toward the Tschataldja line; in Serbia, however, it was comparatively rare.

On reporting at headquarters to Colonel Sonder-

mayer, the chief of the sanitary division, I was detailed as bacteriologist to work in conjunction with a unit of the German Red Cross Society which had been sent there to take charge of the medical department of a military hospital. The hospital organization in Serbia was in general similar to that obtaining among the other nations of the world. There was the field lazaretto, or first dressing station, supplemented occasionally by larger base hospitals.

Here first aid was given and emergency operations were performed. These consisted chiefly of amputations, tying of arteries, and the preliminary setting of fractured bones. These cases were then immediately transported to the nearest or furthest military hospital, depending on the severity of the injury. As soon as these hospitals were filled, the wounded were sent to the nearest civil hospital.



FIG. 2.—Cretan police officials who, while a part of the Greek army, were especially designated for the policing and sanitary supervision of Salonica. The sign above their heads indicates how far American industries have penetrated.

The great number of wounded made it necessary to open reserve hospitals. This was done by installing beds first in the armories and in other public buildings as occasion required. In many places lack of material made it necessary to use as beds, covered bags filled with straw, while in other places even the bag was wanting.

From the very start it was apparent that there was a lack of proper material, owing to the large demands on the limited supply. This was especially seen in the last stages of the war. Then, again, complete exhaustion of the national and Red Cross treasury, and in the in-

difference of foreign Red Cross societies, because of the unnecessary prolongation of the conflict, made almost insurmountable what under ordinary circumstances would have been fairly hard.

The tide of progress which has been apparent in Serbia during the last ten years, had established a few hospitals which were fairly well equipped with modern appliances. The older hospitals and many of the reserve hospitals, however, were in the same state as fifty years previously, and in these every one of the horrors depicted by Baroness von Suttner in her Nobel prize work could be seen. In Nisch, where I was stationed for a goodly portion of the time I spent in the Balkans, the military hospital was a very antiquated structure, although the civil hospital was fairly modern. The surgical pavilion, while far from American standards, was much in advance of the other pavilions making up the military hospital.

That part of the military hospital set aside for the treatment of the medical cases, and later de-

voted to the isolation and care of cholera cases, had been the residence of a former pasha. While a fairly large building, it was divided off into very small rooms, very badly ventilated and lighted by means of small, badly smelling oil lamps. In rooms



FIG. 3.—Types of young Serbian peasants waiting to be mustered into service. Their extreme poverty can be seen from the coarseness and patched character of their garments. They are mostly recruited from the villages of a type corresponding to that shown in the preceding picture.

about 1,000 cubic feet of space, as many as eight and ten soldiers would be lodged. Several of such rooms served as quarters for soldiers suffering from small-pox, typhoid, dysentery, and other affections which accompany the mobilization of large bodies of men living under extremely poor hygienic conditions and with a poor idea of what constitute cleanliness. The Servian officials were willing enough, but helpless.

Servia is an agricultural state. Its largest city has a population of about 80,000, its next largest about 20,000, and there are a few small towns, which in our country would hardly be classed as more than large sized villages. The peasants live in a very primitive state, are comparatively poor, and make up the great bulk of the army. The Gypsy recruits were, if anything, dirtier, filthier, and more ignorant than the peasants, so that dealing with this material, it was rather difficult to carry out any extensive hygienic measures.

A few days before we arrived, Adrianople had fallen, and what faced us first was the identification and the treatment of a number of sick and wounded soldiers, who were returning after a siege which was to go down in history as one of the most protracted in the wars of mankind.

The Turks had had cholera endemic among them, owing to the number of soldiers that had been



FIG. 4.—Oxen and their drivers who carried provisions and supplies to the Servian troops at Adrianople, a distance of over 100 miles. These oxen returned from the journey, most of which was over mountains, in as good condition as when they started.

brought over from Asia Minor to help repel the invader. It was not, therefore, unexpected that no sooner had the combined Servian and Bulgarian

soldiers occupied the town, than the epidemic broke out. It worked greater havoc with the Bulgarians than the Servians, not because of any greater precautionary measures on the part of the former, but



FIG. 5.—Peasant women washing clothes in a spring. It was in this manner that epidemic diseases such as typhoid and later cholera were spread.

because of the lesser number of men fighting on the side of the latter. Most of the Servian troops that had taken part in the siege of Adrianople were quarantined at Mustapha Pasha, and here the cholera epidemic was fought. Two regiments which had apparently seemed free of the disease were sent back to Nisch, and five soldiers sick with diarrhea had been sent to the Tsele Kula, as the military hospital there is designated.

It seemed as if these might be nothing more than ordinary cases of dysentery, of which there was quite a little in evidence at that time, but to the careful eye of the physician in charge they looked very suspicious. They occurred on the first day of my arrival in Nisch, and necessitated the bacteriological determination of the presence of cholera. The diagnosis of the first case of cholera is a fairly compli-



FIG. 6.—Group of gypsies. The absence of adult men is especially to be noticed. The group consists chiefly of young women, children, and old men. It was especially hard to instil any hygienic principles into this by no means small portion of Servia's population.

cated matter and it was very much to my surprise, and the astonishment of the Servian colleagues that the Asiatic comma bacillus was found present in the feces in these supposed cases of dysentery. Precautionary measures were immediately taken to prevent the spread of the disease, and the result was that throughout the first great epidemic, Nisch and the entire vicinage remained free from cholera.

The surgery at this time was limited chiefly to occasional trephinations, laparotomy for abdominal abscesses, and amputations for frostbites, of which there were a goodly number. Considering that the men had to do sentry duty in trenches filled with snow and ice, which in some instances reached up to their shoulders, and had to keep their weapons serviceable, it seems remarkable that a greater num-



FIG. 7.—American physicians engaged in Red Cross work in Servia. From right to left: Doctor Rosencranz, Doctor Jablons, Doctor Behan, and Doctor McKinney. These were the only American physicians in Servia during the Serbo-Bulgarian War.

ber were not affected. The frostbite was not limited to the feet and toes only, but in many instances the entire leg and even lower portions of the thighs were affected, and had to be amputated. The horrors of war were never more clearly shown than in the case of these poor fellows, who lost their legs or arms through the inclemency of nature and not through the shot and shell of the enemy.

A few weeks later, the character of the diseases seemed to change. Instead of the ordinary fevers due to inanition and extreme fatigue, diseases common to great bodies of men living under unhygienic surroundings made their appearance, viz., typhoid and dysentery. Most fearful of all was the occur-



FIG. 8.—Hand transport of the wounded and sick during the fighting in the neighborhood of Pirot.

rence of that most dreaded of all diseases, the spotted fever, known in America as typhus and in Europe as Febris exanthematicus.

Owing to its unusually low mortality, at the very

beginning, the Servian colleagues were inclined to doubt that it was the real typhus. It was not very long, however, before the mortality reached a high figure and through competent observation it was definitely determined that this scourge again had made its appearance in the land. True to its reputation, it spared almost nobody. The physicians as well as the nurses were stricken, its mortality among the physicians being something alarming. A number of estimable Servian colleagues were reduced to lifelong invalidism, if their names were not added to the long list of martyrs who had died in the service of mankind.

Despite the limited means at hand for investigation in this direction, several men who had the opportunity of witnessing this epidemic, attempted to take advantage of it to add some information to our

ingredients with which to carry out the fixation test. Much to my surprise and that of my colleagues, the reaction appeared positive in a number of cases, although the controls using typhoid and dysentery blood serum did not give the same reaction.¹

It was at this time that Servia, Greece, and Bulgaria began to have differences with regard to the division of the spoils of war. The fruitful section of Macedonia was the bone of contention. Despite the fact that continual skirmishes, in which small bands of irregular soldiers of each force took part, no regular conflict between disciplined soldiers had as yet occurred. Suddenly, when things seemed at their darkest for Servia, without warning, the news was flashed that the armies tiring of diplomatic delay, had declared war.



FIG. 9.—Arrival of the first wounded from the Battle at Knajevatz. The transport of the wounded by means of ox carts is well shown in this photograph.

knowledge of the disease. The Hamburg Institute of Tropical Medicine sent several investigators to Belgrade, where there were a number of soldiers and civilians affected with the disease. Prowazek and Brauer, men renowned for their researches in parasitology, confirmed the investigations and conclusions of Nicolle and Anderson and Goldberger of our country, regarding the transmissibility of the disease to monkeys by lice that had bitten infected individuals.

Doctor Bully at Uskub, and I at Nisch, attempted to carry out complement fixation tests. Doctor Bully had to discontinue his researches owing to the lack of the necessary reagents. Fortunately I happened to have a few guineapigs, and owing to the kindness of Doctor Subotich, secretary of the Servian Red Cross, and Professor Michaud, chief of the German expedition, I was able to secure several

It is still an open question as to who was the first to attack. The Servian version was that the Bulgarians, suddenly without warning, attacked them at Gehvgellia and had beaten them back and had taken possession of the railroad station. This cut off effectually all communication between Salonica, Uskub, Nisch, and Belgrade. Two days later, the combined forces of the Greeks and Servians succeeded in beating back the Bulgarians and recapturing the town. From then until the close of the war, a matter of not quite six weeks, almost continuous fighting took place. What shot and shell could not do, terrific plagues did. The result was the loss of over 200,000 men on the part of the four combatant nations, Montenegro having thrown in her lot with the Servians.

¹A more detailed report of these findings has been published in the *Journal of Medical Research*.

In the early days of this conflict, an opportunity for seeing war surgery was given those of us who had remained, surgery on a much larger scale than that observed in the previous war, with the dangers of hospital gangrene and infection increased owing



FIG. 10.—Interior of military hospital at Nisch. The poor facilities for lighting and heating can be seen in the background of the picture. The nursing was carried out for the greatest part by Servian privates assigned to this work without previous training.

to the long time that the soldiers had been kept under the hardships of camp life.

Two weeks after the outbreak of hostilities, I was joined at Nisch by three American colleagues who had come down in answer to a call for volunteers.

Doctor Behan has reported in detail his surgical experiences in the *NEW YORK MEDICAL JOURNAL*. Almost immediately with the outset of hostilities we were brought face to face with a new emergency. The Servians had succeeded in keeping themselves free from the scourges of the dreaded Asiatic cholera, but modern warfare could take no heed of infectious diseases except as an afterthought and it mattered little to the Servian officers in command that the trenches of the enemy were filled with soldiers dying of cholera. The important thing was to dislodge them and occupy those trenches.

The Servian physicians had very little time to exercise any prophylactic measures; the tremendous



FIG. 11.—Type of barracks used for the isolation and care of typhus and cholera cases. These are very easily put up and permit of thorough ventilation and disinfection.

number of wounded made that impossible. The two armies were fighting with weapons to which they had grown accustomed, with a lust which nothing but blood could appease. The outrages, a few of

which I had an opportunity to see, were soon evidence of this. They were perhaps most marked on the Bulgarian side, if I could credit my Servian informants.

I can only say that while I had an opportunity of seeing some badly mutilated Servian wounded, the Bulgarian prisoners, especially those that had been wounded, were treated with a rather surprising degree of consideration. While I saw a few wounds in the cases of Bulgarian prisoners that had become infected through neglect, I could not at any time remember having seen anything resembling the almost inhuman injuries due to bayonet and stab wounds among the Servian wounded.

As soon as the influx of volunteer physicians reached a point where my surgical services could be dispensed with, I became immediately occupied with the recognition, and where possible, treatment of cholera. It was our duty to locate, wherever possible, incipient cases of the disease, transport them to a hospital specially designated for their care and



FIG. 12.—German Red Cross Unit sent to Nisch. In the centre are the two physicians and at the side are the two male orderlies. One of the orderlies became infected with dysentery, while the other one acquired typhus.

treatment, and take whatever prophylactic measures we could to prevent the spread of the disease.

We attempted, wherever possible, to locate suspects among the wounded on the sanitary transports. The troop physicians were entirely too busy with the care of the wounded to aid us in any manner. It was necessary, therefore, to get as close as possible to the field hospitals in order to weed out those of the soldiers who, perhaps, although suffering from a trifling injury, had become infected with cholera.

We made arrangements for a temporary bacteriological station, where all suspicious cases of diarrhea were held up for thirty hours during which time a bacteriological examination was carried out. It was impossible to go into such a detailed examination as the regulations of the International Committee for the control of cholera demanded. In some stations they had to content themselves with culture of the feces in peptone water and then macroscopic agglutination of the peptone culture after six or twelve

hours with a serum we had obtained from the Koch's Institute for Infectious Diseases in Berlin.

In better equipped stations, such as the Pasteur Institute in Nisch, all cases were subjected to agar



FIG. 13.—Turkish prisoners at Nisch, who were required to act as scavengers during their imprisonment. It was owing to the absence of any available help that this task was delegated to them (courtesy of Doctor Behan).

culture of the peptone; here suspicious colonies were tested as to their indol formations, agglutinations, and Pfeiffer phenomenon. Here we used for culture of the peptone water both the strongly alkaline agar and the Dieudonné alkaline blood agar. We found this necessary in several suspicious cases, since occasionally we would find several cholera colonies on one medium where they would be absent



FIG. 14.—Two Albanians convalescent after an attack of cholera.

on the other. Owing to the scarcity of bacteriologists, we had our hands full with the diagnosis alone, and that made the carrying out of sanitary prophylactic measures a very difficult matter.

The examination of water, a very important thing in cholera time, we had to postpone until a sudden outbreak among the civilians in a certain part of the town made it necessary to determine the source of infection. In this case we found that a certain well which was used by that entire section of the village had become infected. By an immediate disinfection with lime and isolation of the cases, this focus was stamped out. In the surrounding villages epidemics occurred from time to time after the occurrence of the first outbreak, and thus cholera became more or less endemic in Servia for some time after.

It was not long, however, before the Red Cross societies of different countries sent bacteriological expeditions, which with the few Servian bacteriologists, succeeded in bringing the epidemic to a standstill, but not until it had spread to the neighboring states, Bosnia, Herzegovina, and even to Hungary. Even as late as December of last year, when I left Vienna, fresh cases of cholera were continually being reported from villages in the immediate neighborhood of Budapest and of Bosnia and Herzegovina.

As to cholera vaccination, I can only say that the three American colleagues and myself who had subjected ourselves to vaccination, escaped unscathed. Despite that, a few Servian colleagues who had also been vaccinated, several of whom had worked together with me, became infected and died as a result of the disease. In Salonica, despite extensive vaccinations, the arrival of the burial wagon followed by the disinfection wagon of the sanitary corps was a very common sight. Owing to the stricter precautions taken by the Greek officials, the ravages of the cholera among the Greeks were held more in check than in Servia.

As an example of the stricter precautions, I may cite the fact that upon our departure for Athens from Salonica, we were required to report to the police headquarters of Athens both morning and evening for five days. On our return from Athens, traveling from Vienna via Chalkis, Salonica, Nisch, and Belgrade, the evidences of cholera were to be seen on all sides. Everywhere isolation barracks had been erected, and disinfection stations put up, through which demobilized troops had to pass previ-



FIG. 15.—Wounded soldier suffering from variola of hemorrhagic type (courtesy of Doctor Michaud).

ous to being mustered out of service, and arrangements made for the disinfection of water. On the main routes of travel, the Serbian Red Cross Society had arranged for the free distribution of bottled spring water previously bacteriologically examined.

Everywhere public notices were put up, exhorting the people to increased precautions. The demobilization of the troops subsequent to the signing of the treaty of peace, made the control of the ravages of this scourge a very difficult matter, owing especially to the urgent need for men in the fields, every man hastening back as soon as possible to help reap the fall crops. This was the chief factor in the spread of the epidemic, which continued unabated for some time after the demobilization.

Thus, despite modern weapons and armaments, and despite the increased precautions taken against sickness and disease by the Red Cross societies of civilized nations, war still continues to carry in its train disease, famine, and the grim reaper, death.

I wish to take this opportunity to thank Colonel Sondermayer, as well as Colonel Voyo and Lieutenant-Colonel Stephanovic, for their numerous kindnesses to the American medical contingent in Servia.

216 EAST FIFTEENTH STREET.

REMOVAL OF TWO NAILS FROM BRONCHI OF CHILD TWO YEARS OLD.*

By R. H. GOOD, M. D.,
Chicago.

A workman while putting up window shades, left a small box of nails on one of the beds. At three p. m., the mother put the child to bed for a nap, but did not notice the box of nails. In a few minutes she was startled by a choking sound from the child's room. She quickly entered and found the bed covered with nails and the baby's mouth full of them, which she proceeded to remove. The child was not breathing well and in a short time became blue. The mother took the patient to a near by physician and in the act of carrying, the child regained its color. This cyanosis recurred several times before operation.

Dr. J. W. Tope, who referred the case to me, immediately sent the child to the Oak Park Hospital to have an x ray picture taken. This revealed two nails about one inch long, with large heads, one in each bronchus, with heads down. The heads completely filled the lumen of the bronchi at times which caused the frequent cyanosis. Doctor Tope kept the patient in a tincture of benzoin steam tent, until the endoscopist arrived.

Very little anesthesia was required, as the child was partly asphyxiated. The patient was placed in the dorsal position with the head hanging down. A competent assistant held his hand under the neck to alter the position as required by the operator. A nurse supported the head from below.

Bruening's smallest size bronchoscopic tube was introduced until the nail in the right bronchus was visible. A forceps was introduced, grasped the nail, and removed it by withdrawing the tube

with it, as the head was larger than the lumen of the tube. Considerable difficulty was encountered in seeing the nail in the left bronchus on account of some swelling of the membrane, but, after applying cocaine and adrenaline, together, on a swab, I was able to see it readily and could then grasp it with the forceps and remove it.

After removing the first nail, the child breathed much better. Twenty-four hours after operation, there began to be some difficulty in breathing owing to slight edema of the glottis, but this lasted only for about thirty-six hours. The patient was kept in the steam tent for two and a half days. The larynx was sprayed a few times with adrenaline and cocaine; an intubation tube was ready to introduce at any time in case of necessity.

Before operation, the respirations were sixty-six and the temperature subnormal. After operation there was temperature of about 100° to 101° F. for four days, after which it became normal, and, at the end of one week, the patient was dismissed perfectly well.

This case is extremely interesting on account of two nails entering the larynx, both with heads down. These nails went down separately, as the



FIG.—Nails in the bronchus.

heads were so large that they could not possibly pass through the trachea side by side. The baby could not have lived much longer as the air from both lungs was shut off. Several points of importance I wish to emphasize:

1. The necessity of having an x ray picture taken immediately after the accident.

2. The picture should be taken by the best x ray apparatus obtainable, with sufficient current to make picture in not longer than one tenth to one fifth of a second. Short exposures are absolutely necessary for finding foreign bodies in the lungs, on account of the extensive movement of this organ during respiration. The patient should fill the lungs and hold his breath when the exposure is made.

3. An x ray should be made in all doubtful cases of foreign bodies in the lungs or esophagus.

4. The foreign body should be removed as soon as possible.

5. More laryngologists should learn to do endoscopy as more of these cases might be saved.

*Read before the Auxiliaries Branch of the Chicago Medical Society.

6. No one should do bronchoscopy without having taken a thorough course, and having considerable practice on dogs.

7. There is absolutely no advantage in doing a tracheotomy in these small children, but on the contrary many disadvantages, the mortality being much greater.

7 WEST MADISON STREET.

CLINICAL INVESTIGATION OF GASTRIC NEUROSES WITH VAGOEXCITATIVE CHARACTERISTICS.

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Fluoroscopic examinations, x ray studies, and laparotomies have delimited to a great extent those gastric disturbances which were formerly considered functional and nonorganic. In many instances ulcers, adhesions, and malpositions of the stomach, and disease of the neighboring organs (particularly of the gallbladder, appendix, and female annexa) were found to account for the symptoms. When corrected by proper operative procedure, the gastric complaints were cured. There still exists, however, a group of patients in whom the most careful gastric examination reveals nothing, and in whom operations occasionally performed under a mistaken diagnosis show no abnormality of the stomach or other abdominal organs. Until future studies can still further delimit this group and demonstrate some causative pathological lesion, these cases properly belong to that indefinite classification called gastric neuroses.

The complicated gastric nerve supply and our inexact knowledge thereof, the muscular and secretory gastric functions, the many factors involved even in simple physiological phenomena partly explain the difficulties attending clinical studies of abnormal excitability of the gastric nerves. The nerve supply of the stomach is derived from the vagus and the splanchnics and from the plexuses of nerve fibrils and ganglia constituting the nerve elements of the gastric neuromusculature. Some experiments performed by Cannon (1) seem to show that the impulses controlling the normal gastric functions depend upon the vagus. When the splanchnics are cut, normal peristalsis is unaltered; when the vagi are cut, the immediate, though temporary, result is altered gastric function. Cannon (2) also states that "tonus as an essential factor of gastric peristalsis is first given by the vagus impulses and later maintained by the stomach." Tonus here means "a state of more or less persistent shortening of the circular muscle of the alimentary canal." The inhibitory effect of the splanchnics upon the intestines has long been known (3). Kronecker and Meltzer had pointed out that normally every section of the gastrointestinal canal is under the combined control of motor and inhibitory fibres which are contained partly in the vagi, partly in branches from the thoracoabdominal sympathetic. It would seem that under certain pathological conditions affecting the nerve control of the gastrointestinal canal, the in-

hibitory mechanism has very slight or no effect, or if present in normal amounts, it has no deterrent action upon certain hyperexcititive secretory and motor gastrointestinal functions; and further, abnormal impulses apparently often choose the vagus path and upset the normal nerve control of the stomach and thus occasionally lend themselves to clinical investigation.

Clinical study has obvious advantages over physiological and pathological experiments. Its disadvantages are that nerve impulses are intangible quantities which often change rapidly and apparently capriciously and depend upon different states of nerve tone. Reflexes and the spreading (3, 4, 5) of central impulses add their complications to attempts at exact clinical studies.

Disturbances of gastric innervation described under such indefinite terms as neurasthenia, hysterical and nervous dyspepsia, gastric neurosis, etc., are so numerous and varied and their symptoms often so contradictory, that an attempt rationally to codify and treat these symptoms seems of value. The object of this paper is to adduce clinical evidence which suggests a correlation between excitation of the vagus nerve (or its branches) and some gastric disorders loosely termed hysterical, neurotic and neurasthenic. These symptoms I have grouped under the term vagoexcitative gastric neuroses; the latter may be defined as those which originate by peripheral or reflex irritation of the vagus or its branches, which are apparently due to hyperexcitability and hypertonicity of normal vagal functions, and in which pathological lesions in the stomach or neighboring organs can be excluded by all the known methods of clinical examination. It is sometimes impossible to differentiate vagoexcitative from similar or even precise symptoms occurring in hysteria and so called neurasthenia, but careful attention to and correlation of apparently minor symptoms will often show that the vagus has been the path followed by the abnormal impulses. Vagoexcitative phenomena may also accompany pathological lesions like ulcer and carcinoma, but these do not come within the scope of this paper.

Most observers (6) agree that, corresponding to its different functions, the vagus originates in the medulla from three nuclei: the motor (nucleus ambiguus or accessory nucleus), the sensory, fasciculus solitarius, and the visceral. Two ganglia—the jugular and the ganglion nodosum—are found on the nerve near its exit from the skull. In the chest the vagi form the pulmonary and esophageal plexus; in the abdomen the terminal filaments spread over the anterior and posterior surfaces of the stomach. The main branches of the nerve are the meningeal, auricular, pharyngeal, superior and recurrent laryngeal, and the cardiac. The chief sympathetic connections are with the cardiac branches of the cervical sympathetic and the stellate ganglion, thus forming the cardiac plexus; the splanchnic nerve and solar ganglion form plexus with the celiac and hepatic branches of the vagus. Following Langley, most physiologists (7) have divided the vegetative nervous system into the autonomous and the sympathetic. The former is divided into the cranial, bulbar and sacral segments; the bulbar, which concerns us, comprises the vagus and its branches.

Some of the older treatises contain occasional references to vagus excitation as the primary cause of certain secretory, motor and sensory neuroses, but no systematic attempts to connect them were made. Romberg (8), one of the first to recognize the role of the vagus in these cases, states that the sensation of hunger is propagated along the vagus. Leube (9, 10) finds no distinction between vagus and sympathetic gastric neuroses and attributes them to mechanical nerve irritation occurring at the beginning of digestion. Oser (11) states that sensory neuroses are often due to excitation of the vagus bulb and that psychic influences may affect the sensory vagus. He remarks, "In the fields of the vagus and sympathetic, so far as they supply the stomach, and in the corresponding peripheral ganglia a series of abnormal disturbances, show themselves in anomalies of function, without our being at present able to find any anatomical proof for the same. These functional anomalies pertain to motor, sensory, secretory, and vasomotor spheres and may be produced by central, peripheral, or reflex causes." Oser objects to Leube's terms "nervous dyspepsia" and "neurasthenia gastrica," because digestion is often undisturbed and the same symptoms may arise peripherally or reflexly. He prefers the terms sensory, secretory, or motor gastroneuroses; accompanying the neuroses, there may be general neurasthenia, or reflex symptoms affecting other nerves or centres. Rosenthal (12) mentions polyphagia and reflex vasomotor neuroses arising from vagal excitation. Most modern authors—Boas (13), Ewald (14), Einhorn (15), Osler (16), and others—divide gastric symptoms into sensory and motor, or irritative and depressive, and usually class the patients as neurasthenic or hysterical. In a discussion of opposed sympathetic and vagal control of the stomach, Cannon (17) says: "Through these opposed systems, the automatic activities of the gastrointestinal canal can be modified, not voluntarily, but by emotional conditions." The study and symptomatology of vagoexcitatory gastric neuroses have several important practical aspects:

I. Symptoms primarily vagoexcitatory may be the cause of so called neurasthenia and the latter may exist even after the gastric symptoms have disappeared.

II. Gastric vagoexcitation and "neurasthenia" may coexist and have no etiological connection.

III. Strong emotions—fright, excitement, etc.—may originate vagoexcitatory phenomena which outlast the original cause.

IV. Minute study of symptoms may lead to a rational etiology, diagnosis, and therapy.

V. For this type of gastric neuroses, we may discard the terms neurasthenia, hysteria, and nervous dyspepsia.

SYMPTOMATOLOGY.

Symptoms will be discussed in the order of their relative frequency and importance.

1. *Belching; eructations; Eructatio nervosa.*—This symptom is very frequent in all forms of gastric disturbances and is often found in hysteria, but it is particularly characteristic of vagus excitation when it is frequent, is loud and explosive in character and occurs upon an empty stomach associated

with "hunger pains." The nerve control of the cardia depends upon normal inhibition (18) controlling sphincteric action. Eructations following gastric distention from fermentation seem to depend upon mechanical excitation of the cardiac orifice. The mechanism of eructation in the voluntary air swallowing of hysteria is not clear; in some manner there is lack of sphincteric control, and by overaction of the abdominal or gastric musculature or both, there is forcible expulsion of the air swallowed. These facts, however, do not explain the mechanism of frequent, loud, explosive eructations occurring when the stomach is empty. This symptom has not received the study its frequency deserves. Except in connection with hysteria and the statement that some people are "air swallowers," there is but slight reference to it in the literature. Mackenzie (19) discusses "involuntary air suction" and belching in conjunction with angina pectoris. Leube (20) mentions a case of continued, loud eructations occurring *suddenly at night*. Similar cases have come under my observation. The very first symptom and the cause of sudden awakening were eructations; these were always accompanied by other symptoms of vagus excitation; hysteria was not an etiological factor. It is difficult to understand how unconscious and "involuntary air suction" can occur in such cases. Rosenthal (21) cites Fellner's experiments to show that irritation of the nervi erigentes produces negative pressure in the rectum. The nervi erigentes are part of the autonomic system. Cannon (22) states that the vagi control the tone of the gastric musculature. Inference from these data and from my clinical observations, and the association of eructations with other vagoexcitatory conditions lead me to believe that hyperexcitability of the vagus possibly produces rapid changes of inhibitory control of the cardia, accompanied by sudden alternate relaxations and spasmodic contractions of the latter. Sudden relaxation may cause suction of the air contained in the esophagus. The amount of air thus aspirated is probably small, the explosive noise accompanying its expulsion may be due to hypertonicity and hyperactivity of the gastric musculature. Some of the salient facts are illustrated by the following case:

CASE I. S. H., aged fifty-one years, female, gave no previous history of gastric or nervous disturbance. She was very much shocked by a death in the family. Immediately thereafter she complained of severe epigastric pains and tenderness, occasional explosive vomiting, and loud, explosive belching, the latter most frequent when her stomach was empty. She was sometimes awakened at night by epigastric pains and belching lasting one half hour. There were no hysterical stigmata; so far as could be determined belching was not preceded by air swallowing, by closure of the glottis, by fixation of the abdominal muscles, nor by chest expansion—procedures suggestive of unconscious air suction. There was no evidence of ulcer or of gastro-succhorrhea. The stomach was empty in the fasting condition; examination of the stomach contents after an Ewald test meal showed normal gastric juice. With remissions and exacerbations, the latter often caused by excitement, the attacks lasted two years. Main therapeutic reliance was placed upon atropine and alkaline powders.

2. *Bulimia—Gastralgocenosis.*—These two symptoms are thus grouped because they appear to represent differences of degree, not of kind. It is a common experience that aggravated bulimia may develop into gastralgocenosis of varying intensity.

Boas (23) considers gastralgocenosia to be due to abnormally severe contractions of the stomach, which become severer toward the end of digestion. Cannon and Washburn (24) review the different theories of the cause of hunger. They believe that hunger is not due to hydrochloric acid secretions nor to turgescence of the gastric glands, nor, because of the sharp onset and intermittence, can it be due to general metabolic changes. They conclude that the stomach is in a state of muscular "tone," and that hunger is a general sensation with a local peripheral source. They state that "the vagus nerve, indeed, appears to carry impulses which affect the procedure of eating." It appears probable that abnormal vagal excitation may accentuate and partly supplant the normal physiological process and give rise to bulimia and gastralgocenosia. Pain accompanying the latter will be discussed in another connection. If bulimia is not immediately relieved by food or drink, gastralgocenosia quickly follows. Patients usually have food or drink at hand when traveling or upon retiring, otherwise bulimic symptoms accompanied by faintness, weakness, and cold extremities may occur. Occasionally syncopal attacks occur, even in patients with normal hearts and circulation. Such symptoms apparently depend upon reflex vasomotor disturbances originating in the medulla. Sometimes bulimia and gastralgocenosia occur suddenly at night accompanied by explosive belching. Moynihan (25) considers "night pains" and bulimia characteristic of duodenal ulcer. It has already been mentioned that vagoexcitative phenomena may accompany pathological lesions, particularly ulcer. Typical "hunger pains" at night are frequent, for example in pregnant women, and disappear with the termination of the pregnancy. Such instances alone show that Moynihan's statement is not universally true. Another characteristic of vagoexcitative bulimia and gastralgocenosia is its sudden, stormy onset, sometimes very soon after meals.

CASE II. J. N., female, had frequent attacks of tonsillitis, sometimes accompanied by severe intercostal neuralgia. In two attacks, she frequently complained of sudden hunger accompanied by belching and sensitiveness to pressure in the epigastrium. Hysteria and dietetic indiscretions could be excluded as etiological factors. After eating a few mouthfuls, she "felt full," yet soon, at times immediately thereafter, she again complained of hunger. These attacks lasted three days, they were mitigated by atropine.

3. *Vertigo*.—The present opinion is that vertigo from any source is caused by some disturbance of the semicircular canals or by central or peripheral irritation of the vestibular nerves. Vertigo of gastric origin has also been ascribed to fermentation. Dizziness may possibly result from such absorption toxemia, but different etiological factors and characteristics require consideration in the vertigo of vagus excitation. In the latter, evidences of fermentation are usually absent, the vertigo is sudden in onset and is often accompanied by vasomotor disturbances (e. g., cold hands and feet); it frequently occurs when the stomach is empty and sometimes even during the night; in favorable cases it is relieved by food. It is important to remember that the vertigo may be more pronounced than the gastric symptoms. Several observers—Trousseau

(26), Riegel (27), and Leube (28)—have described cases of nocturnal vertigo and of vertigo occurring when the stomach is empty. It seems possible that the excitation of the vestibular nucleus on the floor of the fourth ventricle is due to radiated impulses from the vagal nuclei. Variations in blood supply, caused by vasomotor disturbances may also have some influences in producing vestibular excitation.

An interesting example of nocturnal vertigo with other vagoexcitative phenomena is the following case:

CASE III. K. E., aged thirty-five years, female, suffered from constipation and "stomach trouble" for many years. For several weeks she complained of dizziness and bulimia particularly at night, and of pains and buzzing in the ears. She was often awakened by dizziness. If she did not immediately take food, the bulimic attacks developed into faintness. Organic diseases of the heart, stomach, and ears were excluded. Following dietetic indiscretions she was immediately attacked by hunger pains, increased dizziness, and slight epigastric sensitiveness. Her symptoms were usually aggravated when her stomach was empty. Under atropine, alkalies, appropriate diet and general hygienic measures she slowly improved.

4. *Cardiospasm; pylorospasm; gastrospasm*.—These terms refer here to spasmodic, painful contraction respectively of the cardia, pylorus, and of the whole stomach, without any evidence of a pathological lesion. These conditions seem to be caused by abnormal increase of the normal (vagal) gastric tone. Many of the symptoms of cardiospasm are exceedingly mild. Close and alert questioning alone will elicit such complaints as slight difficulty in swallowing or of food "sticking in the throat." Other patients complain that the act of swallowing requires some voluntary effort and is accompanied by a "sticking" pain behind the lower end of the sternum. This pain is sometimes present without actual swallowing, and may be accompanied by slight pressure sensitiveness over the site of the pain. Dizziness, headache, or faintness may also be present. These symptoms are usually regarded as hysterical, but they appear to be caused by mild spasms due to abnormally heightened vagal tone. Some of these cases are probably among those usually classed as "idiopathic cardiospasm"; others may be forerunners of a severe type of cardiospasm ultimately requiring instrumental or operative dilatation.

Pylorospasm is found in severe, long continued vagoexcitation. It is accompanied by sharp epigastric pains and sensitiveness and by occasional sudden unexpected explosive attacks of vomiting. The symptoms often closely resemble those of gastric and duodenal ulcer and the patients are occasionally wrongly operated upon for these conditions. A few such cases have come to my knowledge. In one instance, x ray examination of a bismuth meal showed delayed gastric motility. The site and character of the pain and examination of the gastric contents pointed to gastric ulcer. Laparotomy showed a normal stomach without adhesions. The appendix was normal. The history showed that the gastric symptoms developed immediately after nervous excitement in an individual who for months previously had no gastric disturbance. The patient was not benefited by the operation.

Gastrospasm is rare and is found only in the severest cases of vagus excitation. This symptom

probably also includes some cases of pneumatosis. Gastrosplasm is accompanied by very severe gastralgia and a feeling of tension behind the lower end of the sternum or in the epigastrium: it is usually sudden in onset, violent in its course, and often accompanied by belching and hiccoughs. Occasionally the stomach is felt as a tense, elastic, somewhat globular tumor, painful to pressure and occupying the whole of the epigastrium. Gentle pressure sometimes relieves the spasm and gas or air is explosively belched for several minutes or even a half hour. After the attack, the "tumor" disappears. Some "phantom tumors" are doubtless examples of this type of gastrosplasm. The following is an illustrative case:

CASE IV. A. B., female, aged forty-eight years, had no hysterical stigmata. When upset by undue excitement, she was immediately attacked by belching. Recently, *immediately* after a nervous shock, severe, sharp epigastric burning, frequent belching and acid eructations took place. These attacks continued and were worse when her stomach was empty. She occasionally complained of very sharp, cramplike abdominal pains; at such times, the whole epigastrium was occupied by a tense globular mass. Gentle pressure was at once followed by loud eructations and gradual disappearance of the tumor and pains.

5. *Pain*.—The source of pain accompanying gastric disturbances is still in dispute. Pain accompanying vagus excitation varies considerably in intensity and duration; its onset is usually sudden, its course, stormy. When most intense, it is sharp, cutting, and cramplike in character, and most severe when the stomach is empty. The usual site of the pain is the substernal notch, but it may be at the umbilicus or its immediate neighborhood, or it may radiate over the entire abdomen. It occasionally radiates to the middorsal region to the left of the spine and then resembles the area sometimes found in gastric ulcer (Boas's pressure point). Sudden night pains indistinguishable from those sometimes found in duodenal ulcer, may also occur, but accompanying symptoms of vagus excitation may assist in the differential diagnosis.

6. *Gastric contents*.—The stomach in a fasting state is always found empty. The gastric contents obtained after an Ewald test meal are usually well digested, with high values for hydrochloric acid and total acidity; they contain little or no mucus. Frequent examination of the same patient show marked variability in the acidity of the gastric juice.

7. *Cardiac arrhythmias*.—These are more common in this type of neurosis than in other gastric disturbances. Vagus stimulation inhibits heart action and produces slowing of the whole heart—true bradycardia. The pulse rate may be fifty a minute; polygraphic and electrocardiographic tracings show normal sequence of auricular and ventricular contractions. At times these patients complain of "thumping" in the chest. Auscultation reveals normal heart sounds. The thumping feeling may be due to abnormally strong ventricular contractions. At times extrasystoles (premature contractions), auricular or ventricular in nature, accompany vagus excitation. Physiological experiments have shown that electrical stimulation of the vagi may be followed by extrasystoles. In the human subject, atropine, which has a paralytic

effect upon the vagi or their peripheral distribution, may diminish or entirely prevent the occurrence of these extrasystoles.

Extrasystoles may be present when the cardiovascular apparatus is organically normal. It is said that extrasystoles are most frequent after meals and when the stomach is abnormally distended; the usual explanation given is that the distended organ embarrasses the circulation by pressing against the heart (29, 30); pain is rarely or only incidentally mentioned. In the cases the writer (31) has examined, the patients were under careful diet, the nourishment was often fluid, there was no gastric distention, and the extrasystoles were most frequent when the stomach was empty and there was a craving for nourishment. *Epigastric pain* and *sensitiveness* were marked clinical features. Though the reflex path followed by the impulse is not definitely known, it would seem that in the cases cited there is a direct connection between vagus excitation and the production of the extrasystoles. The knowledge of this reflex origin is important because these cases are only very exceptionally decompensated. The extrasystoles usually disappear with the subsidence of the stomach symptoms and ordinarily require no treatment. Exceptionally the extrasystoles continue for a long time—even years—after the gastric symptoms have disappeared. Head's zones may be present over the precordium. Similar areas of skin hyperesthesia are sometimes found in vagoexcitatory gastric phenomena without extrasystoles. The painful area is often mistaken for an angina of cardiac origin. A careful history and examination will usually reveal the origin of the pain. Treatment for the arrhythmia and pain should be directed to the underlying gastric disease. If the patient is aware of and is annoyed by the arrhythmia, the bromides of atropine are usually the best remedies for its control.

8. *Vasomotor symptoms*.—Flushes, cold hands and feet, perspiration, etc., are common in many forms of gastric disorders. Those accompanying vagoexcitatory neuroses are characterized by sudden onset and by the variability of the skin areas affected, e. g., the extremities may feel flushed and warm and other parts blanched and cold. The vasomotor symptoms often come in attacks parallel to the severity of the gastric symptoms; the reflex arc producing vasomotor excitation is not definitely known, though the vasomotor medullary centre is probably reflexly excited by the abnormal vagus impulses.

CASE V. F. F., woman, aged forty years, had the following vagoexcitatory symptoms, with remissions, for two years: Belching, epigastric pain, and gastrosplasm. For two weeks when these symptoms were aggravated there were daily sharp attacks of chills, chattering of the teeth, and blanched and pinched features. The temperature always remained normal, the blood contained no malarial plasmodia; quinine had no effect upon the attacks. The usual duration of the latter was one half hour; they ceased when the gastric symptoms subsided.

9. *Ear symptoms*.—In a few cases there are sharp, stabbing or shooting pains usually deep in the auditory canal or in the mastoid region. They are sometimes accompanied by subjective sensations of buzzing and tingling; in these instances dizziness is also present. The onset of the pains, their intensity

and duration are irregular and capricious and apparently bear no relationship to the other vago-excitative symptoms. All these patients were examined by competent otologists, and no organic disease of the nose, throat, ear or Eustachian tube was found. In one case a paracentesis was done with no relief. The patients were gradually relieved of their aural neuralgia with the subsidence and cure of the gastric disturbances. The nerves excited in these cases are apparently the auditory and the sensory branches of the trifacial. The origin of the auditory nerve has already been described. The main deep sensory root of the trifacial is a long tract in the medulla, the lower sensory nucleus. Hypothetically it is possible that the juxtaposition of the auditory and trifacial to the vagal nuclei may cause radiated impulses from the latter to the former, and consequent abnormal excitation of auditory and trifacial nerves.

TREATMENT.

The diet best suited to these patients is that usually given for hyperacidity: Milk, gruels, farinaceous foods, eggs, meats, butter; acids and spiced foods are contraindicated. These patients are often susceptible to acids even in minute amounts; any indiscretion in this respect may be accompanied by relapses lasting days or weeks. When the symptoms are severe, the special diet given for gastric ulcer is of value. The appetite is capricious; there is usually a craving for acids. Hunger, faintness, and epigastric pains often occur if food is not given at frequent intervals; little food, however, is necessary to relieve these cravings, for the patients soon complain of feeling full. Powders containing bismuth subnitrate or subcarbonate, bicarbonate of soda and magnesia usta in large doses taken after nourishment have been found of most value. Atropine sulphate sometimes acts as a specific. The usual dose at the beginning is grain 1/250, three times a day before food; this may be increased to grain 1/100 until mild atropine symptoms occur. If controlled, the drug may be continued with interruptions for weeks or months. General hygienic measures (mild hydrotherapy rest; later, out of door life), but only such that the patient will tolerate, are important. Dogmatic insistence upon measures not tolerated by the patient is apt to be met by failure; for example, patients restive under complete rest cures do better when allowed some exercise. Relief from mental strain and irritation is of importance. The bromides are sometimes of great value.

No attempt at complete symptomatology or therapy has been made, but it is believed that enough has been suggested to show the correlation and the rationale of many apparently conflicting symptoms and the importance of their recognition as a clinical entity. Thus the vague field of gastric neurosis becomes somewhat narrowed, and an attempt at rational therapeutics becomes possible.

CONCLUSION.

In vagoexcitative gastric neuroses, the complaints are real, not imaginary. The vagus nerves which control the normal gastric functions may become primarily hyperexcitable and give rise to abnormal nerve tone; the resultant symptoms are often ex-

plained by a study of the reflex paths followed by the abnormal vagus impulses. The gastric symptoms, once established, may cause so called neurasthenia, the treatment of which will then depend upon the recognition and treatment of the fundamental condition.

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1275 MADISON AVENUE.

THE FUNCTIONAL TESTS OF THE STATIC LABYRINTH IN NEUROLOGICAL DIAGNOSIS.

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Although the science of neurology and that of otology have many points of contact, it is perhaps in the consideration of the static labyrinth that the closest relationship between these two fields reveals itself. From an otological point of view, the proper estimation of the functional tests of the static labyrinth entails a considerable degree of familiarity with the anatomy and physiology of the central nervous system, and, on the other hand, from the neurological side the functional tests may be made a valuable aid in the diagnosis of pathological intracranial conditions.

The static labyrinth is one of the peripheral sources of those impulses which, by their combination, establish and maintain our body balance. How this combination is effected is still unknown, although we know that the cerebellum in a measure acts as a static centre. So long as the various balance impulses unite harmoniously, equilibration is carried on reflexly, or at least automatically, without our realization of the processes involved. Any disturbance, however, in the function of the organs which either contribute balance impulses or convey or combine them, causes a loss of equilibrium. The unbalanced type varies, its characteristics changing in accordance with the functional peculiarities of the organ whose balance impulses have been interfered with.

We believe that normally the static labyrinth is always active; that it constantly sends forth impulses which acquaint us with our position in space

and with the changes in that position. At the same time there are aroused in the eye muscles and the muscles of the body and of the extremities, reflex or automatic movements. The purpose of these movements is to accommodate the body to those changes in position which gave rise to the labyrinthine stimulus. When a powerful impulse is aroused in a static labyrinth, there follow a disharmony in the combination of all the balance impulses and a loss of equilibrium. The type of this balance disturbance depends upon the functional peculiarities of the static labyrinth, since it is in the static labyrinth that the disharmonic impulse arises. Thus there occurs a disturbance of the sense of position, i. e., a sensation of turning, along with disturbances in the eye muscles (nystagmus), and disturbances in the muscles of the body and of the extremities (reaction movements).

For the development of these reflexes which result from vestibular stimulation, it is necessary, of course, that the end organs within the labyrinth be intact. To the otologist, therefore, the functional tests reveal the condition of the labyrinthine end organs. But it is clear that for the normal play of the labyrinthine reflexes, it is essential that the retrolabyrinthine nerve paths—the conveyers and combiners of balance impulses—also be intact. It is here that the study of the functional tests may be of great service to the neurologist.

As is well known, the end organs within the static labyrinth are of two kinds, first, the maculae of the utricle and saccule, and secondly the cristae in the ampullae of the semicircular canals. It has been impossible, up to the present, to stimulate the maculae alone, experimentally. Although much is known regarding their physiology, they have been practically disregarded in the functional tests of the static labyrinth. When we speak of vestibular irritation or labyrinthine stimulation, we have in mind only the ampullary end organs, i. e., the cristae. A crista is a hill of cells—supporting cells and hair cells—surmounted by a gelatinous saddle (cupula) into which the hair processes of the hair cells project. It is placed transversely across the course of the semicircular canal.

It is the generally accepted opinion that the process which arouses a labyrinthine stimulus is a movement of the endolymph. This causes a displacement of the gelatinous cupula, thus producing tension and relaxation of the hairs. In all probability endolymph movements and the resulting reactions occur during the normal function of this organ. We do not believe that there exists any essential difference between the reactions aroused by a single turn of the head about its vertical axis and those aroused by numerous turns. The stimulus aroused by a single turn of the head sends an impulse to the labyrinthine centres which is so checked and controlled that only a normal reaction follows. By a normal reaction we mean such invisible movements of the eye muscles and body muscles as accommodate the body to the changes in position (in this instance the turning).

It is only when powerful stimuli are artificially aroused in the labyrinth, that the inhibition of the centres is temporarily inefficient and the reflex

responses become manifest. Such powerful stimuli are aroused by functional tests in several ways. Mechanically by rotation—the rotation test; calorically by hot or cold water or other fluids allowed to flow into the ear—the caloric test; and electrically by the galvanic current—the galvanic test. To these we must add the fistula test, although the latter is positive, as a rule, only in pathological otic conditions. All these functional tests, with the probable exception of the galvanic test, arouse stimuli through endolymph movements in the semicircular canals. Although the reaction to the galvanic current may be modified by the presence of functioning labyrinthine end organs, it occurs when the latter are totally destroyed. It cannot, then, be considered a test of the functional integrity of the end organs. We have come to regard it as an indicator of the conductivity of the nerve.

As we have mentioned above, the reactions to powerful vestibular stimuli are both subjective and objective, i. e., a sensation of being turned (vertigo) along with nystagmus and reaction movements. The eye movements are the most uniform in their behavior, and are therefore in the foreground of clinical interest, particularly for the otologist. We must bear in mind that, strictly speaking, the latter, in testing for suspected endolabyrinthine disease, is concerned only with the solution of the question whether or not the labyrinthine end organs are functioning. For him, then, the normal occurrence of this one response is sufficient. From a neurological standpoint, however, it is necessary to consider, not only each individual response to vestibular irritation, but also the manner in which all the responses combine.

If a person with normal ears is seated, with the head erect, on a turning chair, and rotated at the rate of ten turns in twenty seconds to the right, there will follow, after the rotation has ceased, a horizontal nystagmus directed to the left. This will last from twenty to forty seconds. If the individual is rotated to the left, the after nystagmus will be directed to the right. It too will last from twenty to forty seconds. This reaction occurs because of endolymph movements in the horizontal semicircular canals. The plane of the nystagmus is the same as that of the canal or canals in which the endolymph movement occurs. Where one labyrinth has been recently destroyed by disease, the after nystagmus toward the affected side will be considerably shorter in duration than that toward the sound side, the proportion being about one to two or more. If one labyrinth has been "dead" a long time, compensation may have occurred. Then the after nystagmus toward the diseased side will be as long as that toward the sound side, but both will be considerably shorter than normal.

If with the head erect, a normal ear is irrigated with cold water at a temperature of 50° F. or less, there will occur, after a few minutes, a combined horizontal and rotary nystagmus toward the opposite side. This reaction is caused chiefly by endolymph movements in the vertical canals, and to a slight degree by those in the horizontal canal. These endolymph movements are aroused in ac-

cordance with the law of physics, that cooler portions of a fluid sink. It follows naturally then that if a normal ear is irrigated with hot water, there will occur a rotary and horizontal nystagmus toward the same side. These responses to caloric irritation last, normally, from a half minute to two and a half minutes.

In a state of unconsciousness, the response to caloric vestibular stimulation is not a nystagmus. In place of the latter, there occurs a conjugate deviation of the eyes in the direction of the slow component of the equivalent nystagmus. This fact seems to indicate that the rapid component of the nystagmus is not only aroused outside of the labyrinth, but also that it is of cerebral origin. Although we know that this reaction is not of cortical origin, it seems that lesions in a cerebral hemisphere arrest the development of the rapid component of the nystagmus when the labyrinth of the diseased side is stimulated. In a case observed by Rosenfeld, in which he made a tentative diagnosis of hematoma or tumor in the right cerebral hemisphere, examination showed the following: When the patient was comatose there was neither spontaneous nystagmus nor conjugate deviation of the eyes. Irrigation of the left ear with cold water caused a slow deviation of the eyes to the left. Irrigation of the right ear reversed this slow deviation. The eyes remained in these positions for one to two minutes and then gradually returned to the middle position. When the patient became conscious, irrigation of the left ear with cold water caused a nystagmus to the right. Irrigation of the right ear, however, aroused only a deviation to the right. These facts Rosenfeld used in localization, and determined from them the region of the right hemisphere that was involved.

Although a caloric labyrinthine stimulus is too powerful to be at once checked by the inhibitory influence of the cerebellar centres, it nevertheless comes ultimately under their sway. Provided the cerebellum is normal, the nystagmus will not last longer than two and a half minutes. Each cerebellar hemisphere exercises control over the nystagmus directed toward its own side. When a cerebellar hemisphere is destroyed by a tumor or an abscess within its substance, its inhibitory influence is abolished. If under these circumstances the ear of the sound side is irrigated with cold water, there follows a nystagmus to the diseased side which will outlast a normal reaction by several minutes. To this phenomenon Neumann has applied the term *enduring nystagmus*. It may last from five to fifteen minutes or more. In a labyrinth whose function has been destroyed by endolabyrinthine disease, there will be no response whatever to the caloric test.

When middle ear suppuration gradually erodes the labyrinthine capsule, causing a fistula to form in it, there comes a time when attacks of vertigo occur. If the suppuration has not invaded the endolymph spaces, and destroyed the end organs, in addition to a normal rotation test and response to the caloric test, there will be a positive fistula reaction. Compression and aspiration of the air in the external auditory canal, acting through the fistula, cause endolymph movements and arouse the vestibular reflexes.

We no longer believe that the galvanic test offers any evidence of the functional intactness of the labyrinthine end organs. In this regard much diversity of opinion still exists. We have seen an instance in which the labyrinth was destroyed by an infective process following a radical mastoid operation. When the patient was up and about again, tests showed that the labyrinth (both auditory and static) was entirely without function. The patient complained of tinnitus, despite the total destruction of hearing. This tinnitus was ascribed to degenerative changes in the cells of the ganglion spirale. The application of the galvanic current gave the following results: With a current of four milliampères, cathode applied in front of the tragus of the sound ear and anode in the hand, there occurred a combined rotary and horizontal nystagmus toward the cathode, i. e., toward the sound ear. When the poles were reversed, the nystagmus was reversed. A similar reaction occurred on the diseased side with only two and a half milliampères. The interesting part of the test was the fact that the current, when the cathode was applied to the diseased ear, markedly increased the tinnitus, and when the anode was so applied, decreased it. We do not believe that in this case, such results could be obtained in any way except by direct stimulation of the eighth nerve. If the galvanic current was uniform in its action, and if its application could be made without causing so much pain, it would be a very valuable adjunct in our examinations. But unfortunately we meet with perfectly normal individuals in whom galvanic stimulation of the labyrinth (i. e., vestibular nerve) arouses no reaction, when applied as strong as can be borne. As a means of differential diagnosis, we have found it of most use in cases like the following:

CASE I. Man, of middle age, gave the following history: There had been no previous ear trouble. Several months before he came under observation, he noticed that he was rapidly becoming deaf in one ear. The deafness was associated with severe tinnitus. A month after the onset of the deafness and tinnitus, he had repeated vertiginous attacks, which compelled him to take to his bed. When he had recovered from these attacks, we had an opportunity to examine him. The middle ear of the affected side was practically normal. There was total deafness, and the functional tests of the static labyrinth indicated a "dead" labyrinth. The galvanic current applied to the sound side caused a prompt response, but when even a stronger current was applied to the affected side, there was no response. Upon the history and these findings, we diagnosed a neuritis of the eighth nerve, probably syphilitic. The Wassermann was positive.

The history in this case is characteristic of retrolabyrinthine disease. Rapidly developing signs of disturbance of the auditory or static labyrinth alone and not in combination, are suggestive of retrolabyrinthine and not endolabyrinthine disease.

A similar history would be obtained, and in all probability similar reactions would occur in tumors of the cerebellopontine angle, of which a large proportion take their origin in the eighth nerve, according to Folke Henschen. In addition to the above described symptoms, there are usually signs of increased intracranial pressure with headache and choked disc, as well as symptoms and signs of involvement of several or all of the remaining cranial nerves on the same side. In one case reported by Henschen, the cranial nerves of the opposite side were paralyzed as the result of crowding of the pons

and medulla against the opposite side of the skull by the tumor mass. The correct localization of the tumor could be made here only by an examination of the functions of the eighth nerve, this being the only nerve whose function was abolished on the side of the tumor. Such an ear shows complete deafness, and a negative reaction to galvanic as well as to caloric stimulation and that of rotation.

In many cases of tumor in this situation, the eighth nerve symptoms antedate those referable to the other cranial nerves by a considerable interval, sometimes by several years.

Of all the responses to labyrinthine stimulation, the most important by far, from a neurological standpoint, are the reaction movements. These are divided into (a) reaction movements of the body, (b) reaction movements of the extremities. The reaction movements are not a simple reflex like the nystagmus. They consist, according to Bárány, of voluntary movements which are modified in the cerebellar cortex by abnormal centripetal impulses from the semicircular canals. They are movements of the body and extremities in response to vestibular stimulation, and occur in the plane of the semicircular canal or canals in which the impulse arises, and in a direction opposite to that of the nystagmus. Thus, if by rotation to the right, we arouse a horizontal nystagmus to the left, the reaction movements will occur in the horizontal plane and be directed to the right. The reaction movements of the body in the horizontal plane are not manifest. In the presence of a rotary nystagmus, however, the reaction movements are so constituted that they cause the body to have a tendency to fall in the direction opposite to that of the nystagmus. The peculiarity of these reaction movements is that they invariably occur in the direction of the slow component of the nystagmus, and are consequently modified by changes in the position of the head. Thus if the right ear is irrigated with cold water, there will follow a rotary nystagmus to the left. If the patient now attempts to stand with his feet close together and eyes closed, he will fall to the right. If his face is turned toward his left shoulder, he will fall forward, and if his face is turned to his right shoulder, he will fall backward.

When a labyrinth is involved in an acute diffuse inflammatory process, there occurs, along with the other labyrinthine symptoms, a spontaneous rotary nystagmus, toward the sound side. An individual so affected will have a tendency to fall in a direction opposite to that of the nystagmus. A cerebellar tumor or abscess may also cause balance disturbances and a nystagmus. Despite much that has been said to the contrary, the nystagmus due to cerebellar disease often cannot be differentiated clinically from that due to labyrinthine disease. In the reaction movements, however, we have a means of differentiating positively between the balance disturbances due to labyrinthine disease, and those of any other origin. If the tendency to fall is not always in the direction of the slow component of the nystagmus, we know that the balance disturbances are not of labyrinthine origin. In cerebellar disease, the tendency to fall is independent of the direction of the spontaneous

nystagmus, if this is present, and the direction of the fall does not change with changes in the position of the head.

The cerebellar worm is largely concerned in the intermediation of the reaction movements of the body. That the functional tests of the static labyrinth may be of service in determining the location of a lesion in this structure, the following case, reported by Lang, illustrates:

CASE II. C. V., aged fifty years, coachman, was examined January 17, 1913. For the past six weeks, with no apparent cause, severe vertigo. Ears normal. Spontaneous nystagmus toward the left. Caloric reaction right, positive but weak, left, prompt. Rotation test: Ten times to left, nystagmus to right, 21"; ten times to right, nystagmus to left, 29". Galvanic reaction (cathode upon tragus) with 16 am. nystagmus toward cathode, on both sides. Pointing tests (Bárány) normal. Body reaction movements: With a caloric nystagmus aroused from the right ear, the patient falls backward, with every position of the head. With a caloric nystagmus aroused from the left ear, the direction of the fall bears a normal relation to the direction of the nystagmus, and changes with the position of the head. The diagnosis, according to Lang, is a hemorrhage confined to the right half of the cerebellar worm.

Even more interesting than the reaction movements of the body are those of the extremities. For the careful study of these movements, and the elaboration of ingenious methods of testing for them, we are indebted to Bárány. Since his recent investigations of the relationship between reaction movements and the cerebellar cortex, the former have proved to be of considerable service in the diagnosis of cerebellar lesions.

Like the reaction movements of the body, so the reaction movements of the extremities occur in the plane of the semicircular canal in which the vestibular impulse arises, and in a direction opposite to that of the nystagmus, or, as we say, in the direction of the slow component of the nystagmus. In the presence, then, of a horizontal nystagmus of vestibular origin, either spontaneous or artificial, directed to the right, both arms will deviate in the horizontal plane to the left. It must be remembered that reaction movements are the result of vestibular influences on voluntary movements. Hence if the arms hang loosely at the sides, there will be no reaction movements. In order to arouse them, it is necessary that the individual to be examined attempt to point, with his eyes closed, at some object. Since the reaction movements are more or less under the control of the will, the greatest care must be exercised in testing for them, lest the patient learn that he is pointing by, i. e., pointing erroneously.

As we have stated, the reaction movements are not pure reflexes. They are voluntary movements which are modified in the cerebellar cortex by any powerful or otherwise abnormal centripetal impulses from the semicircular canals. Without doubt, these reaction movements are merely exaggerations of processes which occur normally in subconscious or automatic equilibration. It is clear that they may be influenced, to a considerable extent, by the will, and consequently are most marked in individuals who have no highly developed muscular and kinesthetic sense to warn them of the occurrence of these abnormal movements. For this reason, they are much more marked in children than in adults.

That the cerebellar cortex is largely responsible

for the development of the reaction movements, there can no longer be any doubt. Not only have Bárány and others shown that a cerebellar abscess causes a characteristic loss of the reaction movements on the affected side, but Bárány has supported his theory by twenty-eight separate observations after experimentally abolishing cerebellar function temporarily, through freezing parts of the cortex by means of an ethyl chloride spray. On repeated examinations, by freezing small areas of the right cerebellar cortex, he arrived at the following conclusions: 1. During the freezing there is no nystagmus. 2. The left arm and leg are not influenced in their reaction movements. 3. Immediately behind the ear is the centre for movement to the left, of the right arm. When this area is frozen, there occurs spontaneous pointing by of the right arm to the right, and when a horizontal nystagmus to the right is artificially aroused, there is no reaction movement to the left. 4. Immediately behind the arm centre is the centre for the movement to the left of the right foot. As the result of pathological findings, Bárány believes that the centres for movements to the left of the right elbow and wrist joints lie in front of the shoulder (arm) centre. The pointing tests of Bárány are so well described not only in his original communication but also in the English translations, that no detailed description need be given here.

To arouse reaction movements artificially, a labyrinthine stimulus is required, which is considerably stronger than one capable of arousing nystagmus. In the presence of an artificially aroused horizontal nystagmus, then, the individual to be examined, with eyes open, touches with his index finger an object held before him. He then attempts to repeat this with his eyes closed. In making this attempt, the arm is held rigid, and the hand is first lowered slowly to the knee, and then raised again to the level of the object to be touched, which meanwhile has not been moved. Thus it is seen that the test is made in the vertical plane and the deviation occurs in the horizontal plane. These examinations are not confined to the shoulder joint. Elbow, wrist, hip, knee, and ankle may be tested in the same way. The results of testing the arms, however, are the more uniform. The reaction movements are less constant in the legs.

Lesions in the posterior portion of the medulla and pons, in the region between the vestibular centres below, and the corpora quadrigemina above, cause nystagmus and disturbances of equilibrium. A few of the conditions in which such lesions occur are the following:

1. Friedreich's ataxia. Thomas and Lambrior have reported cases of Friedreich's ataxia, with nystagmus, in which there was a negative caloric reaction in one or both ears.

2. Multiple sclerosis. Uhthoff found nystagmus in fifty-eight per cent. of cases of multiple sclerosis. The nystagmus is of the same type as vestibular nystagmus. Rosenfeld found, in examining cases of multiple sclerosis, that the vestibular reactions were exaggerated.

3. Syringomyelia. Where the lesions occur in the medulla or the floor of the fourth ventricle, nystagmus may occur.

4. Nystagmus occurs occasionally in hereditary infantile spastic spinal paralysis, when the lesions reach the medulla.

5. Acute bulbar palsy.

6. Pseudobulbar palsy.

7. When there is destruction of the pathways between the vestibular centres and the higher centres, as in tumors and focal lesions of the pons, a conjugate deviation occurs. There is a suppression of the rapid component of the nystagmus when the vestibular centres on the side of the paralysis are irritated.

8. Affections of the corpora quadrigemina are often accompanied by vertical nystagmus.

9. Meningitis.

We have seen how each reaction to vestibular stimulation may be of service to the neurologist in the diagnosis of intracranial pathological conditions. It remains, then, for the following case to show how a study of the manner in which the reactions combine may be of diagnostic value.

CASE III. At a meeting of the Austrian Otological Association, held October 28, 1912, Bárány presented a patient from the service of Professor Schlesinger. In April, 1912, this patient was operated upon, a broad exposure of the cerebellum having been made. There was a spontaneous horizontal nystagmus toward both sides, weaker, however, to the left. There was also a slight vertical nystagmus, upward. The patient was totally deaf in the right ear. The left ear was normal. There was no spontaneous pointing error, but there was a slight tendency to fall backward and to the right. Irrigation of the right ear with cold or hot water had absolutely no effect upon the spontaneous nystagmus. Irrigation of the left ear with cold and hot water was followed by normal reactions. There was no headache or choked disc. The neurological examination showed further, a paresis of the right facial, trigeminal, glossopharyngeal, and spinal accessory nerves. This condition existed before the operation. Upon these findings, despite the absence of headache and choked disc, a diagnosis of acoustic tumor of the right side was made. The operation, however, revealed no sign of new growth. At the first examination, which Bárány made in October, he was able to substantiate the findings previously detailed. In addition to these, however, he found that although caloric irritation of the right ear with both hot and cold water aroused no nystagmus, it did arouse typical reaction movements of the arms and body and considerable vertigo. Caloric irritation of the left side was followed by normal reactions. From these results Bárány stated that a peripheral lesion of the right vestibular nerve could be positively excluded. The loss of the nystagmus reaction must be due to intramedullary disease, situated either where the nerve reaches the nucleus angularis (Bechterew), or in the nucleus itself, or in the posterior longitudinal fasciculus. That portion of the nerve between the end organs and the branching of the collaterals to the cerebellum (according to Cajal) must be intact. It is remarkable, that, despite the loss of the nystagmus reaction, the patient should experience vertigo. This fact showed that nystagmus, i. e., irritation of the nuclei of the eye muscles, was not essential for the production of vertigo in response to vestibular irritation.

At a subsequent meeting of the Austrian Otological Association, held March 31, 1913, Bárány reported as follows: Differential diagnosis between acoustic tumor and multiple sclerosis, involving the bulb. Two weeks before the meeting, the patient whom he presented some six months before, died of respiratory failure. The autopsy showed not a sign of acoustic tumor. Professor Schlesinger, who was to publish the histological findings, substantiated his diagnosis made *intra vitam*, viz., multiple sclerosis involving the bulb.

There is no doubt that the functional tests of the static labyrinth have earned a well merited place as a part, and, we may say, an important part of a neurological examination. Indeed, for the neurolo-

gist, they are "twice blest." Not only will they help him in many of his problems of localization, but, checked by pathological examinations, we believe they will illuminate much concerning the cerebellar functions that is still in the shadows.

814 LEXINGTON AVENUE.
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A MODIFIED GASTRODUODENAL TUBE.

The determination of rests, the end point of gastric digestion, as well as the shape and boundaries of the stomach, together with a description of the technic employed in its use.

BY MARTIN E. REHFUSS, M. D.,
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In the June number of the *American Journal of the Medical Sciences* I described the modification of the duodenal tube by which it can be universally applied to the study of gastric and duodenal conditions. The modification consists in adapting to the No. 8 or No. 9 French tubing a special heavy, slotted tip so constructed that its perforations represent the maximum bore of the tubing, thereby permitting the aspiration of a representative specimen of gastric contents at any stage during digestion. I pointed out that it was possible to follow the entire course of gastric digestion and construct a curve which would indicate graphically the results of titration. In this paper I propose to discuss the technic as well as call attention to several methods which can be employed by this means, namely, the determination of the end point in gastric digestion and methods of ascertaining the presence of liquid in the stomach as well as a method of insufflation and auscultation for limiting the boundaries of the stomach.

TECHNIC EMPLOYED.

I have passed the duodenal tube as well as this instrument on many individuals, and with very few exceptions, one of which was an individual in the last stages of cardiac decompensation, have succeeded in introducing and maintaining it in the stomach for hours without any degree of discomfort. A number of these were markedly nervous individuals. I believe that the proper technic which has been developed contributes largely to the success obtained. I pass the tube in the following way: The patient sits upright in bed or on a chair. He is instructed to open his mouth and any plates are removed. Then I seize the tip, which has been previously moistened, between the thumb and the forefinger and place it on the tongue. The tip is then balanced between the thumb and the forefinger and the patient told to say "ah." As soon as the patient utters the sound, by means of the forefinger I push the tip into the funnel shaped opening of the pharynx, instruct him to close his mouth, swallow, and concentrate all attention on swallowing. The weight of the tip, aided by the movements of deglutition, results in the swallowing of the instrument. Should there be no objection to the swallowing of water, a few sips aid materially in soothing the first few moments and in stimulat-

ing the downward progress of the tube. I usually allow the tube to enter to the fifty cm. mark, but even at this point it is liable to enter the duodenum. Forty-five to forty-eight cm. is a better length for gastric testing. As soon as the tube is down the patient becomes rapidly accustomed to it and any tendency toward retching can be controlled by deep breathing. In obtaining the complete contents it is well to turn the patient on each side—on stomach or back—and small amounts of liquid are often obtainable by deep breathing. I have found that if the tube is displaced outside of the dental arch so that it lies over the tonsil instead of the uvula there is practically no discomfort and it can be kept in this position for hours or days.

To remove the tube, the best way is simply to pull it out until the tip strikes the root of the tongue, and then to give the patient water. In the act of swallowing, the tube is easily withdrawn.

The ease of swallowing, lack of discomfort, and ability to follow the entire course of digestion are factors which have almost displaced the use of the stomach tube so far as I am concerned. While working with this tube, the following phenomena were observed, which form the basis of several tests.

METHOD OF DETERMINING THE PRESENCE OF LIQUID IN THE STOMACH.

A short time ago a patient appeared in my office with pronounced aerophagia. I noticed that even four or five hours after an ordinary breakfast, there was still a considerable amount of liquid in the stomach, and the quantity of air made it easy to elicit the splash or *clapotage*. The following day, he took an Ewald meal and I passed the modified tube. After aspirating sufficient material for testing purposes, I thought I would inject air slowly. On auscultation I heard a distinct gurgle as of bubbles arising from a spring. It was metallic, gurgling, very liquid in quality, and I became certain that there was still considerable liquid in the stomach, which was verified on aspiration. I then commenced to study cases in the Jefferson Hospital and found that as long as there was material in the stomach, I obtained a distinct gurgling rale, varying with the amount of liquid. Furthermore, when there is only a slight amount of mucus or material, there is a quick succession of sticky, metallic rales, while, when there is a considerable stratum of liquid, the tip through its weight seeking the bottom, the rale is of a different character, rapid, deeper, and more liquid in tone, and once heard is easily recognized. I can best explain it by taking a glass of water, inserting a glass tube one cm. below the surface, and blowing in; a rapid succession of metallic rales is heard of an entirely different quality from those heard when the tube is plunged to the bottom of the glass. The bubbles have a duller sound, less metallic, of a more interrupted type. I was able to confirm this in individuals by giving them different amounts of water. Inasmuch as there is always some air in the stomach, the mechanical conditions are fulfilled, and with a little practice it is easy to determine the relative amount of liquid in the stomach. The rales can be distinguished from those produced in the intestine, as rales are entirely under control of the hand and produced only when air is pumped into the stom-

ach. If this symptom is found at a time when the test meal should be normally evacuated, it is significant of hypersecretion or stasis, and the character of the material aspirated will determine this question.

THE DETERMINATION OF THE END POINT IN GASTRIC DIGESTION.

Grobbel and other observers have noted by means of duodenal fistula that the end of gastric digestion is marked by the appearance of mucus and saliva and possibly the terminal food rests. In our work on normal individuals pursued with Doctor Hawk and Mr. Bergeim, we determined the end point in the following way:

1. No more material could be aspirated. The patient was placed in different positions, on his back, on his stomach, on either side, and nothing but a little mucus and saliva was obtained. This is usually prefaced by

2. The character of the last few preceding samples; they are smaller in quantity and thicker and usually streaked with saliva which approaches the tip as the column of liquid lowers, the saliva floating on top.

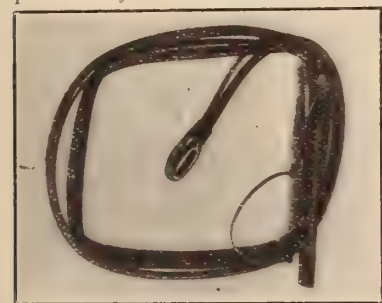


FIG.—Modified stomach tube.

3. On insufflating and auscultating, as mentioned above, the presence of considerable liquid gives rise to the phenomenon described, little material gives a glouglou or sticky rales, while in the empty stomach after one or two thick rales, the air enters, giving rise to a high pitched metallic murmur, announcing the entrance of air into the stomach. This is entirely different in character.

4. Lavage—the introduction of water into the stomach and its reaspiration. If the stomach is empty, there will be only a little mucus; if there is material present, food rests or marked acidity will be found.

A combination of these four signs is sufficient to enable us to determine the end point. Of these the last two are most valuable and often when material was difficult to aspirate, insufflation showed there was still liquid and subsequent aspiration confirmed it, but the reverse was never true.

It is erroneous to believe that the fall of acidity alone will determine this point. In many instances the last material to leave the stomach is strongly acid, as we have been able to demonstrate in certain types of individuals.

DELIMITATION OF THE STOMACH.

By means of this tube I found that it was not only possible to follow the cycle of digestion, but at the end of that period insufflation could be carried out with infinitely less discomfort than with the ordinary stomach tube. I have always felt that insufflation, although it presented the boundaries of the distended stomach, did not accurately record the boundaries of the normal stomach—that is, the stomach in the condition of

normal tonus. On the principle of the Kemp stomach whistle, I found that insufflation of air through this tip produced in the empty stomach a high pitched metallic murmur which was pronounced over the gastric area, but immediately became dulled when another region was encroached upon. Furthermore, the area mapped out increased until it could be accurately superimposed upon the area mapped out by percussion. A further point is that such an area before full distention is frequently tubular in shape in accordance with what we usually see with the x ray, although it may also be globular. I therefore believe the method of minimum insufflation and auscultation to be of value, and mention it because of the ease of its application. By measuring the volume of air expelled by each complete pressure on the bulb, we can gauge approximately the amount of air introduced into the stomach. So much has been said of the dangers attending the use of effervescent mixtures or the insufflation with carbonic acid gas (Nieden, Leo, Behrend, Danlieu), and so many deaths have been reported by its use, that the method of insufflation under control is infinitely preferable, and it seems to me, purely from the matter of comfort, this method is to be preferred to that of the larger tube.

In conclusion, I would point out that with the modified gastroduodenal tube it is possible, following the technic here described, not only to ascertain the whole cycle of gastric digestion, but

1. To locate the presence of liquid rests, hypersecretion, stasis, by a method of insufflation and auscultation described above.

2. It is possible to determine the end point in gastric digestion, by failure to aspirate material when the patient is placed in different positions; by the character of the samples obtained; by the character of the sound produced by insufflation and heard by auscultation; by lavage.

3. A method of outlining the stomach on the principle of the stomach whistles, is possible. The fact that these methods can be performed after the digestion cycle has been tested without any further discomfort, is a potent argument for its use.

1934 CHESTNUT STREET.

Therapeutic Notes.

Treatment of Summer Diarrhea.—H. C. Carpenter, in the *Therapeutic Gazette* for July, 1914, states that success in the treatment of this condition depends upon prompt recognition and the immediate stopping of all food, administration of a dose of castor oil, and the giving of an enema. Not less than two drams (eight c. c.) of castor oil should be ordered—to be given cold—for an infant of six months. If nausea is present, it is safer, however, to give but one dram (four c. c.) at first, and to repeat the dose an hour later. In cases with vomiting, a freshly compounded powder of calomel and soda, in the dose of grain one tenth (0.006 gram) of calomel every half hour until ten doses have been taken, is to be preferred to castor oil. If the vomiting then ceases, one dram (four c. c.) of castor oil may be given; if it continues, all medication by the mouth should be temporarily suspended,

No food should be given for at least twenty-four hours following the oil. If the mother has made the mistake of giving food, a second dose of castor oil must be ordered. Boiled water in generous amounts—six ounces (180 c. c.) every three hours in a four months' baby—should alone be given in the first twenty-four hours, except where there is reason to think the mother may not obey the directions, believing that every time the baby cries it is from hunger, when barley water may be ordered, or where there is vomiting, in which case even water should be withheld. If there is simply nausea, one or two drams (four or eight c. c.) of water may be given at short intervals.

After the lapse of twenty-four hours, a breast fed infant may be given, every four hours, several ounces of water, according to its age, followed immediately by nursing at the breast for two minutes. As the condition improves the duration of each nursing can usually be gradually increased until, by the end of the week, the baby will be permitted to nurse for fifteen minutes every four hours. For bottle fed infants, breast milk from a nursing mother with an excess of milk should, whenever possible, be procured, the milk being obtained with a sterilized glass breast pump just before the mother nurses her own infant. At first a half ounce (fifteen c. c.) of the breast milk is added to a sufficient number of ounces of boiled water in the bottle, and a feeding of this mixture given every three hours. Next day the breast milk may be increased to one ounce (thirty c. c.) at each feeding.

Where breast milk cannot be obtained for the bottle fed infant, milk should be withheld until fever has subsided and the stools are normal, i. e., for three days to a week. After the first twenty-four hours thin barley water may be given freely every three hours. If necessary, benzosulphinide (saccharin) may be added to it in the proportion of one grain (0.006 gram) to one quart (1,000 c. c.). It is well to vary the diet, and other foods which may be given are rice water, beef juice, broths, arrow-root gruel, or a five per cent. solution of a reliable preparation of malt sugar. Where additional nutriment is required, white of egg may be added to the rice or barley water.

After the subsidence of fever, certified milk, pasteurized in addition in the home, or milk boiled for five minutes with frequent stirring, should alone be used for the preparation of milk mixtures. At first skimmed milk and water should be used. Fresh lactic bacillary tablets, kept cold in a refrigerator, may be placed with advantage in the bottle, three at a time, before each feeding.

Where the number of bowel movements is excessive, bismuth subcarbonte in doses of ten grains (0.6 gram), every three hours, may be ordered, with or without bismuth subsalicylate, one to three grains (0.06 to 0.2 gram), as intestinal antiseptic. Opium or morphine should be given only to relieve tenesmus, severe pains, or convulsions (with atropine). Brandy, caffeine sodiobenzoate, and camphor in oil are recommended as stimulants, where required.

An enema of warm soapy water should be given at the first visit, and six hours later, the colon irrigated with normal saline solution. Where much fluid has been lost from the body, saline hypoder-

moclysis, three or four ounces (ninety or 120 c. c.) repeated in six hours, is indicated. Warm tub baths lasting five minutes, night and morning, are very beneficial. The clothing should be light, and the infant kept in the coolest place available.

Use of the Trendelenburg Posture in Post Partum Hemorrhage.—Fieux, in *Presse médicale* for February 14, 1914, is stated to have saved five cases of post partum hemorrhage, in which all measures ordinarily recommended in this condition had failed, merely by placing the patients in the Trendelenburg posture. Not only did all bleeding from the genital tract at once cease when this measure was applied, but no internal hemorrhage took place either. The posture referred to can be easily and quickly secured in any given case by slipping a chair under the mattress upon which the patient is lying. Fieux is unable to give a conclusive explanation of the mode of action of the Trendelenburg position in arresting the hemorrhage, but he is convinced of its clinical utility.

Treatment of Gastric Ulcer.—C. G. Lucas, at a recent meeting of the Kentucky State Medical Association (*Journal A. M. A.*, September 20, 1913), advised the use of magnesium oxide and sodium bicarbonate in doses of from ten to thirty grains (0.6 to two grams) in powder form to relieve the local discomfort in gastric ulcer. These drugs may be repeated three or four times a day, according to indications. As regards the treatment of hemorrhage, in addition to mentioning customary measures such as rest, morphine, epinephrine, bismuth, ice bag, lavage, etc., he points out that pure metallic aluminum, ground into a powder and mixed with glycerin to form a suspension resembling paint, will almost magically arrest the bleeding, unless large vessels are involved. The dose of aluminum to be given is 160 grains (10.6 grams).

Antiseptic Pastes or Ointments.—Blondel, in *Paris médical* for January 10, 1914, is credited with the following combination:

℞ Acidi borici, ...āā 5iiss (10 grams);
Olei eucalypti, ...5iiss (10 grams);
Petrolati, ...5iii (100 grams).
M. et ft. pasta.

This combination can be used for lubricating specula, in preference to mercurial pastes which tarnish instruments. The following paste may be used for other purposes:

℞ Hydrargyri chloridi corrosivi, ...gr. iss (0.1 gram);
Olei eucalypti, ...5iiss (10 grams);
Petrolati, ...5iii (100 grams).
M. et ft. unguentum.

Lucas Championnière used a paste having the following ingredients:

℞ Acidi borici pulveris, ...5v (20 grams);
Petrolati, ...5iii (100 grams);
Glycerini, ...q. s.
M. et ft. unguentum.

Atropine in Hiccough.—Hiccough is often difficult to stop and has caused fatal results after resisting a large number of powerful agents. Recently, at the Vanderbilt Clinic, atropine proved to be efficacious in a case of hiccough from irritation of the phrenic nerve produced by gastric distention. Dose: 0.5 mg. (1/64 grain).

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A NATIONAL ANTINARCOTIC LAW.

On August 16th, the United States Senate passed the amended Harrison bill, under which every person who produces, imports, manufactures, combines, deals in, disposes of, sells, or gives away opium or coca leaves or any combination thereof, or salt or derivative thereof, is required to register annually with the Collector of Internal Revenue, paying a fee of one dollar for registration.

This is the measure which had already been passed by the House of Representatives and which has now been passed in an amended form by the Senate. It is believed that the House of Representatives will agree to the amendments introduced by the Senate and in that case the measure will no doubt be promptly passed and soon become a law. This bill is a modification of the measure originally drawn up by Dr. Hamilton Wright, Commissioner of the United States to the International Opium Congress, though it differs materially from Doctor Wright's bill in many respects. The underlying principle is that through the registration of all who are legally entitled to handle these drugs, it will be possible to prevent illegal interstate traffic. This law will supplement the various local laws and through its operation the authorities of the several States expect to be able materially to curtail, if they cannot wholly do away with illegal traffic. The

measure has been objected to on the ground that it requires the registration of physicians with the internal revenue department, subjecting them to expense and annoyance, but the authorities insist that if this registration of physicians is not carried out, it will be impossible to apprehend some of the most serious offenders against the antinarcotic laws. Physicians also object, and with good reason, to the clause in the law which permits of the sale without registration of domestic and proprietary remedies, containing so called small quantities of opium and its derivatives, quite enough, as we have frequently remarked under similar circumstances, to invalidate the ostensible object of the bill, namely, the prevention of narcotic habituation.

NORMAL SERUM IN PRURITIC CUTANEOUS DISORDERS.

Normal serum has given excellent results in skin diseases in the hands of certain observers and has proved inefficient in those of others in corresponding cutaneous disorders. Believing that these contradictory effects were due to the rather complicated methods employed, which include centrifugation, heating, etc., and expose the serum to infection, Charles Fouquet (*Journal de médecine interne*, 16, 1914) tried normal serum, i. e., serum obtained aseptically from a vein. The coagulum having been allowed to form, the serum was drawn into a sterilized syringe and injected subcutaneously into the gluteal region. At first Fouquet administered but one c. c., but found that five c. c. every other day gave the best results in adults. The only untoward effect was a slight urticaria in two out of sixty cases.

The results obtained were as follows: In two cases of pemphigus no benefit was procured, the cases finally ending in death. In ten cases of eczema, the pruritus disappeared, sometimes after the first injections, even in cases sufficiently severe to provoke insomnia. The eruption remained uninfluenced, however, in all but two cases. In the pruritus of urticaria, normal serum proved extremely efficient, when associated with appropriate dietetic treatment. In some cases, the first injection caused disappearance of both the pruritus and eruption, but the injections had to be continued to insure lasting results. From five to twelve injections are required, according to the severity of the case. Benefit was also obtained in other forms of pruritus, general or local. In vulvar pruritus, for example, a few injections sufficed to master completely this distressing disorder. On the whole, it was in disorders attended with pruritus that normal auto-serum proved of distinct advantage.

That we are dealing with a reaction in which the formation of specific antibodies enhances the hydrolysis of pathogenic wastes or toxins is probable; but be this as it may, the fact remains that the use of normal serum has shown in Fouquet's hands considerable value for the relief of a symptom, pruritus, which often resists all other remedial measures.

SURGERY IN MODERN WARFARE.

Dr. Antoine de Page, of Brussels, publishes his recent address before the fourth congress of the International Society of Surgery in the *Annals of Surgery* for August, 1914. We pass over with a sigh Professor de Page's proud statement that it is the privilege of little Belgium to offer a meeting place for the learned of all countries, as she is covered by Europe herself with the shield of peace and liberty, to note his conclusions drawn from the Russo-Japanese and Balkan wars.

The fate of the wounded today depends above all on the aid given on the line of battle, for as long as the engagement lasts the ground is inaccessible to the ambulance men; hours pass during which the wounded are helpless. It is therefore necessary to instruct every soldier in the principles of first aid and to furnish him with a properly fitted surgical packet. He must realize fully the danger of infection from earth, dust, and water. Of what use is a sterilized compress, if it becomes soaked in polluted water? If he is wounded in the abdomen, the soldier should know that it is best to remain absolutely motionless, even for hours. No operating should be done in the temporary hospital stations at the front; they should serve simply as places where the sick and wounded are sorted out. Violation of this rule in the Balkan war produced deep suppuration in wounds. Operations must be reserved for the hospitals of the second line, which remain fixed and unchanged and should be manned by experienced surgeons.

Civil consulting surgeons should be attached on regular duty; the presence of these surgeons at the hospitals would give them a neutral character, which they have not at present. The capability of these consultants would assure the utmost caution being used at the critical moment, when the fate of the wounded is in the balance; in short, these tried men would oppose the performance of all operations of which they did not clearly see the urgency. We all know that a man surprised by traumatism opposes less resistance to a general shock than another who has had the time to prepare and arm his organism. The wounded leave the battlefield discouraged, worn out, and join in general the number of "bad cases"; therefore there is still more

reason to be careful. Respect for human life should be the only guide. The finest operation is not always the most well directed, and neither the battlefield nor the surgical clinic allows of experiments on human beings.

Professor de Page denounces the use of shrapnel and thinks it should be abolished by international agreement. His comments on modern bullet wounds are much like those expressed editorially in the *JOURNAL* for August 15th, page 330. In conclusion, the distinguished Belgian surgeon expresses the hope voiced by H. G. Wells in his recent story, *The World Set Free*, that some day the United States of Europe may exchange friendly greetings with the United States of America.

THE SICK INDIAN.

Dr. Emil Krulish has given information regarding our Alaskan Indians, with reference to disease and sanitary problems, that is almost entirely in consonance with reports of recent years. He finds tuberculosis to be the disease most prevalent, 7.9 per cent. of the Indians examined being affected; in one village, indeed, 13.9 per cent. Most of the forms, not only pulmonary, but also of bone, gland, and joint, are in evidence. There is consequently much infectious abscess formation, much deformity, and much crippling; and there are not a few cases of Pott's disease, with complete paralysis of the lower extremities from pressure on the cord in the region of the necrosis.

The reasons for such ravages are that tuberculosis is a comparatively new infection among Indians, bestowed upon them by the benevolent paleface along with firewater and certain other blessings of civilization. Among these blessings must probably also be accounted scarlet fever, measles, influenza, whooping cough, and diphtheria. Not yet possessing the racial immunity which it takes many generations to acquire, the poor Indian suffers from them in greater degree than does the white and more frequently dies of them. Then there are the overcrowding and the unsanitary conditions prevailing in most of the homes of tuberculosis sufferers; while at least this much good arises from their misfortune, that after the disease is well developed in them its progress (unless they are well cared for) is rapid, and death removes what would otherwise remain a menacing focus of infection.

Some 2.8 per cent. of Krulish's examinations discovered eye diseases (trachoma, pterygium, conjunctivitis are common); there are thirteen per cent. of such sufferers. Twenty per cent. of trachomatous are blinded; the form Krulish has come

upon he believes to be contagious. In segregated families the parents are usually completely or partially blind, the older children show advanced scleral changes, while the younger children evidence recent infection. Well advanced cataracts in natives thirty-five years old were not uncommon. Most such eye affections could be prevented. Throat diseases (adenoids and enlarged tonsils), predisposing to tuberculosis, diphtheria, and other infections, impairing hearing, retarding psychic development, and resulting in buccal deformities, were found in one fifth of Indians under eighteen years of age.

Here, as elsewhere, the diseases visited upon poor Lo by civilization are reacting on the civilizers—a consideration that should be weighty where others would not appeal. Our Alaskan Indians trade in the same stores with the palefaces; work in the same mines and canneries; the races intermingle freely in public places. They are neither so sardonic nor so malevolent as the cinema and the fictionists would have us believe; by hundreds they gather for feasts, dances, and other ceremonies. Thus is the Indian an untoward factor in the communal health.

Krulich explains the health work of the Alaskan Bureau of Education—how that bureau is struggling, with resources altogether inadequate, to prevent the excessive mortality among this unfortunate people, which is now, from tuberculosis alone, from forty-one to forty-seven per mille.

In this relation one may consider also the conviction of Dr. J. N. Alley, superintendent of the United States Sanatorium for Indians at Fort Lapwai, Idaho—that ninety per cent. of all the deaths among the Nez Percés are due directly or indirectly to tuberculosis; their death rate from this disease is forty per mille, or two and one half times that of the United States as a whole.

THE HONOR SYSTEM IN PRISONS.

While ill in the hospital of Sing Sing prison, an Italian had his face badly slashed by a fellow countryman. Subsequently the injured man was transferred to Auburn where he became the prison barber, and not long afterward his assailant was also sent to Auburn, and in the ordinary course of events passed under the tonsorial care of his former victim. The expected did not happen; the barber had become a member of a mutual welfare league among the prisoners, numbering 1,400 men, all pledged to an honor system whereby they helped the authorities in various ways, promised not to attempt escape, etc. At a meeting of this league, the barber jumped up and, pointing to his scarred visage, cried

out: "The man who did this is here; I waited years to get him and now he's here—but he can go. I won't touch him; it wouldn't be fair to the 1,400 other men."

This story is told in the *Joliet Prison Post* for August 1, 1914. The paper contains a number of letters from prisoners, giving their opinion of what honor men should do, when prisoners similarly pledged break the parole and attempt to escape; there does not seem to be a dissenting voice to the conclusion that the men are obliged to prevent escape, if possible, and to recapture the fugitives if they have made their "getaway." We have frequently voiced our opinion that there is no criminal "class," distinguished, as Lombroso insisted, by various physical stigmata and a sort of moral insanity, and furthermore that the absence of the big thieves—thieves of railroads, for example—from those examined, invalidates the generalizations of the students of crime, made after examination of prison inmates. The modern treatment of the captured criminal, as if he was a human being, confirms our opinion more and more, the longer it is carried out.

FINGER PRINT IDENTIFICATION OF THE DEAD.

One of the horrors of war may be to some extent done away with by the discovery of Dr. Allie W. Williams, of the United States Army (*Military Surgeon*, July, 1914), that the bodies of two soldiers, otherwise unrecognizable, were identifiable by means of the finger prints. As Doctor Williams remarks, this method of identification, so valuable in the detection of deserters who reenlist in the service, could well be extended to a marked degree of usefulness in the establishment of identity of the unknown dead on the field of battle. Finger prints being required of both officers and men would likewise tend to the effacement of the stigma attaching to the system in the minds of the men, as being a part of the Bertillon system used for the detection of criminals.

The hands were obtained by excising at the wrist joint, and the specimens were prepared by soaking over night in two per cent. formaldehyde solution. On the following morning, examination of the finger tips with a magnifying glass, although the epidermis had been completely shed during the prolonged exposure of the body to the elements, showed that the lines were still visible on the true skin. The next consideration—a very puzzling one—was how to make an impression of those delicate lines necessary for mailing to the adjutant general's office at Washington. The skin was in such an advanced state of decomposition that it was not considered advisable to inject the skin and round out the shrunken finger tips and thus secure rolled impressions with printer's ink on paper. So at the suggestion of Acting Dental Surgeon Rice, a thin sheet of gutta percha, such as is used by dentists for impression work,

was obtained from his office. By warming this material with the aid of a spirit lamp, perfect moulds of the ends of the fingers were made by pressing the gutta percha tissue well down into the depressions caused by the shrinking of the skin. The magnifying glass showed that the gutta percha moulds exhibited quite satisfactorily imprints of the remaining and partially obliterated lines. These gutta percha moulds were forwarded, February 13, 1914, to the adjutant general of the army; on February 17th, the identity of the man was established.

KAOLIN IN AMEBIC DYSENTERY.

In the *Indian Medical Record* for June, 1914, Rajendra Kumer Sen writes of the use of sterilized kaolin in conjunction with emetine hydrochloride in the treatment of amebic dysentery. To prevent the kaolin from caking when stirred up with water, it is strewn upon double the quantity of water and left to sink to the bottom of its own accord. It is then thoroughly stirred up. The writer has treated both amebic and bacillary dysentery with castor oil and other drugs for the first few days and then with kaolin, and has seen surprising results. In all cases he found no other drugs equal or superior. Three and one third ounces of kaolin in ten ounces of boiling water were stirred up and allowed to cool before use. The whole quantity was then given in five or six doses at short intervals, as too much at a time might cause vomiting. Administration of an insufficient quantity of the drug will lead to unsuccessful results. So far, large doses have not caused any dangerous symptoms. In rare cases, on the third or fourth day after giving kaolin, patients complained of painful gums which gradually disappeared with or without an alum mouth wash. It was also found in some of the obstinate dysentery cases lingering for months, that the vomiting tendency with which they are complicated, rapidly disappeared after the administration of kaolin. In all cases treated with it, the stools are formed with surprising rapidity and the blood disappears. Kaolin acts as a sedative on the intestine and prevents the harmful bacteria from further development.

CIVILIAN PRACTITIONERS IN WAR TIME.

In a stirring editorial review of the war situation as affecting physicians, the *British Medical Journal* for August 8th points out that it is the duty of those practitioners who are not called to the front to safeguard the interests of their colleagues who have left their practice in order to serve in either army or navy. About half the doctors in active practice in Southampton are liable for active duty. The views of the members of the profession are shown by the adoption of the following resolutions at a meeting held in that city on August 4th: "That this meeting of the medical profession loyally undertakes to safeguard the interests of those of their colleagues who are called to leave their practices in the service of their country, and also undertakes any medical duties for the sole benefit of the absentees." The spirit expressed in these resolutions has mani-

fested itself throughout the medical profession of Great Britain. We have no doubt that in Germany and in the other countries engaged in the war the civilian practitioners have taken an equally high stand, for such altruism is characteristic of the practitioners of medicine in whatever country they may be found.

THE WEIGHT OF BULLETS.

In our editorial remarks on wounds in modern warfare in our issue for August 15th, by a singular slip we gave the weight of the bullet used generally by the European powers as from 150 to 220 grams; most of our readers probably noticed the error and correctly surmised that grains were meant, not grams. An elephant might be incommoded by the bandolier required to carry cartridges with bullets weighing from five to seven and one third ounces.

News Items.

Changes of Address.—Dr. O. W. Steinlein, to 1293 Putnam Avenue, Brooklyn, N. Y.

Dr. Harry Unger, to 71 Cornelia Street, Brooklyn, N. Y.

Dr. J. J. Durrett, of Northport, Ala., to Pensacola, Fla.

Red Cross Field Equipment Furnished by Army Medical Corps.—Ten sets of field equipment have been furnished to the Red Cross Society by the Medical Corps of the United States Army for the exhibition that is to be sent to Europe. The sets consist of medical and surgical field cases such as are used in the United States Army.

Patent Medicines as Alcoholic Beverages.—The United States Commissioner of Internal Revenue has issued a circular containing an additional list of alcoholic medicinal preparations which have been examined and held to be insufficiently medicated to render them unfit for use as a beverage. These preparations will hereafter be sold only by persons holding a liquor dealers' license.

A New Nonsectarian Hospital in Philadelphia.—The erection of a new nonsectarian hospital for Southwest and West Philadelphia and Darby is under consideration. At a meeting held on Friday evening, August 14th, to discuss plans of organization, the enrollment showed two hundred subscribers, among the number being seventeen physicians. Another meeting will be held in September to complete the organization. The necessity of such an institution is shown by the fact that there are no hospitals, except those of a private nature, between the University of Pennsylvania and Chester.

Philadelphia Health Department Begins Crusade against Rats.—As a precaution against the introduction of bubonic plague in Philadelphia, the health authorities have started a war of extermination of rats, which is under the personal charge of Director Harte. It is expected that the city will pay a bounty for each dead rat delivered at specified central stations. The object of such bounty is to furnish the health bureau with quantities of the rodents from every quarter of the city for bacteriological examination to determine without any loss of time if the bubonic plague infection has actually got into that port.

War on Sickness.—War has been declared on industrial sickness by the American Association for Labor Legislation. Following the successful campaign for accident compensation which now has captured the principal States, a committee of the nation's experts who have been working quietly on plans for a year and a half, declare that sickness insurance must be made compulsory, with emphasis on medical care, in order that it shall lead to a campaign of health conservation. The committee includes Dr. I. M. Rubinow, of New York. The association announces that it is now drafting bills for a vigorous legislative campaign to initiate the movement for sickness insurance in the United States.

Municipal Aid Promised for a County Tuberculosis Hospital.—Municipal aid for a county tuberculosis hospital, to be established near Atlantic City, N. J., has been promised by the director of public safety, in conference with the city health officer and a committee of the county board of freeholders. It is expected that joint action of city and county will receive the approval of the State Board of Health.

Plague in the United States.—According to reports of the United States Public Health Service from June 24th to August 8th, fourteen cases of plague in man and thirty-two cases in rodents were reported in New Orleans. Since that time one human case has been reported. In Seattle, Wash., plague rats have been found at intervals since September 30, 1913, the last one reported being discovered on August 7, 1914. In California the last case of human plague was reported in Contra Costa county on May 17, 1914. On July 1, 1914, a plague infected squirrel was found in this county and on July 3d a plague infected squirrel was found in San Benito county.

The Use of Graduated Nursing Bottles Prohibited.—The superintendent of weights and measures of the State of New York issued through the press some weeks ago a notice to the effect that the law requiring all measures to be accurate, applied to the graduated nursing bottles for infants. An examination of these bottles showed that they were grossly inaccurate and therefore that their sale was illegal. Since that time it has been pointed out to the superintendent that all the nursing bottles on the market are graduated and it is understood that in view of this fact the order will not be enforced for the present, since no bottles are made at this time of the year and it will be impossible to obtain a supply of plain bottles until the factories begin operations in the fall.

High Death Rate in New York Last Week Due to Hot Weather.—In contrast with the two previous weeks, not only was the general death rate of last week higher, but the deaths from gastrointestinal diseases of infants were also higher. The latter are traceable to the hot weather that prevailed during the past week and again demonstrate that hot weather is the greatest enemy of infants. Undoubtedly when the public is sufficiently educated in the proper care of infants during the summer months, the infant death rate will be reduced still further, for most of the deaths are distinctly preventable. Despite the increased number of deaths last week, the death rate for the first thirty-three weeks of 1914 still remains lower than that for the corresponding period of 1913.

National Medical Association.—This association, whose membership is composed of physicians, surgeons, dentists, and pharmacists, will hold its sixteenth annual meeting in Raleigh, N. C., on Tuesday, Wednesday, and Thursday, August 25th, 26th, and 27th. The officers of the association are: A. M. Brown, M.D., of Birmingham, Ala., president; J. M. G. Ramsey, D.D.S., of Richmond, Va., vice-president; E. J. Labranche, Ph.G., of New Orleans, La., second vice-president; J. R. Levy, M.D., of Florence, S. C., treasurer; W. G. Alexander, M.D., of Orange, N. J., general secretary; G. R. Ferguson, M.D., of Charlottesville, Va., assistant secretary; A. T. Landers, D.D.S., of Tuskegee, Ala., dental secretary; H. B. Marble, Phar.D., of Yazoo City, Miss., pharmaceutical secretary.

Tetanus Antitoxin and the Fourth of July.—Conforming to annual custom, hospitals, supply stations, and department of health branch offices were provided with tetanus antitoxin to be employed as a preventive measure in cases of gunshot and firework injuries. During the period extending from June 28th to July 15th, 124 prophylactic injections of tetanus antitoxin were administered by department of health medical inspectors, hospitals, and private practitioners. The distribution of these cases in the various boroughs was as follows: Manhattan, 52; Brooklyn, 47; the Bronx, 25; Queens, 0; Richmond, 0; total, 124.

How many prophylactic injections made with antitoxin secured from sources other than the department of health were administered, it is manifestly impossible to ascertain. Parenthetically, it may be of interest to note the number of Fourth of July accidents as recorded by the police department of the city: July 4, 1914, males injured, 159; females injured, 43; total, 202. July 4, 1913, males injured, 164; females injured, 36; total, 200.

American Association of Obstetricians and Gynecologists.—The twenty-seventh annual meeting of this association will be held in Buffalo, N. Y., on Tuesday, Wednesday, and Thursday, September 15th, 16th, and 17th, under the presidency of Dr. Charles N. Smith, of Toledo, Ohio. The other officers of the association are: Dr. Hugo O. Pantzer, of Indianapolis, first vice-president; Dr. J. H. Branham, of Baltimore, second vice-president; Dr. E. Gustav Zinke, of Cincinnati, secretary; Dr. Herman E. Hayd, of Buffalo, treasurer.

Landlords and Contagious Diseases.—In many instances landlords apply to the city department of health for an order for the removal to the hospital of tenants ill with contagious diseases. The department cannot use its powers for the purpose of adjusting disputes between landlord and tenant. The only justifiable motive for its official acts is the protection or promotion of the public health. It is the policy of the department to remove to hospitals persons whose detention at their homes would expose or tend to expose persons therein, or the general public, to the danger of infection, and the forcible removal of a patient by the department on any other ground is unwarranted.

American Electrotherapeutic Association.—The twenty-fourth annual meeting of this association will be held in Battle Creek, Mich., on Tuesday, Wednesday, and Thursday, September 15th, 16th, and 17th, with headquarters at the Battle Creek Sanitarium. The program includes forty papers to be read and discussed at the seven scientific sessions which will be held. There will also be a manufacturers' exhibit of electrotherapeutic apparatus. Every facility will be offered for a thorough study of the methods of treatment carried out at the sanitarium, and the management of that institution will do all in its power to add to the enjoyment of those who attend the convention. Dr. James T. Case is chairman of the Committee on Arrangements. The officers of the association are: President, Dr. George F. Pfahler, of Philadelphia; first vice-president, Dr. Albert C. Geyser, of New York; second vice-president, Dr. Frank B. Granger, of Boston; third vice-president, Dr. John W. Torbett, of Marlin, Texas; fourth vice-president, Dr. Frederick C. Tice, of Roanoke, Va.; treasurer, Dr. Emil Meuel, of New York; secretary, Dr. Willard Travell, of New York; registrar, Dr. Frederick M. Law, of New York. The board of trustees is composed of the following: Dr. Francis B. Bishop, of Washington, D. C., and Dr. Frederick de Kraft, of New York, for one year; Dr. Frederick H. Morse, of Boston, and Dr. William D. McFee, of Haverhill, Mass., for two years; Dr. Charles Rea Dickson, of Toronto, and Dr. Edward C. Titus, of New York, for three years.

Personal.—It is reported that Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, has gone to the front in the French army as a surgeon. Doctor Carrel is still a French citizen, and the authorities gladly accepted his services.

Dr. H. T. Summersgill, superintendent of the New Haven Hospital, has been appointed superintendent of the University Hospital in San Francisco, Cal. Plans are being prepared for the erection of new buildings for this institution.

Dr. Clyde R. McKinnis, resident physician of the male department of the Norristown, Pa., Hospital for the Insane, has resigned to become medical director and superintendent of the Marchaise Hospital and Home, Pittsburgh.

Dr. Hugh M. Beebe, of Sydney, Ohio, has accepted a position in the department of surgery of the University of Michigan at Ann Arbor.

Dr. Grant Ferguson, a member of the medical staff of Johns Hopkins Hospital, Baltimore, has gone back to his native land, Scotland, to take part in the European war.

Dr. Hugh M. Burbank, of New York, who recently opened an office in Garwood, N. J., is said to be the first physician to locate in that town.

Dr. Abraham Wolbarst, of New York, has returned from Europe on the steamship *Mauretania*, via Halifax.

Dr. R. E. McKechnie, of Vancouver, British Columbia, was elected president of the Canadian Medical Association, at the forty-seventh annual meeting held recently in St. John, New Brunswick.

Sir Thomas Roddick has resigned as president of the Medical Council of Canada and will be succeeded by Doctor Thornton.

Pith of Progressive Literature.

CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE.

July 11, 1914.

Combined Treatment of Varices of the Legs.—

Hermann Matti reviews the operative treatment of varicose veins of the legs, and reports several cases treated by what he calls the combined method. He resects small portions of the veins and injects carbolic acid into the stretches between the resected portions so as to induce thrombosis. He proceeds slowly and gradually in this way, cutting out the parts of the veins that are extremely dilated and plugging the rest with thrombi. By this method, he avoids an extensive resection of the saphenous vein.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

July 7, 1914.

Functions of the Kidney.—Leschke, by using freshly extirpated kidneys from animals or human beings, was able to show that the different urinary elements, sodium chloride, urea, uric acid and purin bodies, and the phosphates, are eliminated by the uriniferous tubules and not by the glomeruli or collecting tubules. His experiments are based on chemical reactions. That these reactions are not due to the chemical agents used he proved by obtaining the reactions only in organs where large amounts of the substances examined for, were present and, after thoroughly washing the organs, thus removing the sodium chloride and the urea, negative results were obtained. The reactions obtained are specific because they are found only in the uriniferous tubules and not throughout the kidney. The quantity of the demonstrable salts, urea, etc., runs parallel to the concentration of the urine. He was also able to show that foreign substances such as sodium iodide and ferrocyanide were eliminated by the uriniferous tubules and that the glomeruli contributed nothing but the watery element of the urine. In diseased kidneys he was able to show the presence of sodium chloride in the lymph surrounding the diseased areas; in the healthy portions, it was present in the cells.

Decomposition of Casein by Blood Serum.—

Flatau, using the Aberhalden technic, showed that both normal serum and serum of pregnant women caused the decomposition of casein. The latter gave a stronger reaction, and a positive result was obtained after a shorter period of dialysis. If, according to Aberhalden, serum ferments are specific, the serum obtained from men should never cause a decomposition of casein, as this albumin is entirely foreign to them. The fact that the serum of pregnant women gave a stronger reaction with casein is in accordance with former observations which show that this serum causes marked decomposition of fermented bodies.

Intracutaneous and Conjunctival Reactions in Pregnancy.—De Jong prepared antigen from dried, powdered, fetal cattle placenta and made a ten per cent. suspension of it in distilled water. As control he used powdered muscular tissue also obtained from cattle. He injected one tenth c. c. subcutaneously into a series of cows, some pregnant

and some nonpregnant, and into one ox which was used as a control. The results were not of sufficient uniformity to be of any practical value. Later he used the same antigen and injected the conjunctival sacs, using the fetal placental antigen in the right eye and the muscular tissue antigen in the left eye. These results were also of no value. He then used maternal placenta antigen in place of muscular tissue antigen. Somewhat better results were obtained, but they were so varied that they could not be regarded as being of clinical worth.

Technic of Indican Reaction.—Rhein uses antiformin, instead of sodium hypochlorite and a solution of chlorinated lime, as the latter does not keep well. Antiformin contains 7.5 per cent. sodium hydroxide and 5.6 per cent. sodium hypochlorite. By adding antiformin to equal parts of urine and concentrated hydrochloric acid the sodium hydroxide is neutralized and the sodium hypochlorite loses its chlorine, so that the reaction takes place as if liquor chlori were added. The test is begun with one drop of antiformin, and it is then added drop by drop until the most marked reaction is obtained. A few more drops of antiformin are required to give a positive reaction than when a freshly prepared solution of chlorinated lime is used. The danger of superoxidation is less than with chlorinated lime. Antiformin is best kept in brown bottles with rubber or glass stoppers. When the latter are used they should be lightly sealed with paraffin.

Keratoblasts in Regeneration of the Cornea.—

Salzer contends that the keratoblasts, which are the cells seen in the regeneration of the cornea, are derived from the epithelial cells of the latter. In experiments he has shown that the fixed cells of the corneal stroma remain passive in the process of repair, in fact, in the immediate neighborhood of the wound, they die. The endothelium of the cornea takes part in the regeneration of Descemet's membrane, but not of the surface of the cornea. The keratoblasts do not come from the bloodvessels as in clean wounds of the cornea, no bloodvessels have been demonstrated.

Anesthetizing the Uterus.—Kraus employs novocaine and adrenaline as a local anesthetic. As the most painful part of this operation is the dilatation of the cervix, he first used bougies of cacao butter impregnated with novocaine and adrenaline; later he substituted sounds dipped in melted cacao butter containing these drugs. He now uses the following method: Five grams of novocaine and 0.15 grams of adrenaline are added to 100 grams of syrupus simplex and the mixture is boiled until a solution is obtained. Hegar sounds are dipped into this solution, which is allowed to dry on them. The sounds are introduced into the cervix and remain in place until the desired anesthesia is obtained. The asepsis of this procedure is good, as the syrup is boiled and sugar itself has an antiseptic action.

July 14, 1914.

Etiological Factor in Coryza.—Kruse inoculated two series of patients with secretion obtained from the nose in a case of coryza and was able to produce the disease after an incubation period of three days in thirty-three per cent. of one series and forty-two per cent. of the other series. The secretion was diluted one to fifteen with physiolog-

ical salt solution in the first series and one to twenty in the second series, and was dropped into the nose. The exciting cause of coryza belongs to the group of organisms which have been referred to as "unfilterable," "invisible" or "ultramicroscopic" virus.

Magnesium Treatment of Tetanus.—Stromeyer reports five cases treated in this manner. The magnesium, after a previous lumbar puncture, was injected into the subdural space in the form of a fifteen per cent. solution, eight c. c. being the dose. The result as regards the mortality was not very good, four of the five patients dying; two of the cases, however, being complicated with a severe pneumonia when treatment was begun. In two of the cases, prolonged anesthesia was obtained. In one of these two cases developed a bed sore such as is seen in trophoneurotic disturbances. The other died before a bed sore could develop, so that there is a probable relation between the production of anesthesia and the formation of bed sores. The beneficial effects which followed the injections in all cases were that the patient was able to sleep; there was a cessation of cramps, the muscular tone was improved; the reflex irritability was diminished and there was a slowing of the respiration. No harmful effects on the respiration were noticed.

Lipiodin-Ciba.—Schmid uses lipiodin-Ciba in the form of pills of five grains each, given three times daily, best after meals, in all cases that require iodine. This is the trade name for the ethyl ester of a double iodic fatty acid and contains forty-one per cent. iodine. The iodine is not dissociated too quickly as with compounds of iodine and the alkalies and combinations of iodine and albumin. On the other hand, it is not dissociated too slowly as is the case with iodipin and sajodin. Iodine is stored up in the system more quickly than when other preparations are used and elimination takes place over a longer period of time. Further, it has the advantage of having a pleasant, slightly sweet taste, which causes it to be preferred in cases where iodine has to be given over a long period of time. The salty, bitter taste complained of when other preparations of iodine are taken has never been observed. Iodism has never been seen. The therapeutic effects seen in cardiac cases, in which it is most used, are a dropping of the blood pressure and disappearance of headache and vertigo. It has also been used with benefit in the treatment of asthma, articular rheumatism (after the salicylates have failed), headaches having a metasyphilitic basis, psoriasis, and hypertrophied prostate.

Lecutyl in Tuberculosis of the Bladder.—Weiss reports the cure of a case of tuberculosis of the bladder of several years' duration in which he used lecutyl, a combination of copper and lecithin. It was given in pill form, the dose being two pills three times daily. In addition inunctions with lecutyl salve were given, the dose being one to two grams once daily, followed by rubbing with spirits of camphor. At the conclusion of the treatment one intravenous injection of lecutyl of 0.5 c. c. was given. After two months the patient reported for observation. He had gained two and a half kilograms in weight and felt and looked well. The urine was clear, no blood, albumin nor tubercle bacilli being present.

Adalin in Mountainous and Tropical Countries.—Masarey used adalin in Egypt to overcome the sleeplessness which is experienced by Europeans who travel in that country. He found that after taking five grains nightly for several nights, he was no longer troubled with insomnia. He also used it while traveling in Spain, where he had occasion to climb the Sierra Nevada mountain range, an altitude of over 3,000 metres. Here he found it of distinct benefit to counteract the sleeplessness and disturbance of heart action and respiration which are experienced when the change from the valleys to these altitudes takes place rather quickly. It can possibly also be used with advantage in cases of mountain sickness.

Gonorrheal Granulations.—Stuempke observed gonorrheal granulations in women which appeared in the region of the anus about twice as often as in the perineum. The cases showed gonorrhea of the urethra and cervix, several in addition having gonorrhea of the rectum. Superficial ulcerations were present and the gonococcus could be demonstrated in the secretion, but could not be obtained culturally in the three cases in which cultures were made. The granulations appeared first, and later ulceration set in. He has never observed ulceration alone, but granulations without ulceration have been seen. The granulations in the region of the rectum can be differentiated from hemorrhoids by the fact that they have a broad pedicle and they do not bleed readily; from syphilides, by the fact that the latter present a fungoid appearance and have a rough surface, while the gonorrheal granulations are smooth.

July 21, 1914.

Treatment of Surgical Tuberculosis with Enzytol.—Baisch injected enzytol, boric acid cholin, in cases of surgical tuberculosis. Enzytol is a ten per cent. solution, and one c. c. is diluted with physiological salt solution up to twenty c. c., and then injected intravenously. This is the initial dose, which is increased up to four c. c. of enzytol diluted in the same proportion. As a result of his work, he concludes that this preparation by virtue of its chemical imitation of the x rays, and possibly also of its direct action on the tubercle bacillus, is of benefit in the treatment of surgical tuberculosis. When it is used in connection with the Röntgen rays the skin becomes more sensitive as a result of the injections, and this fact must be borne in mind when both methods of treatment are employed simultaneously. The injections are of the greatest help in those cases in which the action of the x rays is limited.

Prolonged Anesthesia.—Hotz maintains that in order to combat shock, it is a good plan to employ a local anesthetic in addition to the general anesthetic. He used orthoform, novocaine, and anesthesin. Orthoform produced a long continued anesthesia, but caused changes in the coloring matter of the blood, and the wound healed with the picture of a fat necrosis. The action of novocaine was not strongly anesthetic and also showed necrosis of the tissue. Anesthesin was used with very good results. Its advantages are that the postoperative pain is markedly reduced; the patient is better able to move about and breathes more easily. Less morphine has to be given, and this is of

distinct benefit to the action of the lungs and intestines. Anesthesin is applied in powdered form, a thin coating of powder covering the visceral peritoneum, the parietal peritoneum, and the fascia. It cannot be sterilized by boiling as the melting point is low. When crystallized out of alcohol and benzine, the manner in which it has been employed, it is practically free from germs. No infection has been seen in a series of thirty cases.

Thigan in the Therapy of Gonorrhea.—Stuempke treated a large number of cases with this preparation, a chemical combination of silver and thigenol. It is used in the same way as protargol and other silver salts, one c. c. of the preparation corresponding to one mg. of silver. It has the advantage of producing very little irritation, possesses antiphlogistic properties, and can be used in those cases which are accompanied by severe pain—acute anterior gonorrhea, and cases complicated with epididymitis, prostatitis, cystitis, and inflammation of the seminal vesicles. Its germicidal power is sufficient to cause a disappearance of the gonococci on an average in from eight days to three weeks. The injections are given five times daily, are allowed to remain in the urethra for ten minutes, and the patient is put on the customary diet for gonorrhea. It can also be used in chronic cases, but the dilution should be greater. It has not been used in gonorrhea of women to a great extent as yet, but the results in the gonorrhea of men have been very satisfactory.

Nonoperative Treatment of Prolapse of the Uterus and Vagina.—Schindler uses a rubber ball in the treatment of this condition. The ball is introduced into the posterior vaginal vault and remains in place, producing no untoward symptoms such as ulceration, etc. It is used only as a substitute for operation in those persons who refuse to be operated on, in whom, on account of heart, lung, or general condition, an operation is not considered advisable. Furthermore, it is used only in women at or near the climacteric. It seems to be of special value in advanced cases of prolapse. The ball is changed at intervals of six to eight weeks on account of the change which the rubber undergoes, and can be worn for a period of years without discomfort.

Chronic Gastric and Intestinal Dyspepsia and Colitis gravis.—Schuetz points out that chronic gastric and intestinal dyspepsia leads after some time to inflammation of the intestine and cites four cases to support his view. These cases showed symptoms of severe inflammation of the intestine in the form of stools containing blood and pus. The dyspepsia was the primary condition in all the cases, and the inflammation of the intestine appeared after a period of several weeks to several months, and in some cases continued in a mild form after the disappearance of the severe symptoms. The dyspeptic symptoms were made worse when the inflammation of the intestine set in as a complication. Some cases of dyspepsia do not show any symptoms of inflammation of the intestine, even after the condition has existed for years. This can be explained by the fact that in different individuals the susceptibility of the mucous membrane of the intestine to untoward influences is not the same.

The cause of the appearance of these untoward influences is a change in the composition of the stomach and intestinal contents due to mechanical and chemical alterations. The bactericidal power of the small intestine is markedly diminished or absent, and bacteria which do not reach the large intestine in ordinary circumstances appear there. The bacteria probably play the largest part in the production of the colitis.

ZENTRALBLATT FÜR GYNÄKOLOGIE

July, 1914.

Radium Treatment of Uterine Cancer.—Schauta began the radium treatment in February, 1913; the results were not encouraging. In May, 1913, the technic was changed. Three different methods were tried in order to find the most satisfactory. Thirteen cases were treated by exposure to fifty to 100 mg. radium for three to eleven days continuously. This proved to be too severe, none of the patients now being alive. In the second group were eleven cases which were exposed to radium only during the nights, for seven to fifteen times. The third group of eleven cases were treated by intermittent exposure, five to eight nights with smaller doses. Of the last two groups, there were eleven instances in which healing of the lesion occurred.

New Method of Ovariectomy.—Freund maintains the importance of conservative surgery when dealing with ovarian conditions in a woman of child bearing age. He believes that even when dealing with large new growths, remains of normal, ovulating tissue can be found. The most common places for it are the vicinity of the pedicle, but it may be found in almost any portion of the wall in large cysts, even the upper pole.

An Early Sign of Pregnancy.—Labhardt believes that a very early sign is the presence of a congested area about 0.25 to 6.5 cm. broad, some 0.5 to one cm. below the urethral opening and extending to the anterior remains of the hymen. This suburethral livid band is present in the majority of pregnant women, particularly in those who have had children.

A Case of Cæsarean Section Post Mortem.—Zengerde reports a successful instance, the infant thirty days later being alive and well.

PARIS MÉDICAL.

July 18, 1914.

Complement in the Wassermann Reaction.—Desmoulière and Paris lay stress on titration of the complement as an essential procedure in the Wassermann reaction; failure to titrate is chiefly responsible for discrepancies of result. Even normal guineapigs exhibit noteworthy variations in the complement activity of their serums. The authors ascertained that these variations are due to differences of alkalinity, and found it practicable, in order to be able to use for the test, serums with weak complement activity, to add to each test tube 0.1 c. c. of a solution of fifteen grams of sodium bicarbonate to one litre of distilled water. The reaction itself is in no way disturbed by this addition. The tubes should always be centrifugated before the degree of hemolysis attained is noted.

Albert Robin's Syndrome.—P. Remlinger reports a case presenting the typical features of this condition, consisting of hypersthenic dyspepsia, nervous disturbances (headache, insomnia, vertigo, paresthesiæ, periods of weakness, impairment of memory, and anarthria), and the passage of chyliform urine with copious precipitation of phosphates. Such patients exhibit marked hyperchlorhydria, with increased alkaline content of the blood, and diminished urinary acidity. The urine is actually alkaline during the periods of phosphate discharge and, while showing no fat globules, exhibits crystals of calcium dibasic phosphate and calcium oxalate in large quantities. No microfilariae could be discovered in the author's case, and there was no eosinophilia. Marked improvement took place upon administration of alkalis after meals, the digestive symptoms completely disappearing and the urine having remained clear for nearly a year. Three of the patient's children had been similarly affected, two of them dying in consequence at the ages of eighteen and twenty-four months.

PRESSE MÉDICALE.

July 18, 1914.

Intravenous Injection of Neosalvarsan by Ravaut's Method.—P. Le Damany points out that, in administering neosalvarsan in a small bulk of fluid it is not easy to keep the point of the needle in the vein during the injection. To overcome this difficulty he has placed a small rubber tubing between syringe and needle. The tube is of one mm. lumen, and its walls of like thickness; its length is fifteen to twenty-five cm. Before the injection the entire apparatus is emptied of air by holding it vertically and making pressure on the piston. In injecting, the needle is not held in the vein with the hand at all, the skin and other tissues fixing it sufficiently. This procedure has the advantage that the site of injection is in no way covered and the least escape of fluid under the skin therefore is readily seen. The flexible tubing obviates passage of the needle point through the walls of the vein when the patient moves suddenly or the position of the syringe is changed. The amount of solution lost through remaining in the tube is negligible—one fiftieth to one hundredth of the total amount—owing to the small calibre of the tubing. The tube should be changed after every six to twelve sterilizations in the autoclave. The author has not had the least difficulty from escape of solution in the cellular tissues. Injections can be easily given without moving the patient from his bed.

Catalytic Property of Mineral Waters.—Roger Glénard discusses in particular the catalytic activity of the several Vichy springs. This catalytic property depends upon the precipitation as a fine colloid of iron oxide, owing to the liberation of carbon dioxide from the freshly obtained water. The catalytic power rapidly diminishes as the water is left standing, disappearing almost completely by the third day, and being entirely lacking in bottled samples. Boiling the bottled water, however, produces in it a considerable catalytic power, which is persistent. A peroxydasic property of the fresh water can also be shown to exist by adding to it such reagents as guaiac tincture, phenolphthalein,

salicylic aldehyde, or benzidine, together with a few drops of hydrogen dioxide solution. A relation appears to exist between the catalytic and therapeutic properties of the fresh waters, especially as regards the effect on nutritional processes. Michaud and Tixier have reported observations tending to show that the disturbances of nutrition in which certain mineral waters exert a marked beneficial effect are due largely to insufficiency or perverted activity of the diastatic ferments in the body tissues. The effects of mineral waters probably also depend in part upon the presence, as discovered by G. and J. Bordet, of minute amounts of cobalt, chromium, tin, gallium, germanium, glucinum, molybdenum, nickel, palladium, etc., several of which exist in the colloidal state, and which are all in such a state of fine subdivision that no change whatever need take place in them in their direct absorption into the blood and circulation to the tissues.

July 22, 1914.

Radium in Gynecology.—F. Jayle describes five cases, of malignant growths of the uterus or ovaries, in all of which good health has been maintained from three to five and a half years since radical operation and local radium treatment. In two the operations had been incomplete, some malignant tissue remaining. Jayle advocates the use of radium as a supplementary measure in certain malignant gynecological cases. In some cases of cancer of the cervix, especially with marked extension to the vagina, radium may be applied with advantage both before and after the operation. In a case without vaginal extension, in which hysterectomy was performed, radium was successfully used to destroy a large, suppurating, cancerous iliac lymph node. Local induration following the use of radium in strong doses is due, not to recurrence, but to a sclerosing action, and disappears in time.

REVUE DE MÉDECINE.

June, 1914.

Clinical Manometry, with Special Reference to the Cerebrospinal Fluid.—H. Claude, R. Porak, and J. Rouillard assert that an estimation of the pressure of the cerebrospinal fluid should accompany every lumbar puncture, as such a measurement may be of decided diagnostic value. The apparatus used by them consists of a small aneroid manometer graduated in centimetres of water, and connected with a double cock, by means of which the fluid may be caused either to register pressure or to escape to the exterior. With this procedure the normal pressure, with the patient lying on the side, is twelve to fifteen cm. of water, while if the subject is sitting on the side of the bed it is twenty-five to thirty cm. Comparison of the initial pressure with that when a given amount of cerebrospinal fluid, say, five c. c., has been removed, is of decided interest. In cases of acquired hydrocephalus, serous meningitis, acute septic meningitis, pneumococcic cerebrospinal meningitis, and tuberculous meningitis, the pressure was always above normal, even where the fluid escaped only drop by drop, suggesting absence of hypertension. Circumscribed serous meningitis of the cortical regions showed but little hypertension, but where the base or mesencephalon was involved the pressure was high. In brain

tumor the pressure was observed regularly to be high even in the earliest stage, and the authors consider the observation of this hypertension as even more useful for early diagnosis than examination of the ocular fundi. Infectious febrile states with delirium, even where no meningeal symptoms are perceptible, show cerebrospinal hypertension. Most depressive and cachectic states, including established dementia præcox, show a low pressure, which is of unfavorable prognostic significance. Cases of essential epilepsy without mental disturbances yielded normal pressure figures. The authors also present data from similar studies of the venous pressure, that of ascitic fluid, and that of pleural effusions.

Clinical Value of Gastric Cytodiagnosis.—L. Caussade describes in detail the cytology of the gastric fluids. Examination of these fluids for cells permits of detecting the lightest forms of gastritis, and shows that many gastric disorders considered functional are in reality organic. Of twenty cases of gastric cancer, eighteen showed cancer cells. The examination is of even greater negative value. Where there is no fermentation of food residue, few cells, no atypical cells, and but few or no polynuclears, the diagnosis of gastric cancer is unwarranted, and if a tumor is felt, it must be situated elsewhere. Permanent lymphocytosis may lead to a suspicion of gastric tuberculosis. Repeated examinations in local inflammatory conditions serve to indicate when changes in treatment are required and when a complete cure has been effected.

Glycosuria from Intravenous Injection of the Cerebrospinal Fluid of an Acromegalic Subject. L. Lévy and R. Boulud injected into the veins of a dog cerebrospinal fluid from a patient with acromegaly and hypophyseal diabetes, and noted a transient glycosuria as result. This observation seems to them to support the view that products of pituitary secretion are excreted in the cerebrospinal fluid, through the pituitary stalk.

ROUSSKY VRATCH.

May 10, 1914.

Determination of the Viscosity of the Blood.—V. S. Sadikoff and A. A. Lozinsky discovered that the viscosity of blood varies with the dilution and in different species of animals. Thus the blood of rabbits when diluted with an equal volume of normal salt solution shows the same viscosity as the undiluted blood. On the other hand, in man the diluted blood shows a greater viscosity. The degree of dilution also influences the viscosity which, generally, increases with the dilution. The same effect is observed with the blood corpuscles freed from plasma by washing with salt solution. It appears that salt solution is by no means an indifferent agent, as it causes swelling and ultramicroscopic changes in the blood cells. The belief is expressed that the determination of the viscosity of blood will in time become an important test in the differentiation of the blood from different species of animals, as well as of considerable clinical value.

Urotropin in Acute Affections of the Lungs.—P. I. Michailoff obtained very good results from urotropin in the treatment of purulent bronchitis and crupous pneumonia. From his observations

on a number of cases he concludes that urotropin is eliminated by the bronchial mucous membrane and acts as an antiseptic, this action being particularly valuable in inflammations of lungs or bronchial tubes associated with purulent expectoration. In pneumonia, the administration of urotropin often changes the entire aspect of the case from one of gravity to recovery. The drug should receive wide application in the treatment of diseases of the lungs.

LANCET.

August 1, 1914.

Treatment of Gastric Ulcer.—W. Watson Cheyne produces statistics derived from the post mortem room which tend to show that gastric ulcer is vastly more common than generally supposed, and that it must undergo healing in a large proportion of all cases, even without treatment. Reasoning from clinical observation, he expresses the belief that in a considerable proportion of cases, healed ulcers break down again, possibly again to undergo spontaneous healing. He expresses opposition to the general methods of surgical treatment of gastric ulcers on several grounds. The chief factors in preventing healing of ulcers are the continued movements of the stomach, the irritation by the hyperacid gastric juice, and the malnutrition of the patient. These same factors play a considerable role in the production of recurrence of the ulcer, even after surgical treatment. Gastroenterostomy does nothing to prevent the continued action of these causes, except when combined with rectal feeding, which cannot be maintained for any great length of time, and which does not usually suffice to restore the patient's nutrition effectively. As an improvement upon the existing methods of surgical treatment, Cheyne suggests the performance of a gastrostomy and the passage of a tube into the duodenum through the pylorus. This provides an effective means of feeding the patient, permits of adequate drainage of the stomach secretions past the tube, and places the organ at the greatest possible rest. The tube can be worn for six weeks or more, during which the patient is continually gaining in nutrition and strength. In addition to the use of the tube he advocates the frequent oral administration of bismuth and sodium bicarbonate with the object of providing an antiseptic, protective covering to the ulcer and neutralizing the excess of acid present.

Operation in Gastric and Duodenal Ulcer.—A. von Eiselsberg says that the method of operation to be adopted cannot be determined until the abdominal cavity has been opened. He then summarizes the results of an analysis of 434 cases operated in for one or other of these conditions. Symptoms of perforation call for immediate operation with irrigation of the peritoneal cavity, suture of the perforation, and, in severe cases, jejunostomy for feeding. Where severe hemorrhage is present operation is best omitted. Typical, old cases of pyloric stenosis are best treated by gastroenterostomy, especially where there have been no symptoms of ulcer for a long time. Sixty per cent. of such cases are thus completely cured. In the cases of open ulcer this operation gives only forty-one per

cent. of cures. Unilateral exclusion of the pylorus is the most secure method of treating gastric ulcer and its complications, particularly in cases of fresh ulcer, and in duodenal cases. Simple gastroenterostomy is less satisfactory when the ulcer is situated at some distance from the pylorus. The high acidity of the gastric juice detracts materially from the success of gastroenterostomy and exclusion by reason of the tendency to the formation of postoperative peptic ulcers, which constitute a very serious complication. In high acidity and in ulcers at some distance from the pylorus, transverse resection offers the best prospects.

Internal Derangements of the Knee.—Speaking of injury to the internal semilunar cartilage, Robert Jones says that this injury occurs eight times more often than a similar one of the external cartilage, owing, in his opinion, to the fact that it is more firmly fixed, receives greater strain, and is acted upon most unfavorably by the greater rotation of the tibia on the internal condyle. Displacement is usually inward and is almost invariably accompanied by severe pain at the time that the injury is received. Tender points are found over the internal lateral ligament and the anterior horn of the affected cartilage. An operation should never be performed in such an injury at the beginning, as, if properly treated, the majority of such cases can be completely cured. Treatment consists in the proper reduction of the displacement, which may be done without the use of an anesthetic in most cases. When an anesthetic is not necessary the patient can give considerable help by causing voluntary extension of the knee while the surgeon simultaneously aids the extension by direct pressure. If the patient says that the cartilage is not replaced, his word should be taken and the reduction tried again. After reduction, the extremity should be treated by complete rest in the position of full extension for several weeks. Failure to keep it thus for so long a time almost always results in recurrence of the condition. If there is effusion into the joint which does not undergo absorption, this must be aspirated, as its presence interferes with complete recovery and often leads to elongation of the quadriceps with resulting weak knee.

Laryngofissure for Cancer.—E. Schmiegloff emphasizes the great importance of an early diagnosis, as cancer of the larynx is almost always primary of one vocal cord and can be readily removed. If the disease has extended to the other tissues of the larynx, the prognosis is less favorable. In a series of thirty-three thyrotomies for cancer, twenty-eight patients survived the operation, the remaining five dying from pneumonia. Of the twenty-eight surviving, ten had recurrences, and eighteen are still alive and well not less than two years after operation.

Typhoid Perforation.—George E. Armstrong states that over one third of the deaths from typhoid in England, Canada, and the United States are due to perforation. Perforation may occur anywhere in the intestine; it is fortunate for the surgeon and patient that in most cases it takes place in the terminal two feet of the ileum. It is generally true that a typhoid perforation not closed by operation is always fatal. The essential thing in the treatment of perforation is early diagnosis.

Armstrong states that descriptions given in the textbooks are misleading and summarizes the symptoms in the order of their importance as follows: Pain is the first indication, having occurred in seventy-five per cent. of eighty-three cases. Pain is usually sudden in onset. In twenty-five per cent. of the patients who showed this symptom the pain was generalized or in one of the lower quadrants of the abdomen. The next most important symptom is change in the appearance of the patient. Some tenderness was present in eighty-eight per cent., being generalized in fifty per cent.; it was limited to the lower abdomen in twenty per cent. Eighty-five per cent. of the cases had distinct rigidity, which was most commonly generalized or in the lower abdomen. Little or no value can be attached to the absence of liver dulness. "The fall in temperature so often spoken of rarely occurred." The pulse increased in rate in ninety-five per cent. Suggestive or even characteristic symptoms of perforation may occur in typhoid fever without the actual presence of perforation, but in the face of such symptoms, it is far better to operate than to await further developments, for operation is usually harmless. The use of local anesthetics for the operation materially reduces mortality, and they can be employed in almost any case.

CANADIAN MEDICAL ASSOCIATION JOURNAL.

July, 1914.

Nickel Chromium Wire for the Bacteriological Laboratory.—H. M. Lancaster says that bacteriologists requiring large quantities of platinum wire for routine work in the laboratory, or for the use of student classes, will find nickel chromium wire of some assistance. This alloy heats readily and cools quickly, but is not rapidly disintegrated by repeated heating and cooling. It may be obtained from manufacturers of electrical supplies under the trade name of *nichrome*, at a cost very small compared with that of platinum. The prices he gives for No. 22 wire are, for platinum about three dollars a foot; for nichrome about eight and a half cents for ten feet.

Chloroma.—William G. Hepburn reports a case of this rare disease, which is characterized by green or greenish tumors that invade the bone marrow, periosteum, abdominal, thoracic, and other organs and tissues. About one hundred cases have been reported, the majority in children, a few in adults, and a small number in infants. The course is acute, lasting usually from a few weeks to several months, but one case is reported to have lasted a year and a half. Exophthalmos may be present, due to green tumors in the orbit. The white cell count in the blood is very high, even exceeding a million per c. mm. The tumors are due to the invasion of normal tissues outside of the blood stream by the myeloid cells, where they form palpable masses; the nature of their greenish color has not been explained. This patient was a man fifty years old. The clinical and pathological findings are given in detail. Hepburn thinks that it seems to demonstrate that chloroma and acute myelogenous leukemia are the same process, viz., a malignant tumor which in the one case has invaded normal tissues outside of the blood stream, forming greenish

masses, and in the other has confined itself principally to the blood and bone marrow. The case also illustrates the fact that a blood picture which by the ordinary methods is supposed to be lymphatic, may in reality be myelogenous. In this case the so called lymphocytes are demonstrated in the routine sections and by the oxidase reaction to be undifferentiated cells of the myelocytic series.

INDIAN MEDICAL GAZETTE.

July, 1914.

Osseous New Growths at the Elbow Joint Following Injuries to the Joint Not Necessarily Dislocations.—J. A. Shorten gives these points as regards diagnosis: There is a history of a dislocation, or severe sprain, with a gradually increasing stiffness of the joint coming on from two to three weeks after the original injury. There is usually considerable limitation of flexion and extension, while pronation and supination are normal. It is usually possible to feel a bony tumor in front of the humerus at the lower end and it may be possible to move it independently of the bones. A skiagraph will show the position and extent of the shadow as soon as calcification has occurred. Treatment resolves itself into that of the original injury and that of the condition itself. If the case is one of recent dislocation ordinary manipulations should be employed, but in less recent cases, when there is much deformity or the tissues have lost their elasticity, open operation is preferable to violent manipulation. The operation should not be performed until the skiagraph shows the mass to be hard and well defined, after an interval of from four to six months.

BOSTON MEDICAL AND SURGICAL JOURNAL

August 6, 1914.

Infection in Tuberculous Families.—John B. Hawes, 2d, thus summarizes his paper: Three classes of consumptives are the chief sources of family infection, the undiagnosed consumptive, the consumptive treated in his own home, and the returned sanatorium or hospital patient. The last is the most important and one that best repays our efforts. Responsibility of the State does not end when the patient is discharged, nor does responsibility of the municipality end when the patient leaves for a State sanatorium. Cooperation between State and local forces must be constantly striven for. Tuberculosis is primarily a local problem. The State may well direct and advise, but not replace local work. Results in Massachusetts, with the little machinery possessed, based on six hundred discharged patients, show that much can be accomplished in preventing family infection.

Treatment of Chronic Dacryocystitis.—Carolus M. Cobb reports a case of dacryocystitis that he treated at first by the old method of irrigation and probing, with the usual lack of success. Finally he began the systematic injection of tincture of iodine into the lacrymal sac with the final result that the latter became apparently obliterated, although the patient thought that tears passed through the duct. (This mode of treatment is not new, although it has not been used extensively. Its warmest advocate at the present time is Wessely of Würzburg.)

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

August 8, 1914.

Experimental and Clinical Studies of Colon Stasis, by J. R. Eastman.—This paper was abstracted in our issue for July 4th, page 45.

Resection of the First Portion of the Large Intestine and the Resulting Effect on its Function, by W. J. Mayo.—This paper was abstracted in our issue for July 4th, page 45.

The Redundant Sigmoid, by C. A. L. Reed.—This paper was abstracted in our issue for July 4th, page 45.

Syphilis in the American Negro, by H. H. Hazen.—This paper was abstracted in our issue for July 4th, page 52.

Observations on the Pathology of Syphilis, by H. J. Nichols.—This paper was abstracted in our issue for July 4th, page 52.

Studies on the Absorption of Drugs, by R. A. Hatcher and C. Eggleston.—This paper was abstracted in our issue for June 27th, page 1310.

The Local Preparation of Patients for Operation, by A. D. Whiting.—This paper was abstracted in our issue for July 4th, page 46.

Condition of Patients Two Years after Ileosigmoidostomy.—C. L. Bonfield reports six cases and states that the results are encouraging. He does not advise the operation unless it is absolutely necessary; not until the ptosis has been demonstrated to exist and the Röntgen ray and bismuth have shown a marked retardation of fecal current. He believes this operation has a distinct place in surgery.

Statistical Study of Syphilis. Relation to Tabes or General Paralysis.—C. J. White, from a study of 1,694 cases deduces the following: Sixty-nine per cent. of the patients were infected between the twentieth and fortieth year of age. Hereditary syphilis does not tend to show itself cutaneously at birth. Initial lesions were recorded in only fifty-eight per cent. of primary or secondary cases, and of these, nine per cent. were extragenital. The clinical symptoms vary much in individuals. Men are more liable to leucoplakia, cerebral symptoms, mucous plaques, alopecia, iritis, and pain; while women are more prone to early and late skin manifestations, pharyngitis, condylomata, and headache. Of 1,016 recent and old syphilitic cases, only eight patients, (seven men and one woman) had tabes, and only one had become parietic, and of these nine parasyphilitics only three had exhibited any late cutaneous lesions. Tabes attacks men and women in the ratio of six to one. Tabes appears between the thirtieth and fiftieth year. The youngest tabetic was twenty-one. In forty-five per cent. of the tabetics, syphilis was acknowledged or found actively present (Wassermann test not included). Tabes occurred in eleven per cent. within five years from date of primary infection, and in sixty-one per cent., within fifteen years. Of 500 tabetics, only about three per cent. had ever manifested any late cutaneous syphilides. Pain was the most frequent early symptom of tabes, and the legs were the first part to evince the disease. General paralysis occurred in men and women in the ratio of ten to one. Ninety-four per cent. of the parietics were descendants of, or more

recently emigrants from, the British Isles. Paresis arises in seventy per cent. between the thirtieth and fiftieth year, but the youngest paretic was sixteen and the oldest seventy-six. In thirty per cent. of the paretics syphilis was acknowledged or had been treated in the hospital (Wassermann test not included). The lapse of time between the original syphilitic infection and the first paretic symptoms was distributed more or less equally numerically from one to thirty years. Of 178 paretics only one per cent. and a fraction had ever suffered from late cutaneous syphilis. Numerically speaking, the brain was the first part of the paretic to give way, and the cord came next.

Pituitary Extract.—G. B. Roth observes: 1. Attention is directed to the wide variation which exists in the activity of commercial pituitary extracts. 2. The use of beta iminazolyethylamine hydrochloride in one to 20,000,000 dilution is suggested as a standard for use on the isolated uterus of the unimpregnated guineapig. 3. The blood pressure method shows a wider range of variation than the isolated uterus method for the comparison of pituitary extracts, and is not applicable to all preparations.

MEDICAL RECORD.

August 8, 1914.

Metchnikoff's Principle—Intestinal Antisepsis and *Bacillus bulgaricus*.—Bond Stow says that the problem in question requires an organic force equal to and even more powerful than the evil organic one so strongly intrenched in the intestinal tract of every human being. The first great struggle ends in victory for *Bacillus bulgaricus*; it must be kept on the field forever at guard, for the germs of putrefaction are ubiquitous, and swallowed with every mouthful of food and drink. The bacillus gradually becomes attenuated, and dies out if not reinforced. An entire reimplantation, or else a continuation of the implantation already secured, is necessary. Today intestinal antisepsis is accomplished with much assurance of success by cultures of this bacillus. As to the character of the cultures, the practitioner must exercise much discretion in the choice of the product he employs. Persistent daily use of proper cultures, taken before meals and at bedtime, when combined with well directed dietetic measures, will accomplish more to overcome autointoxication, with its direful end results, than any other line of treatment heretofore attempted. The brilliant results of ileocolostomy for cases of intestinal stasis accompanied by a high degree of toxemia, as performed by Lane, clearly demonstrate Metchnikoff's theory of intestinal autointoxication; but it must be borne in mind that this is a very severe surgical procedure and, excepting in cases of serious organic obstructive lesions, should not be advised until a most thorough and exhaustive trial of *Bacillus bulgaricus* has been made. Free iliac drainage is necessary for successful permanent implantation of the bacillus. One must bear in mind that he is dealing with a viable microorganism which drug medication may destroy or attenuate. Epsom salt with lemon juice or some mild aperient water, as the Carlsbad Sprudel salts, taken with hot water, naturally suggest

themselves, and as early as possible even these simpler aperients should be abandoned in favor of dietetic measures which induce normal peristalsis. Babies are sacrificed in large numbers to the attacks of these hostile putrefactive microorganisms, especially during the heated term of the year, and if physicians and mothers will work together harmoniously in the employment of young, fresh, viable cultures of *Bacillus bulgaricus*, the large majority of these fatalities will be checked. There is no class of cases where more brilliant successes have been accomplished than in severe summer diarrheas of infants.

Medical Aspect of Athletics.—R. E. Coughlin concludes: 1. Physical training is a very important factor in our American school system of education. 2. An athletic heart is distinctly disadvantageous for normal human activities. 3. An athletic heart may be better fitted to carry a person through an athletic contest than a normal heart would be. 4. Athletes appear to be as susceptible to infectious diseases as other persons in the ordinary walks of life. 5. Deaths of athletes are caused by the following diseases, in the order of their frequency: Cardiac disease; tuberculosis; typhoid fever; pneumonia; Bright's disease. 6. Fatalities occur most frequently in the games of football, baseball, and boxing, in the order of the greatest number of deaths a year. 7. Athletics increase moral tone and discipline. 8. If possible, competitive features in athletics, as practised in our public schools, should be avoided. 9. All means should be used to diagnosticate diseased conditions in schoolboys, and special attention should be paid to the circulatory system, particularly the heart. Tests should also be made for vasomotor tone, and, finally, the nervous system and the condition of the kidneys should not be neglected.

Rhinological Aspect of Some Mental Disturbances.—J. A. Hagemann regards aprosexia, characterized by inability to concentrate the attention upon a definite object, weak memory, nocturnal enuresis, and tardiness in comprehending abstract subjects, as symptomatic of nasal obstruction by adenoids or other impediments to nasal respiration. A transient mental alienation is sometimes encountered during the course of an empyema of a maxillary sinus. Usually the relationship is sufficiently evident, so that the establishment of a diagnosis is not difficult. On the other hand, a frequently unrecognized cause of mental depression, and sometimes suicide, is empyema of the ethmoid cells. The absence of nasal outpouring may mislead one into making a negative diagnosis, although the patient is constantly or intermittently swallowing pus bearing discharges which perhaps unnoted trickle down the posterior pharyngeal wall. The consequent autointoxication from the biochemical products liberated in the intestinal tract, establishes a neurasthenic condition characterized by great despondency.

AMERICAN JOURNAL OF TROPICAL DISEASES AND PREVENTIVE MEDICINE.

June, 1914.

Beriberi.—E. B. Vedder maintains that none of the cases so far reported by various au-

thors disprove the contention that beriberi is caused by a deficiency in diet. He considers it completely proved by the experiments of Fraser and Stanton, Strong and Crowell, that the disease is directly due to a deficiency of vitamins in the diet. It is not sufficient, in attempting to disprove the dietary origin of beriberi, to state that the diet was liberal and varied; a detailed statement of the food consumed by the affected persons for ninety days preceding the development of the disease must be supplied. Vedder refers to the fact that beriberi has been reported several times in jails and other institutions in the United States, and asserts that the following preventive measures—against both beriberi and scurvy—should be followed in these institutions: 1. Where bread is the staple article of diet, it should be made from whole wheat flour. 2. When rice is used in any quantity, it should be of the brown, undermilled type. 3. Beans, peas, or other vegetables known to prevent beriberi should be served at least once a week. Canned beans or peas should not be used. 4. Some fresh vegetable or fruit should be issued at least once a week. 5. Barley should be used in all soups. 6. If cornmeal is the staple article, it should be yellow or water ground meal, made from the whole grain. 7. White potatoes and fresh meat should be served at least once a week, and preferably once daily. 8. The too exclusive use of canned foods must be carefully avoided.

Administration of Emetine to Young and Debilitated Children.—Nathan Barlow injected one seventh grain of emetine once daily for two weeks in a sixteen months' dysenteric and malarial child. Immediate improvement was noticed. In a child aged seven years, with both amebic and hookworm infection, weighing but thirty pounds and with only five per cent. of hemoglobin, one fifth and later one third grain of emetine was given without ill effect, and rapid improvement followed.

Rheumatic Malarial Fever.—Nathan Barlow has observed eight cases which suggest the existence of a rheumatic form of malarial fever. The condition may from the start be a multiple arthritis, or it may first appear as a neuralgia, as herpes zoster, or as a severe lumbar or sacral pain. The joints are involved in rapid succession, and there is the same tendency for the process to jump from one to another that is seen in articular rheumatism. The joint involvement is much less severe than in rheumatic fever. The swelling is entirely serous in character, and leaves no perceptible changes on subsiding. A carditis or pericarditis may simultaneously occur, as in rheumatism. The temperature is rarely as high as in rheumatism. The condition indicates a severe form of malaria, and is very likely to be followed by one of the so called malignant complications. In treatment, rest in bed and attention to the bowels, with a light diet, are indispensable, and quinine should be pushed to the limit of tolerance, combined with moderate doses of bromide. It is best to give the daily amount of quinine in one dose, preferably as an intravenous injection of fifteen to twenty-five grains each of quinine bi-hydrochloride and sodium bromide in a litre of freshly distilled water. A single dose of five to eight grains of acetylsalicylic acid may be given

daily to relieve pain. Large doses of salicylates or alkalies aggravate pain.

ANNALS OF SURGERY.

June, 1914.

Prophylaxis of Cancer.—William J. Mayo says that within the last 100 years four times as much meat is taken as before that time. If flesh foods are not fully broken up, decomposition results and active poisons are thrown into an organ not intended for their reception, an organ which has not had time to adapt itself to new function. The development of malignant disease in the uterus and kidney shows the same relation to chronic irritation. Cancer of the cervix occurs fifteen times as frequently as cancer of the body of the uterus, but in myomatous disease, cancer of the body of the uterus is found five times as frequently as cancer of the cervix, the chronic irritation of the uterine tumors increasing the incidence seventy-five times. Of all cases of epithelial cancer of the kidney which came to operation in the Mayo clinic, not less than fifty per cent. were demonstrably superimposed on extensive renal calculus formation. In conclusion, he calls attention to the fact that preexisting lesions play the most important part of the known factor which surrounds the development of cancer, that such precancerous lesions are produced by some habit of life condition which causes chronic irritation, that where cancer in the human being is frequent, a close study of the habits of civilized man, contrasted with primitive races and lower animals, where similar lesions are conspicuously rare, may be of value, and finally, that prophylaxis of cancer depends first, on a change in those cancer producing habits and, second, on the early removal of all precancerous lesions and sources of chronic irritation.

Gluzinski's Test in the Diagnosis of Gastric Ulcer.—J. Nicolavsen states his working hypothesis: An ulcer situated in the pyloric portion being the cause of retention is, as a rule, accompanied by hyperacidity of the contents; a cancer is attended by a mucous (or atrophic) catarrh which causes a disappearance of the free hydrochloric acid. During the transformation of an ulcer into a cancer, there will yet be found free hydrochloric acid up to a certain stage of the disease. But during the progress of the mucous catarrh, there will occur a secretory insufficiency which may be demonstrated by giving two test meals, one meal following immediately upon the other. Gluzinski examines the gastric contents recovered from the fasting patient, after administering a test breakfast consisting of the white of a boiled egg and 200 c. c. of water which is recovered after three quarters of an hour, and after a test dinner consisting of a beef steak and 250 c. c. of water which is recovered after three and three quarter hours. In ulcer both the breakfast and dinner give distinct reactions of free hydrochloric acid. In beginning cancer, the first meal also will give distinct reaction of free hydrochloric acid, while the second one will show only a slight trace, or free hydrochloric acid will be altogether absent. This method is being utilized by Kocher who has somewhat modified it and enlarged upon its applicability. By determining the

percentage of free hydrochloric acid in the two meals he has found that the free acid is present in larger quantities after the second meal in ulcer, while in cancer this meal (the test dinner) shows the lowest percentage of hydrochloric acid. In thirty cases of ulcer, tested according to this modified Gluzinski method, the diagnosis was modified at operation in twenty-seven cases, in two cases the result was uncertain and in one there was found carcinomatous degeneration of an ulcer, although the test indicated the presence of a simple ulcer.

Chronic Pancreatitis.—J. B. Deaver and D. B. Pfeiffer say that the most important message the surgeon has for the profession as the result of the increase of knowledge of pancreatic disease made possible by the autopsy in vivo, is the necessity of referring intractable dyspeptics to the surgeon. It is not enough that the internist by diets, drugs and trips to Carlsbad, French Lick Springs and the like can lull infected gallbladders and ulcerated duodenums into temporary quiescence. If by recurrences and chronic disturbances it is evident that sterilization of the infected area has not been accomplished, he should realize that he is exposing his patient to most serious injury to the parenchyma of essential organs, which injury can never be repaired.

Proceedings of Societies.

THE AMERICAN THERAPEUTIC SOCIETY.

Fifteenth Annual Meeting, Held in Albany, N. Y., May 29 and 30, 1914.

The President, Dr. HOWARD VAN RENSSELAER, of Albany, in the Chair.

President's Address: Therapeutic Effects of Thermopenetration in Phthisis pulmonalis.—Dr. HOWARD VAN RENSSELAER said that long ago statistics had shown the great rarity of consumption as a complication of mitral disease of the heart, and if they considered for a moment the morbid anatomy which mitral disease produced in the lungs, they were struck with the fact that in this affection there was regularly a marked congestion. By theoretical reasoning, then, it seemed that where there was an abnormal amount of blood in the lungs, tubercle bacilli would be readily destroyed, or at least prevented from multiplying as they did in the anemic condition of run down individuals. Theoretically also, what was needed was something which would directly heat up the lung as a whole, or any particular part of it, without producing a general hyperemia over a large part of the body. It had been impossible to accomplish this until the discovery of the many sided effects of the high frequency current. At the tuberculosis camp of the Albany Hospital, the employment of this current had given the best results of any special method of treatment. The patients had been divided impartially into three classes for treatment; those given the high frequency current, those given tuberculin, and those given no special treatment, who were called controls. The benefits so far obtained from the high frequency current, in com-

parison with the other methods, were: 1. The ability to keep the patients longer in the hospital; 2, the greater increase in weight; 3, in sixty-nine per cent. of the discharged patients, the disease was apparently cured or arrested, against 15.5 per cent. in the best of the other methods.

The Infection of Tuberculosis.—Dr. WILLIAM H. PORTER, of New York, said that while tuberculosis was not contagious in the same sense as smallpox, scarlet fever, measles, etc., it was contagious in that its bacilli could be directly inoculated into the system, and, under favorable conditions, would produce the disease. It was established, so far as bacteriological research had advanced our knowledge, that tuberculosis was not, and could not be transmitted from the mother to the offspring *in utero*, and, consequently, the disease was never inherited. In fact, a faulty nutritive activity was much less frequently inherited than was commonly supposed, but the perfect product, as it left the uterus, rapidly degenerated after it had been entrusted to the too often ignorant mother. The most that could be inherited was a definite chemico-physiological activity, and this likewise occurred much less frequently than was generally believed. As the weeks and years advanced, however, the nutritive vitality of the system progressively deteriorated, local inflammations were excited, the proper soil was developed, and finally the nontuberculous system was successfully inoculated with tubercle bacilli, and the lesions characteristic of true tuberculosis made their appearance. These anatomical changes had never been found in the human organism until after the fourth week of extrauterine life, and the frequency with which they were met with increased yearly from five tenths of one per cent. up to the fifteenth year, when the maximum of thirty per cent. was reached. Thus, it was proved conclusively that there was a well founded theory regarding tuberculosis which did not defy natural laws and was found to fit all conditions. While it was no doubt impossible to conquer tuberculosis as completely as theory would indicate, it was still possible to prevent the development of many thousands of cases every year. When the people had grasped the true problem, and understood the cause of tuberculosis, especially the way in which the disease manifested itself, it would be easy to teach them how to prevent the deterioration which made possible the successful inoculation of tuberculosis from one individual to another. Too much stress had been laid upon the infection, and too little attention directed to preventing the production of a soil which would sustain the life of the bacilli after inoculation. This learned as it should be, every one would quickly appreciate the danger from inoculation and would willingly follow all practical directions for the prevention of the disease. As a result, a decided decrease in the number of deaths from tuberculosis would follow year after year; while now the actual number of deaths ascribed to the disease was increasing.

Volatile Substances Isolated from Tubercle Bacilli Cultures and Their Effects on Experimental Tuberculosis.—Dr. ERNEST ZUEBLIN, of Baltimore, some time since, at the Tuberculosis League Hospital in Pittsburg, had observed that

every time that old tubercle bacilli cultures were destroyed, a patient who helped as orderly in the laboratory complained of headache and general malaise. About the same time two friends of his, after sterilizing old tuberculin bottles in a closed room, had suffered for several days from chills, fever, headache, and general malaise (constitutional tuberculin reaction). These observations had suggested experiments designed to detect any volatile substance escaping from tubercle bacilli cultures. From the results, it might be concluded that in tubercle bacilli there was a volatile substance of a lipid nature chemically which possessed a stronger penetrating odor than the original bacilli culture. Further investigations would be required to determine the presence of a volatile protein split product and other features. Having referred to certain recorded instances of acute intoxication resulting from the emulsifying or evaporation of tubercle bacilli cultures, according to his interpretation, underlying the manifestations described there was not a simple intoxication, but, probably combined with this, there was a hypersensitiveness, for the symptoms had seemed to be more pronounced in individuals giving a marked tuberculin reaction. So far, no definite explanation had been offered. There was reason for admitting the formation of volatile split products in growing tubercle bacilli, but to determine their exact chemical and biological properties would require additional work. The question also remained undecided whether the substances were akin to tuberculous toxin, and whether they were identical with those bodies which produced the hypersensitiveness. Although this investigation had not yet passed the experimental stage, it might in the future afford the basis of a treatment for tuberculous patients, where a mild reaction was desired and where tuberculin could not be administered hypodermically.

The Topical Employment of Tuberculin in Certain Surgical Conditions: Hydrocele and Other Serous Effusions; Tuberculous Adenopathies; Chronic Sinuses.—This communication, by Dr. W. WAYNE BABCOCK, of Philadelphia, will appear in the JOURNAL.

Dr. FRANCIS M. POTTENGER, of Monrovia, Cal., speaking of Doctor Zueblin's statements, said that such experiments were going to help solve some of the problems of tuberculosis. Tuberculins were not uniform in their action. With the protein group they would have a prompt and marked reaction, and with the lipid group a much later reaction. He did not believe that the action of tuberculin was wholly a protein sensitization. In experimenting, they should always bear in mind that there was a great difference in animals. In either clinical or laboratory work, if they did not get the same results as other observers, they should not deny their correctness; because conditions might not be the same. Doctor Babcock's work was interesting; in a tuberculin, the protein or the lipid element might predominate, and the same was true of the antibodies. He was unable to accept the statement made by Doctor Porter that tuberculosis was never transmitted through the placenta. The matter was still under discussion, but there were some instances in which such transmission did occur. In

advanced cases of the disease, tubercle bacilli were constantly escaping into the blood; it would therefore seem easy for them to pass through the placenta. In the great majority of instances, the infection was contracted after birth.

The Tuberculosis Home Hospital Experiment.—Dr. P. Brynberg Porter, of New York, said that his paper referred to a specially constructed block of tenement houses, the East River Homes, built by certain philanthropic persons and placed at the disposal of the New York Association for Improving the Condition of the Poor. The recent report of the association, presenting a statement of the methods, results, and comparative cost during the first year in the combined home and hospital treatment of families made dependent by tuberculosis seemed to be worthy of special attention. In the East River Homes, under the general direction of Dr. Linsly R. Williams, now deputy State health commissioner, twenty-seven families, seventy-nine members of which were tuberculous, lived in sanitary homes, had ample sunshine and fresh air, good and abundant nourishment, freedom from undue work and worry, reasonable segregation, skillful medical care, and constant nursing supervision. It was the belief of the association that the remedying of social ills was as urgent as the cure of tuberculosis, because, without rehabilitation, the family would continue to live under abnormal conditions. In every instance the families received at the homes had been forced into poverty, and some were wholly destitute. At the time of admission the average income of the six families which were discharged as rehabilitated was \$6.42 a week, while when they were discharged their average income amounted to \$15 a week. The results compared very favorably with those met with in the best sanatoriums, and no new cases of the disease developed in any of the families. The cost of the treatment had been found to be less than that of institutional treatment, and if the same beneficial results should be obtained in the next two years, the association believed that it would have pointed out the way to an advance in the control of the disease of the greatest practical value.

Digitalis in Chronic Diseases of the Heart, with Special Reference to the Advisability of Its Continuous Administration.—This paper by Dr. LOUIS F. BISHOP, of New York, will appear in the JOURNAL.

Dr. ALEXANDER D. BLACKADER, of Montreal, personally preferred to give digitalis in courses, combined with the all powerful element of partial rest of the heart. Any one employing digitalis was using a two edged sword; he should therefore have a clear idea of the physiological action and of the side effects of the drug.

Dr. THOMAS E. SATTERTHWAITE, of New York, said that in cardiac deficiency digitalis was their sheet anchor. Whether its administration was to be continued uninterruptedly was a question to be decided by the conditions present. By employing digitalin they avoided the disagreeable gastric effects of the crude drug, and for years he had relied almost exclusively on this; only occasionally giving a little strophanthus and nitroglycerin.

Dr. HERMON C. GORDINIER, of Troy, N. Y.,

spoke of the difference between the apex beat and the radial pulse in auricular fibrillation. It was in cases of this kind that digitalis was the remedy *par excellence*. Patients might take it for years with much benefit, and often a marked increase in contractility resulted.

Dr. ROBERT D. RUDOLF, of Montreal, said that Mackenzie waited for the breaking down of the compensation before resorting to digitalis, but it was a much better plan to begin the digitalis as early as possible after the discovery of threatened decompensation; in this way the more serious condition might often be averted.

Dr. F. E. STEWART, of Germantown, Pa., called attention to the great differences in different preparations of digitalis, and also to the rapid manner in which digitalis preparations deteriorated on keeping. On this account they should be kept in ampoules. It was preferable to use a glucoside, as Doctor Satterthwaite was accustomed to do.

Parageusia and Its Treatment.—Dr. THOMAS F. REILLY, of New York, said that the term *parageusia* had been coined by Varden, in 1889, to cover the complaint of bad taste experienced when there was no material in the mouth to account for it. He believed that most physicians had so long associated *parageusia* with digestive disorders that they had been overlooking the fact that it was quite often an expression of other diseased conditions. His attention had been first directed to the matter about a year ago while studying patients who had various disorders of this tract associated with high arterial tension and bad taste. Since then, close questioning had practically always revealed the presence of persistent bad taste. In the early stages of chronic interstitial nephritis the patient had this symptom only on rising in the morning, and in this it closely resembled the suboccipital headache characteristic of early nephritis. In general, the prognosis seemed to be worse the more constantly the bad taste was present. In many instances this had been the only symptom complained of, and when a patient, particularly a person of forty-five years or over) came complaining of persistent bad taste, a blood pressure examination should be made. This sign often preceded other symptoms by a month or more. In the cases associated with flatulence, bromides acted best. In those without flatulence digitalis, either alone or with hydrochloric acid, had produced the best results. The vasomotors, such as nitrites, had not caused any improvement. In a few cases diuretics had answered well. Next in frequency he had found this complaint associated with gallstones and cholecystitis, and in most instances the taste was described as bitter, like gall, though in a few cases it was like musty eggs. This gall taste had been practically always present in drainage operations of the gallbladder, and persisted as long as the bile drained. In several cases of catarrhal jaundice it had been noted from three days to a week before the appearance of the jaundice. In the bad taste observed in acute digestive disorders, calomel followed by rhubarb and soda was generally all that was necessary; occasionally, hydrochloric acid answered better. In the bad taste in cases of pulmonary tuberculosis, antipyretics of the coal tar series might be of service. The bitter taste some-

times associated with coryza was occasionally relieved by adrenaline spray. Oftener there was a complaint of no taste, or that everything tasted the same. In acute rheumatic fever a disordered taste, bitter or acid, appeared to be present in about sixty per cent. of the cases. Kleiner thought that the salicylates relieved it. In two cases of pernicious anemia a persistent bitter taste had preceded the other clinical symptoms by six and eight months respectively. The bitter taste often complained of by decompensating cardiac patients was analagous to that in nephritis, and could usually be lessened by digitalis and diuretics. Patients with arteriosclerosis sometimes complained of an inversion taste—salty things tasting sweet. In disease of the central nervous system, anomalies of taste occasionally occurred, and were often due to syphilis. As the result of a year's close questioning of patients on the subject he was convinced that persistent bad taste in the mouth was always an expression of a serious toxemia, and frequently of very great service in the early diagnosis of disease.

Some Problems in Genetics.—Dr. THOMAS E. SATTERTHWAITE said that, though the principles laid down by Lamarck, Darwin, Mendel, Galton, Davenport, and others were not as applicable to human beings as to the lower forms of life, they might properly be utilized as bases for solving problems bearing on the legal regulation of marriage and the propagation of hereditary diseases. There were, as was well known, many infirmities which might be inherited, such as epilepsy, chorea, deaf mutism, and various mental disorders. Karl Pearson, indeed, had held that no less than seventy-five per cent. of all deaths were due to inherited disease. Rosanoff had defined six possibilities with respect to the inheritance of either a neuropathic or normal constitution, in general accordance with his interpretation of Mendel's laws, and had asserted that about two thirds of all patient admitted to insane asylums had inherited the neuropathic constitution. That the reverse of this was true had been shown by tracing the descendants of the distinguished theologian, Jonathan Edwards, as given by Walter. Eugenics had taught us how a defective strain could be gradually minimized by selective matings, at least so far as physical and mental traits were concerned. The gonococcus might produce a systemic disease of great danger to life, while the spirochete of syphilis remained a powerful agent of infection even in the third stage; and it seemed as if the degree of infectivity in the venereal diseases, as with alcoholics and drug habitués, was proportionate to the morbidity of the one who transmitted the disease. Consequently, it was only reasonable that persons willingly transmitting the venereal diseases should be amenable to the law. More than this, in extreme instances it was for the common good that such persons should be debarred from procreation. There could be no doubt that sterilization laws, if designed to prevent propagation by confirmed criminals, idiots, imbeciles, and sexual criminals, indicated progress in the right direction. To what extent these laws had been carried out he had been unable to discover. They had certainly met with great opposition within the ranks of both the medical and legal professions. The question was a medicolegal

one, and legislation in this matter must appeal to their intelligent judgment; must be reasonable in a legal sense. Many of their legislatures had also passed laws regulating marriage, and the public might be counted on to urge action in States where there were as yet no such laws. At present such legislation was to a large extent ineffectual, because the contracting parties could easily cross over into adjoining States or Canada; but eventually public opinion would be aroused by the evasion of the law. Unfit marriages were not only a direct outrage to the offspring, but indirectly a crime against society, for as a result of them the unfit were born into the world. To make laws in conformity to present knowledge and requirements, and then to alter them in the face of new or special conditions, as might be desirable for the public good, was sound legislation. They should remember, however, that there ought to be no over-regulation of marriage. At all events, there should be no ill considered, hasty, or unpractical legislation, such as the recent Wisconsin law, which had broken down from the weakness of its medical side. Indeed, all legislation in medical and sanitary matters should first be passed upon favorably by medical organizations. Without being either a neurologist or a psychologist, he would venture to say, in conclusion: 1. While human eugenics was still imperfectly understood, there were certain principles bearing on the transmission of traits by propagation which were tolerably well established. 2. These principles should first of all be popularized, so that the adult portion of society might realize the importance of fit, and the dangers of, unfit matings. With an aroused public appreciation of these matters, appropriate legislation would sooner or later follow, and be made effective. 3. Uniform laws as to the regulation of marriage should be urged in every State, as well as laws to prevent the transmission of diseases. 4. While the motto *Salus populi, suprema lex* ought to be true, legislators should advocate only laws which would accomplish satisfactory results without an unreasonable curtailment of personal liberty. 5. There was urgent need of further researches in the field of eugenics, in order to clear up misapprehensions and so allay criticism as to its civic value; but, as this work would necessarily involve the services of special medical experts, expenditures of large sums of money, and unusual facilities, it should be relegated to the States or the general government, which could provide the men, money, and opportunities, and accomplish the most at the least expense. Reports from such sources would serve admirably for bases for the framing of appropriate laws, or for the amendment of those which had proved to be unsatisfactory.

(To be continued.)

Syphilis in the Negro.—Dr. H. H. Hazen, of Washington, D. C. (*Journal A. M. A.*, August 8, 1914), finds that there are two classes of colored citizens, the better class who are trying to make something of themselves, and the lower, improvident class, who frequent the hospitals and dispensaries. In the former he is convinced that syphilis is not more frequent than among the whites.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Textbook of Anatomy and Physiology. For Training Schools and Other Educational Institutions. By ELIZABETH R. BUNDY, M. D., Member of the Medical Staff of the Woman's Hospital of Philadelphia; Gynecologist, New Jersey Training School, Vineland, etc. Third Edition, Revised and Enlarged. With a Glossary and 233 Illustrations, 43 of which are Printed in Colors. Philadelphia: P. Blakiston's Son & Co., 1914. Pp. xv-408. (Price, \$1.75.)

This is a new and revised edition of the author's anatomy for nurses and, bearing in mind the difficulties which beset the writer of books which give only the elements of a subject, may be considered quite a triumph of discrimination. The illustrations, selected from the best textbooks on anatomy, are most of them in color, giving the work a handsome and attractive look. The clinical notes, surgical and obstetrical, interspersed throughout the text, are, so far as we know, unique, and certainly serve to fix the attention and to show the value of knowledge which might otherwise appear useless or barren. We note the impertinent omission of diphthongs from Latin words, but only classically trained nurses will feel aggrieved at that defect. In studying the book, the nurse will acquire certain useful ideas concerning hygiene and diet, and, if it is used, as we suppose must be the case, with proper anatomical specimens for inspection and suitable laboratory demonstrations, it will prove not only valuable, but actually entertaining.

Office and Bedside Diagnosis. The Use of Symptoms and Physical Signs in the Diagnosis of Disease. By HOBART AMORY HARE, M. D., B. Sc., Professor of Therapeutics, Materia Medica, and Diagnosis in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital, etc., author of a Textbook of Practical Therapeutics, and a Textbook of the Practice of Medicine. Seventh Edition, thoroughly Revised. Illustrated with 164 Engravings and 10 Plates. Philadelphia and New York: Lea Febiger, 1914. Pp. xii-547.

The seventh edition of this well known work, which consists of a description of the essential features of disease, is very creditable, though it omits important factors of modern diagnosis, those obtained through careful laboratory work. While the tendency is to overdo the latter at the present time, and too many recent graduates, particularly those of the larger schools, are apt to relegate to a second place just the class of analytical work which this book contains, the fact remains that both sources of information—clinical signs and laboratory analysis—are necessary today to the accomplished clinician; and we hope that the author will bear this fact in mind when he undertakes a new edition of his excellent work.

Surgical Diseases and Injuries of the Genitourinary Organs. By J. W. THOMSON WALKER, M. B., C. M. ed., F. R. C. S. Eng., Hunterian Professor of Surgery and Pathology, Royal College of Surgeons of England (1907); Surgeon to the Hampstead General and North-West London Hospital; Assistant Surgeon to St. Peter's Hospital for Stone; Urinary Surgeon to the Radium Institute. With 24 Color and 21 Black-and-White Plates, and 279 Illustrations in the Text. New York: Funk & Wagnalls Company, 1914. Pp. xviii-879. (Price, \$7.)

This volume is altogether admirable. Its teaching is sound; it covers the subject quite fully; it is replete with statistics prudently interpreted; its illustrations, especially the numerous colored plates, are admirably illustrative; and they seem all to be original. The general arrangement of the book is that usually followed in previous English publications on the subject. The anatomical arrangement is followed, beginning with the kidney, following down the ureter, bladder, urethra, prostate, and so to the external genitals. Unfortunately only twenty-three pages are de-

voted to urethritis, so that this condition receives scarcely respectful consideration. We detect occasional lapses from accuracy, as in the blank statement, "general spinal or local anesthesia may be used." One would not suppose that this sentence could preface a description of the operation for varicocele. While most operators will agree that suprapubic prostatectomy is preferable to the perineal operation, it is scarcely proper to say of the latter that it is always incomplete. We search in vain for a discussion of the tubercle bacillus in the urine. The preparation for prostatectomy is not dwelt upon with great insistence, and the phenolsulphonephthalein test is merely spoken of as "under trial." But in spite of such minor defects the book, we repeat, is an admirable one.

First Aid Dentistry. By E. P. R. RYAN, First Lieutenant, Dental Surgeon, United States Army. With Eighty Illustrations. Philadelphia: P. Blakiston's Son & Co., 1914. Pp. x-153. (Price \$1.25.)

This work, which may be of value to dentists, is more especially designed for surgeons in the army and navy, hospital stewards, and others who may be called upon in the absence of a dental specialist. It takes up septic oral conditions, inflammation of the buccal mucous membrane, syphilis, and gives a short précis of dental anatomy before proceeding to the consideration of dental pain and the treatment of pulpitis, abscesses, neuralgia, pyorrhœa alveolaris, fractures and dislocations, etc. It tells how to improvise a dental chair and gives hints on the management of postoperative conditions. This is a useful book and should be in the hands of all nondentists who are forced to do dentistry.

Black's Medical Dictionary. By JOHN D. COMRIE, M.A., B.Sc., M.D., F.R.C.P. Edin., Lecturer on History of Medicine, University of Edinburgh; Lecturer on Clinical Medicine, University of Edinburgh; Assistant Physician, Royal Infirmary, Edinburgh, etc. Fifth Edition, Completing Thirty Thousand, Containing 431 Illustrations in the Text, etc., and 12 Plates in Color. New York: The Macmillan Company. 1914; London: Adam & Charles Black. Pp. viii-858. (Price, \$2.50.)

This is the fifth edition of a book which has had a large popular sale in the British possessions and contains considerably more matter than did the previous edition and several new plates. The work is frankly intended for the information of the layman and the instruction is set forth in the simplest possible way. It appears to be carefully revised and to be unusually free from errors. Such works undoubtedly are of value in the hands of intelligent laymen where competent medical advice is not available; but there is always danger that the reader will attempt self medication on the basis of the information contained in such a volume, but without that medical training which alone can give him an adequate knowledge of diagnosis and treatment.

Allgemeine Chirurgie. Von Prof. Dr. PH. BOCKENHEIMER. I. Teil: Chirurgische Operationslehre; II. Teil: Chirurgische Erkrankungen, mit Ausnahme der Geschwulste und Zysten; III. Teil: Geschwulste und Zysten. Leipzig: Verlag von Dr. Werner Klinkhardt, 1914. Pp. 855.

These three volumes on the principles of surgery and surgical pathology are a part of the series of short treatises on medical topics for the practitioner. The author of this particular work has given in systematic and compact form an excellent description of the fundamentals upon which the surgery of today is constructed. He has picked out the most important topics for discussion and has eliminated the unessential. He has given the generally approved principles of pathology and treatment and emphasized in the latter those methods which have been found of most value in his own experience. The book throughout suggests the practical teacher, hence its great value as an instrument of instruction. The volume devoted to tumors is particularly valuable and gives the latest views relating to etiology, pathology, and treatment. The descriptions are unusually clear, and can be understood by the beginner as well as the practical surgeon. The style can with benefit be copied by those attempting to write a book, but who have not had, like this author, the immense advantage of years of class work and bedside instruction. It is to be hoped that an early English translation will bring the book into the hands of the American profession.

The Road to a Healthy Old Age. Essays Lay and Medical. By THOMAS BODLEY SCOTT. New York: Paul Hoeber, 1914. Pp. 104. (Price, \$1.)

This is one of those anomalous works the publication of which seems to be confined to Great Britain concerning which it is impossible to judge whether the author is writing for his fellow practitioners, for educated laymen, or for both. It seems unlikely that a medical writer would recommend direct to a lay audience such potent remedies as arsenic and specific vaccines, but, on the other hand, the style of the book is distinctly popular. The writer has great faith in vaccines in all nontuberculous diseases of the respiratory organs and has had his son, of the Royal Naval Hospital, write a chapter on their preparation and action. For the rest, the book gives the familiar advice as to moderation in diet and exercise, pretty well known by this time, we fancy, to all candidates for honorable gray hairs.

Interclinical Notes.

"From an account of that first good sized scrimmage," observed Dr. Ben Trovato, "I think that the battle of Haelen Blazes would be a good name for it."

* * *

The *Sun* for August 16th referred to the late Frederick Townsend Martin as a "well known society *bas bleu*." This posthumous literary note is the first intimation we have received that the well known name was merely the *nom de guerre* of some lady scribbler.

* * *

An article of unusual interest to physicians, who do not often see tuberculous subjects off by themselves and free from scientific restraint, appeared in the *Survey* for August 8th, entitled, *Some Impressions of a Seeker after Health*, by Elizabeth Dobell. The impressions throw a remarkable light upon the psyche of the tuberculous, a phase which has not received the attention it deserves. We know that many geniuses have been tuberculous, but is it recognized that the consumptive of average mentality is not infrequently *leichtsinnig*?

* * *

The August *Century* looks something like one of those summer sunsets to be seen these evenings by the fortunate dwellers on the east shore of Long Island Sound. It is filled largely with excellent fiction. We think Sir Humphry Davy would be astonished to learn that he discovered chlorin—without the final e—as an essay on Masters by Proxy avers that he did. Arnold Bennett tells a true story for a change about a yachting trip, and Albert Bigelow Paine, the biographer of Mark Twain, recounts his adventures in an American automobile in Europe. Probably the Europeans thought his car a very clever piece of work for Red Indians. There are entertaining biographical details about Tolstoy, Rodin, and James A. Herne. Miss Daviess's story, *Under Silken Skins*, contains a most unorthodox Southern planter, who actually strikes at one of his own guests with a whip. We were greatly alarmed at Mr. Ross's pessimistic Slavs in America, but were cheered up by Mr. George Weston and Mrs. Alice Hegan Rice.

* * *

"The modern as well as the ancient treatment of alcohol and drug habits," observed Dr. Ben Trovato, "has the same result as has been so satisfactorily obtained from time immemorial in changing the leopard's spots and the Ethiopian's skin. In other words, a longing for sedatives is as intractable as a cyphosis in the adult. It is an irreducible mental deformity."

* * *

The *Popular Science Monthly* for August rises to literary heights in Apiculture in the Time of Virgil, by Georgia Willis Read, but is its sober and informing, yet interesting self in the Cellular Basis of Heredity and Development, by Professor Edwin Grant Coaklin; *Pleasure in Pictures*, by Rossiter Haward; *Available Food Supplies*, by Professor J. F. Lyman; the *Role of Sex in the Evolution of Mind*, by Professor S. J. Holmes, and other well considered and fluently written essays.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending August 12, 1914:

Bolton, Joseph, Assistant Surgeon. Directed to proceed to Milwaukee, Wis., and report to the commanding officer of the revenue cutter *Tuscarora* for the purpose of administering the antityphoid vaccine to the officers and crew of that vessel. **Carter**, H. R., Senior Surgeon. Granted fifteen days' leave of absence from August 10, 1914. **Chapin**, C. W., Passed Assistant Surgeon. Granted one month's leave of absence from August 17, 1914. **Cobb**, J. O., Surgeon. Directed to proceed to Joliet, Ill., monthly, for the examination of alien women affected with trachoma. **Collins**, G. L., Passed Assistant Surgeon. Directed to proceed to Savannah, Ga., and report to the commanding officer of the revenue cutter *Yamacraw* for the purpose of administering the antityphoid vaccine to the officers and crew of that vessel; also to report to the commanding officer of the revenue cutter *Winona* at Mobile, Ala., for the same purpose. **Colson**, H. C., Sanitary Chemist. Directed to proceed to Luray, Va., and take charge of the experimental plant constructed by the Service for the investigation of tannery wastes. **Frost**, W. H., Passed Assistant Surgeon. Detailed, at the request of the State Board of Health, to attend a conference of health officers to be held at Pineville, Ky., August 18 to 20, 1914, and deliver an address on the scope of the Ohio River investigations, especially as it relates to Kentucky. **Gillespie**, J. M., Assistant Surgeon. Directed to proceed to New Orleans, La., for duty in plague eradication measures. **Grubbs**, S. B., Surgeon. Detailed, at the request of the State Board of Health, to attend a conference of health officers at Pineville, Ky., August 18 to 20, 1914, for the purpose of delivering a lecture on rat eradication and plague control. **Gwyn**, M. K., Surgeon. Granted one month's leave of absence, on account of sickness, from July 25, 1914. **Kempf**, G. A., Assistant Surgeon. Granted seven days' leave of absence from August 12, 1914. **McMullen**, John, Surgeon. Detailed, at the request of the State Board of Health, to attend a conference of health officers to be held at Pineville, Ky., August 18 to 20, 1914, and deliver an address on the trachoma situation in Kentucky. **Nydegger**, J. A., Surgeon. Granted twenty-one days' leave of absence, on account of sickness, from August 13, 1914. **Roberts**, N., Passed Assistant Surgeon. Directed to report to Assistant Surgeon General Rucker at New Orleans, La., for duty in plague eradication measures. **Slaughter**, W. H., Assistant Surgeon. Granted four days' leave of absence from August 11, 1914. **White**, H. F., Assistant Surgeon. Directed to proceed to New Orleans, La., for duty in plague eradication measures.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending August 15, 1914:

Artaud, F. E., First Lieutenant, Medical Reserve Corps. Reports arrival at Key West Barracks, Florida, for duty. **Beery**, Henry R., Captain, Medical Corps. Upon arrival in the United States will report for duty at Columbus Barracks, Ohio, relieving Captain Robert W. Kerr, who upon being thus relieved will proceed to Fort Adams, R. I., for duty. **Billingslea**, C. C., Captain, Medical Corps. Reports arrival at Fort Leavenworth, Kansas, for duty. **Bradley**, John R., First Lieutenant, Medical Reserve Corps. Upon arrival in the United States will proceed to Fort Barry, Cal., for duty. **Davis**, Arthur O., Captain, Medical Corps. Upon arrival in the United States will proceed to the Presidio of San Francisco, Cal., for duty. **Jones**, Percy L., Captain, Medical Corps. Granted ten days' leave of absence. **Kennard**, H. W., First Lieutenant, Medical Reserve Corps. Granted one month's leave of absence, from Regimental Hospital, Texas City, Texas. **Mabee**, J. I., Major, Medical Corps. Reports departure from his post on twenty-three days' leave of absence. **McKellar**, H. R., First Lieutenant, Medical Corps. Re-

ports departure for Hawaiian Islands, for duty. **Persons**, E. E., Major, Medical Corps. Now on duty at the Army War College, Washington, D. C., will proceed to Vera Cruz, Mexico, and report to the commanding general of the United States forces at that place, for temporary duty. **Pyles**, W. L., Captain, Medical Corps. Relieved from duty at Fort Adams, R. I., and will report for duty as attending surgeon, Chicago, Ill. **Reno**, W. W., Major, Medical Corps. Granted three months' leave of absence about September 1st, from his post, Fort D. A. Russell. **Stanton**, S. C., First Lieutenant, Medical Reserve Corps. Reports for duty temporarily as attending surgeon, Chicago, Ill. **Warriner**, B. B., First Lieutenant, Medical Corps. Relieved from duty at Fort Williams, Maine, on arrival at that post of Captain R. H. Pierson, and will then proceed to Fort Huachuca, relieving First Lieutenant R. W. Bliss, Medical Corps, who will report for duty at Fort Apache. **Williamson**, L. P., Captain, Medical Corps. Relieved from duty at Evacuation Hospital, No. 1, Galveston, Texas, and will repair to Washington, D. C., and report in person to the president of Army War College, for duty.

The following named medical officers have been relieved from duty in the United States and will sail for the Philippine Islands, on the November 5th transport: Captain Carl E. Holmberg, Medical Corps; First Lieutenant J. F. Hammond, Medical Corps; First Lieutenant C. W. Cullen, Medical Reserve Corps; First Lieutenant John G. Ingold, Medical Corps; First Lieutenant A. M. Giffin, Medical Reserve Corps; First Lieutenant H. DuR. Phelan, Medical Reserve Corps; First Lieutenant A. G. Wilde, Medical Corps; First Lieutenant Chester R. Haig, Medical Corps.

The following named medical officers are relieved from duty in the Philippine Islands and will sail for the United States on the transport leaving Manila, P. I., on or about December 15, 1914: Captain E. M. Wells, Jr., Medical Corps; Captain Thomas H. Johnson, Medical Corps; Captain J. T. Aydellette, Medical Corps; Captain Edward L. Napier, Medical Corps; Captain T. J. Flynn, Medical Corps; First Lieutenant A. D. McCoffey, Medical Reserve Corps; First Lieutenant R. W. Newton, Medical Reserve Corps.

Births, Marriages, and Deaths.

Born.

Tiffany—In Kansas City, Mo., on Monday, August 10th, to Dr. and Mrs. Flavel B. Tiffany, a son.

Married.

Boal—Schmerhorn.—In Burlington, N. J., on Wednesday, August 5th, Dr. John Boal and Miss Mabel Schmerhorn. **Fogg—Spear**.—In Portsmouth, N. H., on Monday, August 3d, Dr. John S. Fogg and Miss Wilhelmmina Spear. **Hennelly—Wickham**.—In Pittsfield, Mass., on Tuesday, August 11th, Dr. Thomas P. Hennelly and Miss Helena Elizabeth Wickham.

Died.

Arnold.—In Londonderry, Vt., on Tuesday, August 11th, Dr. Elmore F. Arnold, of New York, aged fifty-five years. **Cahen**.—In Los Angeles, Cal., on Monday, August 3d, Dr. Edmond Maynard Cahen, aged twenty-nine years. **Dick**.—In Lawrence, Kansas, on Thursday, August 6th, Dr. J. M. Dick, aged eighty years. **Foster**.—In Kansas City, Mo., on Saturday, August 8th, Dr. William A. Foster, aged fifty-eight years. **Laas**.—In Burton, Texas, on Thursday, August 6th, Dr. C. H. Laas, aged forty-two years. **Lindsey**.—In Moorefield, Ohio, on Friday, August 7th, Dr. H. W. Lindsey, aged sixty years. **Milmoe**.—In Nyando, N. Y., on Saturday, August 8th, Dr. Julia A. Milmoe, aged thirty-five years. **Pratt**.—In Canaseraga, N. Y., on Saturday, August 8th, Dr. Oscar S. Pratt, aged seventy-eight years. **Raub**.—In Lancaster, Pa., on Saturday, August 8th, Dr. Michael W. Raub, aged seventy-eight years. **Richardson**.—In Carthage, Mo., on Wednesday, August 5th, Dr. W. F. Richardson, of Pierce City, aged seventy-five years. **Smith**.—In Saranac Lake, N. Y., on Sunday, August 9th, Dr. Eugene Smith, aged forty-seven years. **Wood**.—At sea, on the United States Transport *Logan*, on Sunday, August 9th, Dr. James Robie Wood, of New Brighton, N. Y., aged seventy-six years.

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Original Communications.

GENERAL PARESIS.

From the Serologist's and Therapeutist's Point of View.

BY D. M. KAPLAN, M. D.,

New York,

Director of Laboratories, Neurological Institute.

The advances in serological work of recent years benefited neurology more than the other branches of medicine. The progress in these researches gave results that are as trustworthy as some of the most constant symptoms of the bedside observer. Some of these laboratory signs proved to be of great, others again of less value. The neurologist soon learned how to interpret and weigh each component of a serological report and assign proper place and signification to each reaction. For instance, the first conclusion that the clinician arrives at solely concerns the performance of a serum Wassermann, which upon close and critical study could not be utilized in the establishment of a definite neurological diagnosis, and for the simple reason that a nervous disease of a nonluetetic nature can exist in a patient with visceral syphilis. This happened often enough to justify the foregoing criticism. The serologist who works with neurological material when analyzing cerebrospinal fluids, sooner or later learns the value and signification of each serological component. For an example may be utilized the foregoing statement, that a positive serum Wassermann has no bearing on the etiology of the nervous disease, unless corroborated by certain findings in the cerebrospinal fluid. One must not forget that there are clinical manifestations that speak for neurological syphilis as strongly as an intensely positive fluid Wassermann. In such instances, what the serologist finds, one way or the other, does not necessarily alter the etiology of the neurological disorder. It must be advanced, however, at the start, that such clinical entities also give one or more corroborative serological reactions, and that an absolutely negative serology in an untreated patient with syphilis of the nervous system is very rare indeed, and when such a serology is encountered, it is advisable to resubject the patient to a rigid physical examination. My experience has taught me that serological phenomena can be subdivided into four classes: First, phenomena of irritation; second, phenomena significant of cord compression; third, phenomena of syphilis and, fourth, phenomena of general paresis.

PHENOMENA OF IRRITATION.

Here we are dealing with any of the pleocytoses encountered in the course of a meningitis. This pleocytosis (increase in the number of cells in the cerebrospinal fluid) may be marked or only slight. The number of cells can be used as an index to the severity of the meningeal irritation. It is not unusual to find the microorganism responsible for the meningitis in the stained smear, unless tuberculosis is at the bottom of the infection. In such case it is not always possible to find the bacillus when using ordinary methods of detection. Beside the pleocytosis as a sign of irritation, it is a common occurrence to obtain an excess of protein matter in spinal fluid, which is the more abundant the greater the cellular increase. Where the irritation is very great, and a large number of polynuclear elements is found in the fluid, one will also observe that the usual reduction of Fehling's solution does not take place or can be only partially observed. A great amount of irritation is to be had with some syphilitic neurological diseases; in such case the phenomena of irritation are no different from those of the other infective cerebrospinal diseases. So far there is nothing to suggest syphilis, but for the sake of argument, one must not lose sight of the possibility of a meningeal irritation of nonluetetic etiology, without demonstrable microorganisms in the fluid in a patient who has a positive serum Wassermann as a result of coexistent visceral or vascular syphilis. Here the decision lies entirely in the hands of the clinician, who must be sufficiently trained to be able to weed out nonluetetic somatic signs before seriously considering the entire neurological disorder as due to syphilis, on the strength of a positive serum Wassermann. It is fortunate that the vast majority of meningeal irritations of great extent, as a rule, also give in the spinal fluid phenomena of syphilis. In the majority of nonluetetic meningitis cases one as a rule obtains a history of injury to the skull, or finds the primary infected focus.

PHENOMENA OF CORD COMPRESSION.

It is a well known fact that a pleocytosis may be obtained without the presence of a protein excess. To find a very marked protein excess without a pleocytosis must be considered, however, as paradoxical. This is exactly what happens in patients with spinal cord compression. It is also not unusual to find in these cases a spinal fluid of a canary yellow color, which does not as a rule give a blood reaction. Occasionally one obtains an iron reaction where old hemorrhages in cystic tumor cavities have supplied the iron to the spinal fluid. Tumor cells

may also find their way into the fluid, but this is not common. The protein reaction in these cases is at times so great, that a twentyfold dilution of the spinal fluid will still give the reaction of an excess. It is my opinion that the substances responsible for this reaction are totally different from the ordinary globulin excess obtained in the irritations of the meninges. Occasionally such a fluid will not reduce Fehling's solution, a coincidence which is also paradoxical, as such a phenomenon is usually associated with a marked increase in the polynuclear elements in the course of a marked irritative process, such as is encountered in any acute meningitis.

PHENOMENA OF SYPHILIS.

It must be reiterated, that so far as syphilis of the central nervous system is concerned, a positive serum Wassermann is inconclusive in settling the etiology of a given neurological disorder. Where the reaction is positive in the spinal fluid, one cannot doubt the syphilitic nature of the nervous disease. This is particularly the case when one uses the original Wassermann-Plaut technic and thus minimizes the chances of obtaining a faulty positive Wassermann. Of late Lange has suggested the use of colloidal gold as a specific reaction in the spinal fluid in syphilitic neurological diseases. The precipitation obtained is, in my experience, inconstant, with the exception of general paresis; of this more will be said forthwith.

PHENOMENA OF GENERAL PARESIS.

It is a well known fact that of all positive serum and, to a lesser extent, spinal fluid Wassermann reactions, those obtained in general paresis will remain positive for a much longer time after treatment than the positive reactions obtained in the other syphilogenous nervous diseases. Aside from this peculiarity, the serologist working with neurological material soon learns to distinguish the positive Wassermann which is obtained in a paretic, and one which is from tabes or cerebrospinal lues. The inhibition which is complete manifests itself very early, so that within five or ten minutes from the beginning of the second stage of the Wassermann reaction, the serologist can foretell the outcome of a reaction by noting the early precipitation of the intact cells, and by the clear and colorless rim of fluid at the top of the test tube. It is sufficient to conclude that a positive Wassermann reaction obtained in a paretic's serum and spinal fluid, possesses distinguishing characteristics. This peculiarity is the property of all Wassermann reactions that belong to the "Wassermann fast" type. The "Wassermann fast" phenomenon, in general paresis, is the expression of a spirochetal location that is so favorable to the existence and propagation of the spirochete that the latter is in a position to furnish continually the substances that bring about a positive Wassermann reaction in the serum and very often in the spinal fluid. It is to be admitted that there are other diseases, not necessarily of the nervous system, that display this tendency, perhaps also because the habitat of the invader is immune to the drugs introduced for its destruction. As we are dealing with diseases of the nervous system only, I will consider this phenomenon only in connection with neurology.

The most characteristic landmark of general pa-

resis, however, is to be noted when the cerebrospinal fluid of such a patient is brought in contact with a properly prepared solution of colloidal gold. The manner in which colloidal gold is precipitated by the spinal fluid of a paretic, is not obtainable with other syphilogenous diseases of the central nervous system. So far as paresis is concerned, it occurs with greater regularity in this disease than all the reactions already considered. In short, we possess in the characteristic precipitation of colloidal gold a specific reaction for general paresis. It must be stated that this reaction never occurred alone, but was always accompanied by one or more of the other reactions suggestive of a syphilitic involvement of the nervous system. It was also obtained in a few cases of tabetoparesis, and was missed in a few cases of Wassermann-fast tabes. The latter fact detracts somewhat from the significance of the Wassermann-fast state, although one can never tell what the future course of the tabes will be in these cases. In one instance of this type of Wassermann in a tabetic, the paresis did not appear until three years later, the patient having succumbed to the paretic decline shortly after the advent of the latter disease. The cases of Wassermann-fast tabes can be kept in a fairly stationary condition by proper therapy, provided the treatment is persistent and controlled by regular serological investigations as is the case with all such patients in the Neurological Institute. Taking into consideration the typifying serology of general paresis, and comparing it with the constancy of the various serological tests in the other affections of the nervous system, we obtain the following critical data; for instance, it is not always possible to obtain irritative manifestations in cerebrospinal syphilis, as there are instances where no pathological cell count was present; the globulin excess need not be present, and as a matter of fact is more frequently negative in tabes than positive; in cases of cord compression we shall not always encounter a protein excess, and there are instances where this excess is accompanied by a moderate pleocytosis. The paradoxical excess without a pleocytosis can also be obtained occasionally with patients suffering from combined sclerosis. A positive Wassermann in tabes and cerebrospinal syphilis may be wanting in the serum or fluid or in both.

The precipitation of colloidal gold in general paresis occurs in over ninety-five per cent. of cases, and in only one instance out of 634 analyses was a reaction obtained which corresponded to the characteristic curve of general paresis in a case of multiple sclerosis. Eight other cases of multiple sclerosis gave a negative result.

It has been already stated that the characteristic precipitation of colloidal gold never occurred alone, but was always associated with other serological phenomena of syphilis; beside this, there was not the least doubt clinically as to the diagnosis, before the serology of the case was submitted. Laboratory evidence, with very few exceptions, is still not strong enough to be able to supply alone the desired information. This is particularly the case in neurology, although we are today far ahead of ten years ago, and it is to be hoped that the near future will elaborate tests that will be as important diagnostically as irregular pupils, absent knee

jerks, or memory defects. As the laboratory stands today, it requires clinical corroboration in the majority of instances, and particularly in neurology. It will require considerable time before one or the other component of a serological report will be accepted at its face value, and it seems to be that, so far as the diagnosis of general paresis is concerned, the clinician in the near future will be also interested to know the result of the precipitation of colloidal gold with the patient's cerebrospinal fluid.

Having outlined the serology of general paresis, and also hinted at the stubbornness with which the Wassermann reaction in the spinal fluid, and more so in the serum, resists therapeutic efforts, I shall now discuss the value of the disappearance of the various pathological components of a serological report. There are various methods advocated in the use of salvarsan or neosalvarsan with or without mercury. Some hold that in neurological syphilis the drug has to reach the nervous tissues without the intervention of the circulatory apparatus, and show results that are at first sight very inviting, not only from the clinical, but also from the serological point of view. Now, it must be stated that the neurologist is very well aware of the fact that there are many ways in which one can combat the shooting pains of the tabetic, in other words, it may be a very good method if the shooting pains in such a patient could be made to disappear for a long time. If, however, one could devise a method, or introduce a drug that could do away with the fixed pupil, or bring about the return of the lost knee jerks, his method would at once be recognized as superior to all which could do away only with the painful manifestations of the disease. The same judgment is necessary in the interpretation of serological improvement that one sees plentifully given by the advocates of this or that method of treatment. The most frequent change given by various therapists is the diminution in the cell count in the cerebrospinal fluid. It was pointed out before, that the pleocytosis is only an index of the degree of meningeal irritation, and may exist with or without syphilis. It is by no means an impossibility to expect a disappearance of the pleocytosis with no other interference than the performance of lumbar puncture. With the exception of acute syphilitic meningitis, one may mechanically reduce the cell count by repeated rhachicenteses; in acute manifestations, the cell count would return during the interval of rest. In general paresis, repeated lumbar punctures may reduce the cell count to such an extent, that a subsequent puncture will give one a fluid without cells or only a few to the c.mm. It is apparent from this that the temporary removal of a pleocytosis from the spinal fluid is no great achievement in immunotherapeutics of neurological syphilis, and the same can be said of the disappearance of a globulin excess. With the diminution of the pleocytosis, one also obtains relief from the pains in tabes, where the increased cell count can be taken as expressive of an exudative process impinging on the posterior root ganglia. The removal of the high cell count brings about only partial satisfaction, as one must consider the pleocytosis and globulin excess as of

secondary importance only. The primary course of the disease, syphilis, expressed by a positive Wassermann reaction in the serum and fluid, is of much greater significance. A method that is capable of doing away with a previously positive serum or fluid Wassermann, and maintain this desirable negative serological status for a long time, is much more efficient than the simple diminution in the number of cells in the fluid. The highest efficiency is to be ascribed to the method or drug that will render the positive Wassermann of a paretic negative, and also maintain it for a long time, at least one year. This would also be the case with a drug which did away with the serological condition in tabes described by me as Wassermann-fast. I suggest that those who are interested in the progress of treating syphilis of the nervous system should primarily regard as of greatest moment the fluid and serum Wassermann before and after treatment, and assign a place of secondary importance to the diminution or disappearance of the pleocytosis. Upon reflection we shall be able to discriminate between the cause and effect in serological reports, as stated in the beginning of this communication. When the cause of a neurological disorder is syphilis, it will show itself frequently by a positive Wassermann, and secondarily by a pleocytosis. When therapy removes the latter and leaves a positive Wassermann, only half of the work is done, as the cause of the trouble was not influenced, whereas it is impossible to think of not having affected the syphilis when a previously positive Wassermann becomes negative. It needs no argument to show, that to render a Wassermann reaction negative, it is more important to remove a pleocytosis. My conclusions therefore are:

1. Serological phenomena are composed of evidences of irritation, evidences of cord compression, of syphilis, and of general paresis.
2. The precipitation of colloidal gold may be regarded as a characteristic reaction in general paresis.
3. In judging the efficiency of therapy, not the pleocytosis, but the Wassermann should be considered.

149 EAST SIXTY-SEVENTH STREET.

DIGITALIS IN CHRONIC DISEASES OF THE HEART.*

With Special Reference to the Advisability of Its Continuous Administration.

BY LOUIS FAUGERES BISHOP, A. M., M. D.,

New York,

Clinical Professor, Heart and Circulatory Diseases, Fordham University; Physician, Lincoln Hospital.

However much the scientific knowledge of digitalis may be advanced, the adaptation of the remedy to the individual must always remain a matter of art. Digitalis is like the foil in fencing or the club in golf. In the hands of one man, victory is uniform, while in the hands of another, defeat is equally certain; and yet the latter may know more of the theory of the game than the former. Skill

*Read at the fifteenth annual meeting of the American Therapeutic Society, Albany, N. Y., May 29 and 30, 1914.

results from the constant solution of similar problems. The time will never come when the profession will not benefit by the recurrence of hackneyed subjects. For this reason, I make no apology for writing once more of digitalis, with a special view to its continuous use under certain conditions.

Fibrillation of the auricle, and very serious valvular disease, constitute the most frequent condition in persons who are benefited by the use of digitalis over periods of months and years without interruptions. In both conditions, when broken compensation has recurred on two or three occasions, and has been restored by digitalis after days of anxious waiting for the desired effect, a condition of well being, without these dangerous attacks, can often be maintained by suitably regulated doses taken continuously.

The matter of regulation in dose pertains to the art of medicine, and is not susceptible of absolute rule. When such a problem presents itself, it must first be decided whether this method shall be adopted as a policy. The amount of the drug required is more or less a matter of experiment. I have at the present time patients who take a grain and a half of digitalis every day; others who take three quarters of a grain on alternate days; and others a dose once a week. In each instance, these doses were started after the phenomena of complete saturation was attained. In chronic fibrillation of the auricle, a good rule is to keep the pulse in the neighborhood of ninety. In chronic valvular disease, it is well to keep the tonicity of the heart muscle at such a point that there will be a minimum amount of shortness of breath.

The third type of disease where the continuous use of digitalis often is indicated, is the later stages, or, as I often call them, the "digitalis stage," of arteriosclerosis, when the high blood pressure has a tendency to be succeeded by a lower pressure that falls beneath the line of compensation.

The use of so powerful an agent requires constant supervision, and a certain amount of option must be allowed to the one who is taking so potent a drug. Every heart patient should be seen at least once a month. With an intelligent person, that is enough for the efficient regulation of digitalis, even in serious conditions.

This method of using digitalis as a definite entity was introduced by Professor Groedel, in 1899. It seems to be a very simple system, but as a matter of fact, I know few men who have really appreciated Groedel's idea. Only recently, after what I believed to be thorough instruction in the matter, I found a physician attempting to continue digitalis in the doses that were ordered in the face of urgent symptoms. The resulting nausea was frightful, but when the dose was reduced to a grain and a half a day, the patient was restored to comfort.

The important point is to anticipate the need of digitalis. Careful observation often reveals defective kidney action several days before other signs appear. Thus, it may be needed once a week, or once in two weeks. If there comes a time when the digitalis will not act, it is not due to the fact that the heart has become habituated to the drug, but because the heart is no longer able to respond to

the remedy. There is no such thing as a digitalis habit. On the other hand, there are many persons whose lives depend upon digitalis, for without it they would have enjoyed but a short lease of life. The continuous use of small doses does not lessen the efficiency of larger doses if required. Sometimes it is best to stop the digitalis entirely for a week, and then begin with larger doses.

Digitalis may finally produce a true strengthening of the heart, and its use can suddenly be withdrawn without any danger. Doctor Groedel summarizes the matter as follows: "1. In all cases of cardiac insufficiency, when large doses (the administration of which has to be restricted to a short period) of digitalis produce only transitory results, the continuous administration of small doses of digitalis is indicated and is beneficial in most cases. 2. The patients do not become so used to the remedy that they could not do without it. 3. The remedy does not prove ineffective in consequence of patients getting into the habit of taking it."

There are certain contraindications that should be borne in mind; for instance, if the secretion of urine apparently diminishes under digitalis, it is well to stop for a while, and allow this effect to subside. Later, even larger doses may lead to diuresis. Digitalis is not yet completely known, and I hope there may be a few discussions of this important matter of its use as a chronic treatment of chronic conditions.

54 WEST FIFTY-FIFTH STREET.

CONSERVATION OF VISION.*

BY FRANK ALLPORT, M. D.,
Chicago.

Societies for the conservation of vision have been formed in various portions of the United States. They exist under different conditions. The membership in some is medical and in others, lay and medical. In Pennsylvania, Indiana, Missouri, etc., the organization exists as a committee of the State medical society; in New York, Illinois, etc., independent associations have been formed; in Ohio the "commission," as it is called, is a part of the State government. There is also a National association, independent in its nature, and mixed in its membership. Some of these associations, as in New York, Massachusetts, Maryland, Ohio, etc., are doing energetic work, while others are inactive and almost useless.

At the 1913 meeting of the American Medical Association, the Council on Health and Public Instruction appointed a Committee on Conservation of Vision consisting of Dr. E. M. Alger, of New York; Dr. W. E. Bruner, of Cleveland; Dr. H. D. Bruns, of New Orleans; Dr. J. J. Carroll, of Baltimore; Dr. E. C. Ellett, of Memphis; Dr. Harold Gifford, of Omaha; Dr. Vard Hulén, of San Francisco; Dr. W. B. Lancaster, of Boston; Dr. F. Park Lewis, of Buffalo; Dr. William C. Posey, of Philadelphia; Dr. W. H. Wilder, of Chicago; Dr. Casey A. Wood, of Chi-

*Read at a joint meeting of the Chicago Medical Society and the Chicago Ophthalmological Society, May, 1914.

cago; Dr. Hiram Woods, of Baltimore; and Dr. Frank Allport, of Chicago; of this committee I was appointed chairman. The object of the committee was to produce interest and action in conserving vision, and to endeavor to concentrate under the auspices of the American Medical Association activities calculated to preserve the sight of this and coming generations.

We began our work by using the machinery of the American Medical Association. The Council on Health and Public Instruction sends out each week a sheet, called the *Press Bulletin*, free to nearly six thousand newspapers, and the printed matter upon its face can be used by the papers as editorial or news matter. The printed matter consists of short, plainly written articles on health topics. They are unsigned. The council employs clipping bureaus, and through them it is ascertained that these articles are extensively used. They are shaping public thought along medical lines in this country. The conservation of vision committee has an appropriate article in the *Press Bulletin* each week, and its articles on The Eyes and the Movies, Face Powder and the Eyes, Cross Eyes, Illumination in Homes, Offices, Schools, etc., Golf Accidents to the Eyes, What Is a Cataract? etc., have been extensively copied all over the country. The committee feels that this is a most important part of its work, as it reaches so many people and is under direct control.

The next work of the committee was to write, print, and circulate twenty pamphlets on popular eye topics. These are called The Conservation of Vision Pamphlets and are numbered from one to twenty. They are handsomely got up in uniform style. The authors' names are given. They are short and plainly written, so that nonmedical people can easily understand them. They are well illustrated. They sell for five cents a copy, or one hundred copies for \$3.50. They are also freely given away on proper application either to me, as chairman of the committee, or to Dr. F. R. Green, Council on Health and Public Instruction, American Medical Association, 535 North Dearborn street, Chicago. Sets of these pamphlets have been sent to public libraries, women's clubs, teachers' institutes, State legislatures, health boards, etc., all over the United States, and the sale and the distribution have been extensive. Some of the pamphlets are already in their third edition. Arrangements are being made to distribute Doctor Carroll's Pamphlet on the Eyes of Transportation Employees to every railroad surgeon in the United States. I give here a list of the pamphlets:

- I. Schoolchildren's Eyes, by Dr. Frank Allport, Chicago.
- II. Industrial and Household Accidents to the Eye, by Dr. Harold Gifford, Omaha.
- III. Wearing Glasses, by Dr. W. B. Lancaster, Boston.
- IV. The Relation of Illumination to Visual Efficiency, by Dr. Ellice M. Alger, New York.
- V. Trachoma in Eastern Kentucky, by Dr. J. A. Stucky, Lexington, Ky.
- VI. Autointoxication and the eye, by Dr. H. D. Bruns, New Orleans.
- VII. Eye Strain, by Dr. Hiram Woods, Baltimore.
- VIII. Lenses and Refraction, by Dr. Frank Allport, Chicago.
- IX. The Eye and Its Functions, by Dr. Frank Allport, Chicago.
- X. Care of the Eyes, by Dr. Frank Allport, Chicago.

XI. Infant Blindness, or Ophthalmia Neonatorum, by Dr. F. Park Lewis, Buffalo, N. Y.

XII. Ordinary Eye Diseases, by Dr. L. W. Dean, Iowa City, Iowa.

XIII. Usual and Unusual Eye Accidents, by Dr. E. C. Ellett, Memphis, Tenn.

XIV. The Eyes of Transportation Employees, by Dr. J. J. Carroll, Baltimore.

XV. Ocular Hygiene in Schools, by Dr. S. D. Risley, Philadelphia.

XVI. Whisky, Tobacco, and Drugs and the Eye, by Dr. Edward Jackson, Denver.

XVII. The Oculist and the Optician, by Dr. Melville Black, Denver.

XVIII. Preparation for Blindness, by Dr. F. Park Lewis, Buffalo.

XIX. What to Do for Blind Children, by Dr. F. Park Lewis, Buffalo.

XX. Blindness from Wood Alcohol, by Dr. Casey Wood, Chicago.

I should like to suggest that these are excellent pamphlets for doctors to keep in their offices and on their reading tables for distribution and education. I am constantly giving away these pamphlets to patients who desire them. Some people wish information on one subject and others desire knowledge along other lines. The pamphlet topics are sufficiently varied to fill the wants of most people. Besides, it often happens that an oculist desires to instruct a certain patient on a particular subject. Almost all eye subjects are mentioned in these pamphlets and are plainly and understandingly discussed, and it would be far easier to give such patients an appropriate pamphlet or two than to take the time to explain the subject personally.

It seemed desirable to the committee to create a national sentiment in favor of conservation of vision, and for this purpose it was determined that lectures on this subject should be delivered in each State. A lecture bureau manager was appointed in each State who was willing to superintend the work. Where a State organization for the conservation of vision existed, one of its officers was selected to carry on the work; but where no such State organization existed, a prominent, energetic, and willing oculist was selected. The plan was about as follows:

The State manager, as he is called, must enlist the assistance of all the oculists he could to assist him in his work, acting, wherever possible, in harmony with local and State medical societies, both ophthalmological and general. Prominent and energetic oculists must be found who should be willing to lecture on the conservation of vision on invitation. Such lecturers should reside in different portions of the State, so that long and expensive journeys might not be necessary. The State manager should correspond with local medical societies, women's clubs, teachers' institutes, boards of health and education, etc., and secure invitations for a lecturer to go to different cities to talk on the conservation of vision. Lectures should, if possible, be arranged for one month in advance, to give time for preparation and necessary ethical advertising. The lecturer's expenses should, if possible, be paid for by those issuing the invitation. The lecture should last about one hour and should be given in plain and unscientific language. A discussion should follow. In order to make these lectures easy to deliver, the committee prepared a box of about thirty colored and uncolored stereopticon slides and sent

them to each State manager, to be loaned to his associates in the work whenever a lecture was to be delivered. These slides were securely packed in a strong box and locked with a Yale key. The box could be shipped from place to place by express, the key going to its destination by mail. In addition, a pamphlet was prepared, entitled *A Plan of Campaign for the Conservation of Vision*. This pamphlet contained a full description of the plan and what it was proposed to accomplish. A kind of skeleton lecture was included in this pamphlet, suggesting subjects, etc., to be referred to in the lecture. These pamphlets were freely dispensed to all State managers, who distributed them to their associates in the work. Beside this, each lecturer was placed on the mailing list for the *Press Bulletin*, to which reference has already been made, so that he could see the new articles as they came out each week, and perhaps use them in his lectures. Each lecturer also received a complete set of the conservation of vision pamphlets, as it was thought that these would greatly assist him in preparing his lectures. Quantities of the Vision Charts for Schools, were sent into each State so that the lecturers could have all they desired. While these lectures were intended to cover all avenues of vision conservation, it was especially hoped that they would result in the use of the Credé treatment of the eyes of all newborn babes; in the lessening of shop accidents; and in the annual and systematic examination of all school children's eyes by school teachers; for it is reasonably certain that if these three procedures could be universally adopted, eighty per cent. of all blindness could be eliminated from this country. The Credé treatment for newborn infants, the providing and using of goggles and other shop safety devices for eyes, and the annual, systematic examination of school children's eyes, ears, noses, and throats by school teachers in the United States could be accomplished at an annual cost not to exceed \$250,000. It costs \$15,000,000 a year to care for the dependent blind in this country alone, to say nothing of those children more or less incapacitated by defective or diseased ears, noses, and throats. Inasmuch as the examination of ears, noses, and throats is provided for in the questions annexed to the vision chart, for the teachers' use, and as abnormal conditions of these organs can be investigated easily and speedily, at the same time that the eyes are examined, and, as the benefits to be achieved by this addition are enormous, it is earnestly recommended that teachers will include the ears, noses, and throats in their investigations. Emphasis should be laid on several points connected with these annual, systematic examinations of school children's eyes, etc., by school teachers:

1. The examinations are simple and require no medical education.

2. Teachers are not expected to make diagnoses. They merely ascertain the fact through the questions, that something is wrong, and leave the rest to the doctor selected by the family for consultation.

3. A child can be easily examined in five minutes, and each teacher should examine the children attending her own room. By subdividing the work in this way, all the children in any city of any size can be easily examined in one day. A definite day

in the early fall of each year should be set aside for these tests in all cities.

4. These tests not only benefit the children by leading to the correction of their eye, ear, nose, and throat defects, but the correction of these defects *benefits the teachers*, because such corrections usually add materially to the intellectual and moral character of the children, thus rendering them much easier to teach, and more pliable to discipline. For either selfish or unselfish reasons teachers should therefore be glad to do this work without grumbling.

5. There is no objection to these examinations being made by doctors or school nurses. This, however, would cost large sums of money and boards of education and health are never allowed enough money for even ordinary purposes. This is a fact which might as well be frankly recognized and acted upon. Let teachers therefore devote one day in the year to this work and get it done. They are easily capable of doing it; it takes no extra time; it is a benefit to themselves as well as to the children; it costs practically nothing. Therefore let it be done.

The question may be pertinently asked, What has been the result of the State lectures? This has varied greatly in different States. No man was compelled to accept the position of State lecture bureau manager; the acceptance was voluntary and was decided after the work and ideals were thoroughly explained. After a promise of conscientious work was given, the box of slides and the printed matter were sent, which represented an outlay of about twenty-five dollars for each State. In some States this (at least, so far as results are concerned) has ended the matter. So far as I know, no work whatever has been done in some States, no lectures have been delivered, and nothing has been accomplished. My letters have been unanswered, my appeals have been unheeded. Perhaps a letter has been finally, at the end of the season, received, informing me that I do not understand conditions in that particular State, or that sickness or business or moving or bad weather or some equally important reason has prevented taking up the lecture plan. Of course, after a gentleman accepts a position of this kind, and agrees to do the work, I felt I had a right to depend upon his cooperation, and having once appointed him, the State was left in his charge and I felt that I had no right to interfere. It has been therefore most discouraging to me at the end of the season, when it was about time for me to make my report to the Council on Health and Public Instruction, and when it was too late to change State managers, to realize that no *real* work had been accomplished in not a few States. In some States, the work, for one reason or another, has been delayed, but still work has been done, as many lecture engagements have been made for next fall with medical societies, teachers' institutes, Chautauqua meetings, women's clubs, educational conventions, etc. But I rejoice to say that in most of the States, honest, conscientious work has been accomplished and excellent results have been achieved. The results are, of course, not all that could be desired, but still, considering that this is the first year of the committee's existence, I should be ungrateful indeed if I did not feel gratified and

much obliged to those gentlemen who have given this project their time, their labor, and their means. I beg to present, toward the end of this article, a tabulated report of this work up to the time of giving this narrative into the hands of the printer.

The question as to the future of this work now remains to be discussed. I would recommend:

1. The continuance of a weekly article on the eye for the *Press Bulletin* of the Council on Health and Public Instruction.

2. A few more conservation of vision pamphlets on interesting subjects and the increased circulation of these pamphlets.

3. The continuation of the conservation of vision lectures in the various States. Many more of these lectures should be delivered, and the State managers should be changed where the present managers have not shown a reasonable interest in the work. From twenty to twenty-five new slides for the stereopticon should be made, that will more fully illustrate the subject.

4. I was at first in favor of encouraging the formation of State societies for the conservation of vision, these societies to possess complete self government, but all of them to declare themselves in affiliation with the Committee on Conservation of Vision of the Council on Health and Public Instruction of the American Medical Association, by a slender thread of connection. I was also in favor of asking those States already possessing State organizations, to join with us in the same sort of affiliation. I was also in favor of proposing an annual meeting of this affiliated organization and the formation of a National body of this nature for the conservation of vision. Time and experience have, however, considerably modified my views, and I now believe that other plans are better.

In the first place, there is already a National society of this nature. It is, it is true, highly inactive, but still it exists and should, I believe, be encouraged to an awakening activity. In the second place, local conditions in many of the States are not conducive to friendly assistance. However well meant such assistance may be, it will in some States be regarded as meddling interference, and as an effort to rob existing organizations, whether active or lethargic, of some credit which, it is felt, should remain with the local organization and not be shared with even a well intending interloper. These views, I presume, are but natural to those people who have worked hard to develop a praiseworthy State society. They want the credit for their work and should have it, and I believe that it is better that they should be let alone and not asked to merge their identity or work with that of another organization. My recommendation, therefore, for the future is that this committee shall do what it can to inspire the formation of State conservation of vision organizations, either as independent medical and lay societies, or as commissions of the State governments. It should stand ready to advise and assist such work in any possible manner, but it must not suggest a formal connection of any description with the committee of the American Medical Association. This committee should also be equally ready to advise or assist State organizations that already ex-

ist, and should cooperate with them in any way they may properly request.

5. I should recommend that the work of this committee be extended, so that it will become a potent power in the community. It should have a central office with a paid, interested, intelligent, energetic secretary, who could and would from time to time journey from State to State upon request, to assist in the formation and perpetuation of State societies for the conservation of vision. His traveling expenses should be paid by those who summon him to the various places. He should have a well equipped office, with one or two stenographers and a library and files, containing *everything* that is printed on the conservation of vision. This office should be recognized as a central bureau of assistance, advice, literature, laws, etc., where all questions concerning this subject can and will be intelligently and willingly answered: Plans should here be devised for the formation of societies; for constitutions and bylaws; for the best ways of carrying on the work; for the building of model laws; and the best means of influencing legislatures and boards of health, education, etc. The work of such an office would be enormous and its influence widespread. Its work and purposes would enlarge and develop as time progressed, and I do not see how this noble enterprise of the conservation of vision can reach its legitimate and ultimate purpose unless something of this kind is made possible. But to do this, considerable money would be absolutely necessary, and I therefore recommend that this money be forthcoming from some source and that the good work be encouraged to go on.

6. The distribution in all schools of crisply and plainly written leaflets concerning the care of eyes, ears, noses, and throats. They should be taken home so that the parents can read them. They should be printed in various languages. Perhaps even a better plan would be to have suggestions of this kind printed on the blank fly leaf of all school books. The expense of printing would be almost nothing and the benefits derived would be incalculable.

I wish to thank Dr. H. B. Favill, Dr. F. R. Green, and the Council on Health and Public Instruction for the moral and financial assistance they have rendered our committee. I also wish to thank all those who have written for the *Press Bulletin* and the conservation of vision pamphlets. I also wish to thank all those who have assisted us in the work of the State lecture bureaus.

I shall now append a tabulated report of the State lecture bureau campaign and desire to say that a large part of the work in Ohio has been done under the auspices of the Ohio Commission for the Blind.

It will thus be seen that thirty States have reported work; 339 lectures have been delivered, by 190 lecturers, in 283 cities, to audiences aggregating 69,425 in numbers. When to this is added the hundreds of thousands of people who have been reached through the newspapers, by the distribution of the *Press Bulletin*, and the thousands of people who have been reached by the conservation of vision pamphlets, it will be seen that the work of this committee has not been in vain. I desire to add also that probably through the agency of the lectures in

the various States, school inspection of eyes, ears, noses, and throats has been established in at least 200 cities.

No.	State.	Manager.	No. of lectures.	No. of lecturers.	No. of cities.	Estimated size of audiences.
1	Ga.	Dunbar Roy	10	10	10	1,975
2	S. C.	C. W. Kollock	10	8	6	950
3	Ala.	S. Ledbetter	8	6	7	1,000
4	Ore.	J. L. McCool	3	1	1	300
5	N. C.	C. W. Banner	7	4	4	2,000
6	Kans.	R. S. Magee	7	5	6	1,050
7	N. H.	E. Fritz	8	7	8	1,725
8	Wyo.	G. L. Strader	1	1	1	100
9	Tenn.	E. C. Ellett	4	4	4	850
10	N. Y.	F. P. Lewis	2	2	2	225
11	Ark.	H. Moulton	5	4	5	400
12	Mo.	C. Loeb	15	12	8	2,300
13	Utah	D. M. Lindsay	25	12	24	4,675
14	Me.	J. A. Spalding	23	14	20	3,000
15	N. D.	J. H. Rindlaub	19	8	19	4,000
16	Conn.	G. H. Warner	2	1	2	850
17	Wash.	R. W. Perry	13	6	10	1,520
18	Md.	H. Woods	14	7	7	8,050
19	Ohio	W. E. Bruner	50	39	59	14,300
20	Ky.	J. A. Stucky	35	2	35	10,350
21	Del.	J. A. Ellegood	3	2	3	675
22	Idaho	R. L. Nourse	2	1	1	525
23	Va.	J. A. White	4	4	2	500
24	Minn.	F. C. Todd	3	3	3	500
25	Iowa	E. R. Lewis	3	3	3	500
26	Wis.	N. M. Black	1	1	1	250
27	D. C.	O. Wilkinson	2	1	2	200
28	Mich.	W. R. Parker	4	1	3	1,430
29	Ind.	A. E. Bulson, Jr.	45	20	25	5,000
30	Neb.	J. M. Patton	2	1	2	225
			339	190	283	69,425

7 WEST MADISON STREET.

SURGICAL TREATMENT OF INFANTILE PARALYSIS.

With a Report of Cases of Tendon Transplantation and Arthrodesis.

BY J. WALKER MOORE, M. D.,
Philadelphia.

I have had the good fortune to assist Doctor Ashhurst in the treatment of the cases that I am about to report, and am deeply indebted to him for the suggestions he has offered and for the privilege of reporting the cases. The patients were all treated in the orthopedic service of the Episcopal Hospital.

The treatment of infantile paralysis may be divided as follows:

1. *Acute febrile stage or that of onset.* Within a few hours or a few days after the onset the paralysis appears. The paralysis may extend slowly or the extreme limit may be reached at once. Thus the duration of this stage may be from a few hours to a week.

2. *Stationary period.* In this stage the constitutional symptoms cease, but the paralysis remains. Duration a week to a month.

3. *Stage of spontaneous repair.* Some hold that this stage ends within six months after the constitutional symptoms cease, but it is the working principle of this department to base the ending of this period at two years. Here the muscles or parts of muscles that suffer paralysis from secondary congestion and exudation about the local myelitis, recover their power, in whole or in part, while those muscles that get their nerve supply from degenerated nerve cells waste away. During this stage, then, contractures and distortions appear in the paralyzed limb.

4. *Stage of residual paralysis.* This stage has its

beginning where the stage of spontaneous repair has its ending—namely, in two years after the initial onset.

Treatment of the first stage is essentially medical. Treatment of the second and third stages implies massage, electricity, and support. Massage and electricity should never be neglected. An intelligent mother can be taught systematically to rub, knead, and pinch the muscles, as well as to move each joint in all directions daily. Every effort should be made to induce the patient to use actively each day the weakened muscles in some form of exercise.

The routine use of galvanism, so long as it will induce contraction of the paralyzed muscles, is essential; support to the weakened muscles continuously by light braces, easily removable for daily massage and active and passive movements, is of the utmost importance. Should the contractures become so powerful that braces or apparatus will no longer prevent deformities, then conservative measures, such as tendon lengthening, etc., are advisable.

There is nothing more distressing than when the attending physician neglects measures of support. The return of power in muscles where motor nerves do return is often too slow and gradual to balance the structural shortening of the opposite unaffected muscle, and by the time the full power has returned, the tendon of the unaffected muscle has become too short to permit the correction of existing deformity without operation. On the other hand, if the weak muscles are relieved of all strain, they will be enabled to acquire strength very much more rapidly. If massage, electricity, and support are properly employed, the patient will come to the surgeon with less deformity, and the strength that does remain in the paralyzed muscles will be employed to better advantage.

The fourth stage, or the stage of residual palsy, is the period of radical operation.

We are confronted with two conditions: 1. Deformities; 2, loss of muscular power. If the treatment of the stage of spontaneous repair has been neglected, and the patient comes to the surgeon with contracture of the unapposed muscles, conservative measures must be carried out to correct the existing deformity, in the form of manipulation, forcible stretching, tenotomies, tendon lengthening, etc., and the limb must be retained in overcorrected position in plaster of Paris, before radical operation is to be undertaken. On the other hand, if the paralyzed patient has been properly and successfully treated through the stage of spontaneous repair without existence of notable deformity, here the immediate radical operation offers the best prognosis.

Radical operation consists in utilizing the muscular power which remains unparalyzed, that is, tendon or muscle transplantation; or in extensively paralyzed conditions, where the joints are useless and flail-like, arthrodesis is desirable, especially in the subastragalar joint. However, in paralytic luxations of the shoulder or hip joint, muscle transplantation or reefing of the capsule gives excellent results.

In tendon transplantation there are two methods to be considered, the one advocated by Vulpius, of Heidelberg, and the other by Lange, of Munich. The method of Vulpius consists in suturing the healthy

tendon to the tendon or muscle which it is intended to strengthen. The objectionable feature of this procedure is that the paralyzed tendons stretch and the insertion is not likely to last, particularly where considerable strain is to be thrown on it, as in the

leg muscles. The procedure has been abandoned by most surgeons. Lange's method consists in suturing the healthy tendon into the periosteum near the insertion of the weak muscle that is to be strengthened. The typical operation is for varus, where the peronei are paralyzed or weak and where the tibialis anticus is the deforming factor. Here the separation of the tibialis anticus from its insertion and its subcutaneous transference to the point of insertion of the peroneus brevis, where it is sutured firmly into the periosteum at this point,

will give better results

than suturing the tibialis anticus into the tendon of the peroneus brevis muscle. This operation was done in Case II. In mild cases of paralytic varus, when the deformity is not very marked, transplantation of the extensor longus hallucis to the base of the fifth metatarsal bone furnished strong enough support to prevent recurrent varus. The methods carried out in this clinic are periosteal fixation of the transplanted tendons with chromicized catgut, or the insertion of the tendons with chromicized catgut directly through drill holes bored in the bones, with additional periosteal fixation as carried out in Cases IV and V.

As to the suture material used, some surgeons think that silk is preferable. Silk is used by a number of surgeons because it is permanent, and there is thought to be less danger of the tendon pulling loose. It is the technic of this service to use chromicized catgut. It has been satisfactory in every respect. Codivilla's method of nailing the tendons to the bone has never been used in this department. The surgeons who have used it, however, are of the opinion that direct suture, either with silk or chromicized catgut, is more reliable.

When the joint is flail-like, and no muscular power remains, tendon transplantation is useless, and some method of joint fixation must be employed. In this clinic the operation preferred in such cases is arthrodesis. Neither Putti's method of tendon fixation nor the various methods of nail or screw fixation are employed. In Putti's method the tendons which it is desired to use as ligaments in reinforcing the flail joint are cut from their muscular origins, and are attached at that level to the

bone. They thus act as tendinous bands, passing from the leg to their normal insertion in the foot. It is maintained that tendons will not stretch, and that when thus fixed at both their ends to bone they will hold the joint in proper position. It is held also that the operation may be employed at any age, whereas if arthrodesis is to be done, it is usually necessary to wait until the bones develop sufficiently to enable firm ankylosis to be secured (about the age of nine years). The risk in using the tendons as advised by Putti at an early age is that some muscular power might have been regained had the muscles been allowed to perform their functions. Moreover, it is possible for tendinous tissue to stretch.

A method of screw fixation of the ankle joint has recently been advocated by Magruder. He asserts that it is an effective substitute for arthrodesis, in that it is less destructive to tissue, quicker in results, much surer and much simpler. The permanent destruction of bone and cartilage is not to be feared. It has the singular advantage of being indicated at any age, whereas, in arthrodesis, results are usually unreliable until after the tenth year. He reported a case of a boy, aged three years, who had anterior poliomyelitis two years before, as a result of which the entire right leg was in a state of complete flaccid paralysis. The ankle joint was anchored by double fixation with three screws; one screw passed through the external malleolus, astragalus, and calcaneum, another through the internal malleolus at



FIG. 1.—(Case I) Arthrodesis of ankle and subastragal joints for infantile paralysis.



FIG. 2.—(Case I) Arthrodesis of ankle and subastragal joints for infantile paralysis.

right angles to the first, while a third screw was passed through the scaphoid and cuboid.

If the results of this procedure in the hands of other surgeons should justify the assertions of Magruder, then the operation will be a valuable asset to orthopedic surgery.

CASE I. Paralytic pes valgus treated by arthrodesis of ankle and subastragal joints. Sarah J., aged nine years,

was admitted on July 1, 1913. At the age of two years the patient said she had an attack of fever (was thought at this time to be typhoid), which left her in the present condition. Was in a hospital in Wilmington, but did not know for what length of time, or at what age. On admission the right leg measured 66 cm. from the anterior superior spine



FIG. 3.—(Case I) *A*, Paralytic valgus of left foot; in walking internal malleolus strikes floor; flail foot. *B*, same patient after arthrodesis of ankle and subastragalar joints; foot firmly fixed by bony ankylosis in good position.

to the internal malleolus. Left leg measured 63 cm. Flail foot, no muscular action below the knee excepting slight use of flexor of the big toe and some little use of the calf muscles. Marked disability in locomotion. Walked with footdrop and valgus, the internal malleolus touching the ground at each step. The hamstrings were weak; thus there was hyperextension at the knee. Owing to the fact that the thigh muscles and leg muscles, with the exception of the calf muscles and the flexor of the big toe, were paralyzed, no benefit could be derived from tendon transplantation, so arthrodesis of the ankle and subastragalar joints was proposed.

Operation, July 8th. Incision about one and a half inch long, below the lower end of the tibia across the ankle and carried down to the joint, the extensor tendons being displaced outward. Ankle joint was opened and the cartilage was scraped away from the astragalus and the tibia, likewise over the internal and external malleoli—through the same incision. Another incision (about 2.5 inches long) above the parallel to the peroneal tendons was then made, the subastragalar joint was opened and the cartilage removed from the astragalus, os calcis, and scaphoid. All the sutures (buried and skin) were of chromic catgut. Foot dressed in position of slight calcaneovarus, in plaster of Paris. No drainage. Time of operation, forty-five minutes.

August 10th the cast was removed. Wound healed. A second cast was then applied. August 20th the cast was removed. There was 10 degrees motion in the ankle joint. The foot was plumb on the leg and at right angles with it. No motion in the subastragalar joint. She was given a brace, with two side irons to the middle of the thigh, no ankle joint, and the knee joint fixed to prevent hyperextension. October 7th, patient walked very well with brace, no pain; motion in the ankle joint slightly increased. Discharged and referred to the dispensary. December 15th. The hamstrings were gaining in strength. Very slight motion in the ankle joint. Firmly ankylosed in the subastragalar joint. The left lower extremity was 2 cm. shorter than the right lower extremity. Walked with no disability, and very slight limp. The brace was to be discontinued about six months after operation. March 9, 1914. She walked with the left foot rotated outward 45 degrees. She could stand firmly on the left foot with the right foot off the floor; there was no tendency to varus or to valgus. There was firm bony union in the ankle joint and in the astragalocalcaneal joint, and enough motion in the midtarsal joint to promote locomotion. In walking, the heel struck the floor first, and the slight calcaneus deformity provided at the time of operation to-

gether with the motion in the anterior tarsus permitted slight flexion of the knee to occur before the toes struck the floor and necessitated elevation of the heel. The left knee no longer was so much hyperextended in walking.

CASE II. Paralysis of deltoid with transplantation of trapezius; equinovarus of the left foot with forcible overstretching and transplantation of tibialis anticus to the fifth metatarsal; also cavus of right foot with slight valgus deformity, with transplantation of extensor longus hallucis to the head of the first metatarsal. Lena C., aged seven years, was admitted June 17, 1913. Had infantile paralysis three years ago, which left her with loss of power of the left foot and the right arm. Had recovered some use of the right arm since, from the use of electricity and massage, but the foot had not improved. Patient had never worn braces. The right foot showed paralysis of anterior tibial and the posterior tibial, while the extensor longus hallucis overacted with resulting cavus; slight valgus deformity.

The left foot showed paralysis of the peronei with marked equinovarus deformity. Right upper extremity: There was probably some paralysis of the spinal muscles on the right side which caused slight curvature of the spine, convexity to the right. Atrophy of the shoulder muscles and those of the upper arm. The upper arm from the acromial tubercles to the external condyle was 15 cm. on the right and 19 cm. on the left; circumference on the right 13 cm., and on the left 15 cm. Hand and forearm seemed normal. Loss of supination of the forearm beyond midposition, but full pronation possible. Feeble action in the biceps, enough to support the forearm on the arm after the elbow was flexed by the other hand. No limitation of motion in the shoulder. Head of the humerus tended to luxate forward. No power in the deltoid. Slight power in the pectoralis major and latissimus dorsi. No power in the rotators of the shoulder. Could put hand to mouth by swinging motion, but was unable to hold it there.

First operation. On June 21st an Esmarch bandage was applied above the right knee. Incision across the metatarsals from the big toe to the third over the heads, the extensor longus hallucis tendon dissected out; likewise the tendons to the great toe from the extensor brevis, and from the extensor longus digitorum. These were tied together side by side with chromic gut sutures, and the tendon of the flexor longus hallucis was cut proximal to the point of ligature just above the base of the first phalanx. The first metatarsal was drilled through near its distal end and the extensor longus hallucis pulled through this with No. 1 chromic gut and stitched to the base of the first metatarsal on its lateral (internal) surface; wound closed and plaster



FIG. 4.—(Case II) *A*, Paralytic varus of left foot. *B*, Result after transplantation of the tibialis anticus from the inner to the outer side of the foot, in the neighborhood of the base of the fifth metatarsal.

cast applied, with foot dorsiflexed on leg. The plantar surface of the left foot was punctured with tenotome, and plantar fascia was divided. Following this the equinovarus in the left foot was corrected by forcible overstretching with the tarsoclast, and the foot and leg placed in plaster cast. Time of operation one hour.

Second operation, July 8th. Ether was given, cast removed from the left foot, Esmarch band applied above the knee. Incision over the tibialis anticus insertion, tendon

divided here, pulled through a second incision above the annular ligament and carried thence down to the base of the fifth metatarsal and sewed with No. 2 chromic gut to the periosteum and bone at the base of the fifth metatarsal. Leg put up in plaster cast. Then an incision was made along the anterior border of the right trapezius above the clavicle, trapezius exposed, and flaps cut from the anterior

still slight toe drop and inclination to valgus, but the cavus no longer existed, and the deformity and disability were much less than before operation. In the *left foot* the transplanted tibialis anticus was not strong enough to overcome the varus, and without the brace there was still slight varus deformity. The extensor longus hallucis was strong, and aided in producing the varus; this tendon might be transplanted later to aid the transplanted tibialis anticus in everting the foot.

The right arm was very much better than before operation; with a little effort she could flex the elbow and could easily hold it flexed; and she used her hand, being able to write very much better than formerly. There was not much power in the shoulder, and the result of the transplantation of the trapezius was decidedly less satisfactory than that secured in Case iv by transplantation of the pectoralis major. As the pectoralis major in this patient (Lena C.) seemed to have some power, it might be possible to secure better motion in the shoulder by transplanting it to aid the deltoid, as in Case iv.

CASE III. Paralytic cavus, ankle drop, and knee drop and external rotation of the thigh, transplantation of the extensor longus hallucis to the head of the first metatarsal; transplantation of semitendinosus to the upper border of the patella, and transplantation of the tensor fasciæ latæ to the great trochanter. Arthur S., was admitted to the hospital June 6, 1913, when six years of age. He

border (2.5 by 3 inches) with base at clavicle, and turned down; this flap was thought to contain fibres of the spinal accessory nerve. Then a transverse incision was made over the humerus; the long head of the biceps was exposed and shortened; the flap from the trapezius was then pulled through the subcutaneous tissues from the upper to the lower wound and sewed down to the fascia and peritoneum of the bicipital groove. Rubber drain put in the neck wound. Skin closed with No. 1 chromic gut. Arm, hand, and shoulder put up in plaster cast, the humerus being abducted to a right angle and in external rotation; elbow placed at right angle.

August 15th, cast removed from the right foot. The cavus was corrected and the child could flex and extend the foot very well. Valgus was scarcely noticeable. August 22d, cast from the shoulder and arm and from the left foot removed. The shoulder findings were just about the same as they were before operation. Massage and electricity (galvanic) was ordered three times a week. September 10th, transplanted tendon in the left foot contracted wall, not adherent to the skin or scar, but there was still a slight tendency to varus, but when standing the foot came down plumb. The transplanted tendon in the right foot acted very well, and there was very little valgus deformity left. Cavus corrected. The big toe could be extended as well as before. Right arm: With a little start the patient could flex the forearm on the arm. Less tendency to luxation of the head of the humerus forward. There was some power in the rotators of the shoulder. She had the power of moving the humerus forward (flexion), probably owing to transplantation of the trapezius. The transplanted trapezius could be felt contracting. September 16th, brace applied to the left foot, two side irons to the upper part of the leg, with instep strap and elastic to the outer side of the foot, to prevent varus deformity. September 20th, Patient discharged and referred to the dispensary. November 3d, patient returned to the dispensary. Left foot not fully corrected of varus, brace necessary for some time. Could hold the arm flexed at the elbow firmly for some time, and with a swing could get the hand to the top of the head. Parents stated that she had much more use of it than before operation.

March 9, 1914 (eight months after operation). Examined in the dispensary. The child walked fairly well in her braces, but still threw the *right foot*; in this there was

had infantile paralysis three years ago and as a result there was marked weakness of the right lower extremity. The patient walked mostly on the toes, falling at the least provocation, and at times the knee collapsed like the blade of a pocket knife into the handle. Thus the hand was kept constantly on the knee when walking to aid the weak extensors of the thigh. Left leg was well developed, in fact was overdeveloped. Right lower extremity, 48 cm.

from the anterior superior spine to the internal malleolus. Left lower extremity, 50 cm. from the anterior spine to the internal malleolus. The extensor longus hallucis overacted, causing cavus and slight valgus. Paralysis of the tibialis anticus. Weakness of the quadriceps extensor and paralysis of the internal rotators of the hip. Right thigh showed atrophy, 23 cm. in circumference; left thigh, 30 cm. in circumference. No power of holding the knee extended. Knee jerk absent. Thigh was externally rotated so that the foot was held almost at right angle with the left one. The other muscles contracted well.

First operation July 8, 1913. Esmarch band applied above the knee. Incision made over the head of the first metatarsal, running across the dorsum of the foot. The tendon of the extensor longus hallucis was exposed and two catgut ligatures put around it and the extensor brevis tendon. The extensor longus hallucis was divided above this ligature, and a hole was then drilled through the first metatarsal near its head. The tendon was split and one half pulled through the

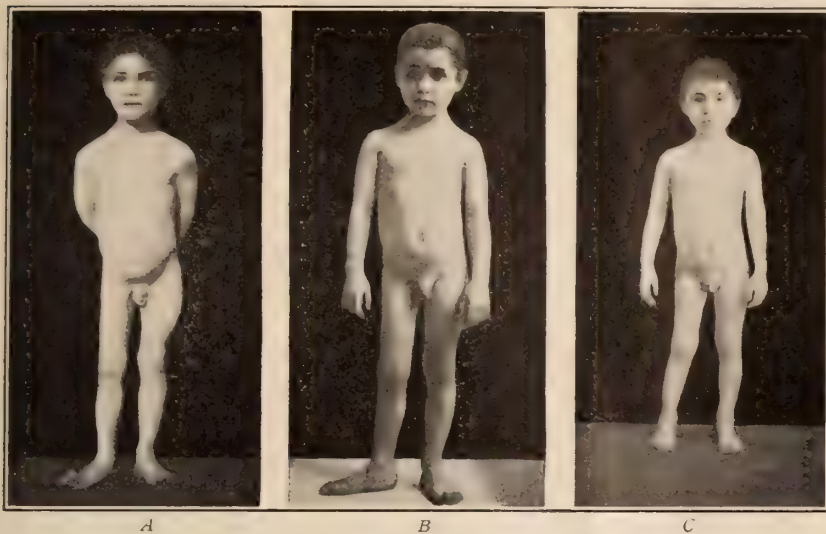


FIG. 5.—(Case III) A, Paralytic cavus of right foot with overaction of extensor longus hallucis. B, Paralytic outward rotation of lower extremity; foot disability has been corrected by transplantation of extensor longus hallucis into head of first metatarsal bone. C, Final result: outward rotation corrected by transplantation of tensor fasciæ femoris into great trochanter; paralysis of quadriceps compensated for by transplantation of semitendinosus into patella; the foot is no longer in cavus and valgus.



FIG. 6.—(Case IV) Showing the incision employed for transplantation of pectoralis major to take the place of the paralyzed deltoid. Before this operation the humerus became subluxated anteriorly when the position shown in the photograph was assumed, and the arm could not be drawn forward without the aid of the left hand. Voluntary flexion of the shoulder joint is now easy.

hole in the metatarsal and the two ends sewed together with chromic catgut No. 2 on the inner side of the first metatarsal.

The knee operation followed. The Esmarch bandage was removed before the incision was made. Incision in the posterior aspect of the knee in line of the bone over the tendon of the semitendinosus, which tendon was exposed and divided near its insertion. An incision was then made over the lower third of the thigh in the adductor region; the tendon of the semitendinosus was then drawn up through this opening; then an incision was made over the patella and this was connected with the last incision

from the anterior superior spine of the ilium to the great trochanter. The tensor fasciæ latæ was separated on either side from the fascia lata and cut free from its insertion into the fascia lata. The fascia was freed from the great trochanter of the femur and a counter incision made in the fascia a little behind the trochanter. The free end of the tensor was pulled into this opening in the fascia from within outward and sutured to the periosteum of the trochanter and to the outer side of the fascia lata while the limb was in marked internal rotation; the free end of the tensor was then turned forward on the superficial surface of the fascia lata and sutured to it. Skin incision then closed. Limb put in plaster cast in the position of marked internal rotation.

November 3d, cast removed. Foot strongly rotated inward. November 7th, allowed to walk for the first time since removal of the cast. Walked with a limp, but did not turn the foot outward as he formerly did, except when taking quick steps. No tendency for the knee to collapse. March 16th, walked with very slight limp, and the foot was not rotated out. Did not fall down, but still walked on his toes. Knee never collapsed.

CASE IV. Brachial birth palsy: Wrist drop; inability to supinate forearm; paralytic anterior luxation of the shoulder; transplantation of flexor carpi radialis and ulnaris to extensor surface of the carpus; transplantation of pronator radii teres through interosseous space to radial side of the radius so as to make it a supinator; transplantation of the clavicular region of the pectoralis major to the acromion process and adjacent border of the deltoid. Carl C., aged thirteen years, was admitted to the hospital, August 21, 1913. Gave history of instrumental delivery, and the mother stated that the deformity had existed since birth. Had massage and electricity from the age of seven weeks to one year. Examination of the right upper extremity showed fair use of the fingers, wrist drop, forearm pronated and carried in the flexed position; elbow weak, shoulder almost flail-like, humerus rotated inward and the head luxated forward when the arm was put behind the back. Abduction of the shoulder limited to 60° ; external rotation at the shoulder about 45° . Flexion and extension of the shoulder normal. Flexion of the elbow normal, extension limited very slightly. No limitation of passive motion at the wrist. Supination beyond the mid position impossible. Hardly any voluntary motion in the shoulder. Muscles of the axillary folds good. Biceps and triceps fairly good. No supination possible. Extensors of carpus paralyzed. Extensors of the fingers good. Flexion of the fingers and carpus good. He could put the

back of the hand to the mouth but not the fingers, on account of the persistent pronation of the forearm. When the hand was carried behind his back, he was unable to bring it forward again except by the use of the other hand; and the head of the humerus often luxated forward and caused him pain. (See Figs. 6 and 7.)

First operation, August 27th, ether given. Arm elevated five minutes and Esmarch band applied to the middle third of the arm:

1. An incision 3.5 inches long made on the extreme radial side of the forearm in its middle third. The insertion of the pronator radii teres was cut and the tendon freed. The tendon then passed through the interosseous mem-



FIG. 7.—(Case IV) Brachial birth palsy of right upper extremity; with flail shoulder and loss of supination in forearm and of extension in wrist. Above, disability before operation; below, result of operation.

FIG. 8.—(Case V) Infantile paralysis of left upper extremity, with loss of supination in forearm and of extension of wrist and of thumb and index fingers. Above, disability before operation; below, result of operation.

subcutaneously and the semitendinosus pulled down to the patella and sewed to it by No. 2 chromic catgut. Fascia and skin were sewed with No. 1 chromic catgut. Foot and leg placed in plaster cast and elevated.

August 25th, cast removed. The leg could be extended voluntarily to 160 degrees. There was good movement of the foot, both extension and flexion. The thigh was rotated outward, so that the right foot was at right angles with the left one. Patient allowed to go home for a time. September 6th, patient readmitted. Operation proposed to transplant the tensor fasciæ latæ to the trochanter, thus aiding in internal rotation of the thigh.

Second operation September 26th. An incision was made

brane around the posterior surface of the radius to the anterolateral surface and here sewed to the periosteum when the forearm was forcibly supinated by chromic gut sutures passed through holes drilled in the bone.

2. An incision 2.5 inches long made on the anterior surface beginning at the lower third of the radius, and ex-



FIG. 9.—(Case VI) Paralytic calcaneus, no power to raise heel. Patient walked on heel and toes, flew into the air at every step. Treated by transverse horizontal section of the tarsus, subastragalar arthrodesis and moving the foot backward on the leg bones, so that weight was transmitted more anteriorly. Also transplantation of peronei muscles to inner side of calcaneum at insertion of tendon of Achilles. Result: The patient now brings toes to the ground in walking and can raise heel slightly; the foot forms a stable support.

tending to the base of the first metacarpal. Here the tendon of insertion of the flexor carpi radialis was cut and freed. A counter incision made on the dorsal surface one inch in length over the base of the second metacarpal bone. Now the tendon of the flexor carpi radialis was brought around the lower posterior aspect of the radius just beneath the skin and sewed to the ligaments and periosteum in the region of the base of the second metacarpal.

3. Incision 2 inches long is made on the anterior surface of the forearm, ulnar side, extending to the carpal bones; the tendon of insertion of the flexor carpi ulnaris cut and freed; a counter incision made on the dorsal surface, one inch in length in the region of the base of the fifth metacarpal. The tendon was passed around lower end of ulna and sewed with mattress sutures in the region of the base of the fifth metacarpal bone. The skin incisions were closed with interrupted chromic gut sutures; hand dressed in extension, and the forearm in full supination, and put on an anterior angular splint.

September 10th, dressings removed, wounds clean.

Second operation, September 24th, ether given. An incision was made from below the outer posterior border of the acromion process, along the acromion to the clavicle and following the clavicle to the sternoclavicular joint and down the sternum to the third rib. The skin, superficial and deep fascia were reflected, exposing the pectoralis major muscle. Now the clavicular portion of the pectoralis muscle was separated from the clavicle, taking care that the nerve and arterial supply was not destroyed; tendon split into corresponding portions down to its insertion in the humerus. Thus the upper outer third of the muscle was separated from the inner attached two thirds. The

belly of the detached muscle was sewed to the upper margin of the acromion process and outer fourth of the clavicle after a groove had been made in this surface with a Hey's saw. The external border of the transplanted pectoralis major was sutured to the adjacent deltoid. The deep fascia, superficial fascia, and the skin were now closed, the latter with continuous thread of linen. The arm was dressed at right angles with the body in full abduction and external rotation, and the forearm flexed on the arm, and maintained in position by plaster of Paris.

October 4th, patient discharged and referred to the Orthopedic Dispensary. November 3d, cast removed, all wounds healed. To carry the arm in a sling. Massage ordered three times a week. November 10th, sling removed, passive motion to elbow. Had good flexion of the elbow. November 17, 1913, passive motion to shoulder. Motion was increasing. November 24th, could put hand to mouth in supination well. When the arm was put behind his back could pull it forward well. Could extend the wrist but still there was a tendency to ulnar deviation at the wrist. March 2, 1914, could take his hat off and put it on with his paralyzed hand; used this hand to cut his meat; and he could put his hand in the pocket of his coat or trousers, though he had some difficulty in doing this. He could write a little with a lead pencil in this hand. The hand was held in the line of the forearm, neither flexed nor extended, but slightly adducted toward the ulnar side. The wrist could be flexed voluntarily to 135° and extended to 200° (hyperextension of 20°), and his grip was strong. He could pronate his forearm fully, and could supinate it to the midposition. When he put his arm behind his back, he could bring it forward again with great ease, and the head of the humerus no longer luxated forward.

CASE V (Fig. 8). Paralytic wrist drop and pronation of forearm; transplantation of the flexor carpi radialis and ulnaris to the dorsum of the carpus and bases of the second and fourth metacarpals respectively, and transplantation of the pronator radii teres through the interosseous space to the radial side of the radius, so as to make it a supinator. Emil F., aged thirteen years, was admitted to the hospital October 8, 1913. Four years ago the child was said to have had an attack of fever (parents say typhoid fever) which lasted for three days. One month later there was noticed a weakness in the left arm. The condition had



FIG. 10.—(Case VII) After operation for paralytic dislocation of left hip still in primary frog position of flexion and abduction.

gradually grown worse, so that the patient had difficulty in picking up articles and in moving the arm. Two years later the mother stated that the left leg became involved, and one year following this the left corner of the mouth became "pushed forward." Examination showed a well developed lad, aged thirteen years, mouth drawn slightly

to the right side, the left cheek looked fuller than the right. The right corner of the mouth could be drawn normally to the right side, the left corner moved weakly. Tongue protruded in a straight line, no deviation to the right or to the left. The deltoid was somewhat atrophied. The arm could be adducted but weakly so, and could be abducted from the side slowly to the erect position. The



FIG. 11.—(Case VII) Paralytic dislocation of left hip.

rotators were weak. The biceps and triceps were active, though the strength was markedly diminished in comparison with the right arm. Supination of the forearm was entirely lost. The arm was held in pronation, though it could be supinated passively. When supinated the forearm could be pronated actively with a fair degree of strength. The hand was dropped at the wrist and the fingers were held in extension, with the exception of the thumb and index finger, which could not be extended voluntarily; however, flexion in these was good as well as in the other fingers. The hand could not be abducted nor adducted voluntarily. The thumb could be adducted well within the palm of the hand. If he made a fist he could extend the wrist slowly, but not if the fingers were extended. The hand was entirely useless; he could not do anything with it. Rotators of the thigh were weak, so also the flexors. The adductors were strong. The flexors and extensors of the foot were weak, especially the tendo Achillis. Knee jerk not increased. No spasticity.

Operation, October 10th, ether given. Esmarch band applied above the elbow. An incision about two inches long began at the wrist and extended upward, following the course of the flexor carpi radialis; the tendon of this muscle was cut close to its insertion. A counter incision was then made on the dorsum of the wrist, ending just below the base of the second metacarpal bone. Likewise an incision two inches long was made on the volar surface, beginning at the wrist and extending upward along the course of the tendon of the flexor carpi ulnaris. The tendon was cut close to its insertion. A counter incision was made on the dorsum, beginning over the lower end of the ulna and extending to just above the base of the fifth metacarpal. The hand was now extended on the wrist, the tendons of the extensor indicis and the extensor longus pollicis were shortened about half an inch; the tendon of the flexor carpi radialis was brought around the

lower end of the radius and attached to the ligaments and periosteum in the region of the base of the second metacarpal. The tendon of the flexor carpi ulnaris was brought around the lower end of the ulna and attached to the ligaments and periosteum in the region of the carpus and base of the fourth metacarpal bone. An incision 3.5 inches long was made on the extreme radial side of the forearm over its middle third. The insertion of the pronator radii teres was cut and the tendon freed. The tendon was then passed through the interosseous space around the posterior surface of the radius to the anterolateral surface and here anchored by drilling a hole through the radius, and attached by chromic catgut No. 1, passed through the hole and sutured to the periosteum. The forearm was then dressed in full supination on an anterior angular splint, with the hand extended on the wrist and held there with cotton pads.

October 14th, patient discharged and referred to the dispensary. November 10th, splint removed. Could raise hand to mouth and hold it in full supination. November 24th, could flex the fingers fairly well and the thumb also, but could not flex the wrist. Slight power of supination and pronation in the forearm. Thumb and index finger did not remain flexed. December 15th, had fair supination and pronation. Could put hand to mouth with ease and hold it there. March 9, 1914, left wrist remained slightly hyperextended, and the left hand usually remained clenched, except just after the fingers had been passively extended or the wrist flexed; if he put anything into his hand he could hold it well. He could take his hat off and put it on with his hand, held his fork in it, in eating; and in general had infinitely better use of it than before operation. He could pronate his forearm fully and with a little difficulty could supinate it to the midposition. The clenched position of the fingers might have been due to the persistence of hyperextension at the wrist; but this gradually grew less.

CASE VI. Paralytic calcaneus, transverse horizontal section of tarsus and transplantation of peronei into calcaneum. Marian J., aged six years, was admitted April 3, 1913. At the age of three years she had an attack of anterior poliomyelitis; was unable to walk for five weeks. Since then the child had great difficulty in walking. The ankle was weak with a tendency to valgus, the toes and anterior tarsus flying up in the air with each step, thus requiring the patient to walk on the heel. There was very little power in the anterior tibial and none in the calf muscles. The foot was in calcaneus deformity. (Fig. 9.)

Operation, April 9th, ether given. Esmarch band above knee. Incision 2.5 inches in length below external mal-

leolus forward to tuberosity of fifth metatarsal bone, above the peroneal tendons, which were divided at the fifth metatarsal bone. The soft parts were separated from the dorsum of the foot, and the external lateral ligament of the ankle was detached from the calcaneum. The subastragalar joint was then opened and the cartilage removed from the astragalus and calcaneum. Then another incision was made below and in front of the internal malleolus (1.5 inch long), exposing the tendon of the tibialis posticus, which was pushed downward. The internal lateral ligament of the ankle



FIG. 12.—(Case VIII) Wheel crutch.

was next detached from the calcaneum. Then by means of an osteotome, introduced through the internal incision, a complete horizontal transverse section of the tarsus was made, beginning posteriorly in the subastragalar joint, and extending to the dorsum of the foot in front of the mediotarsal joint, sectioning the anterior part of the astragalus, the scaphoid, the cuboid, and the cuneiform. This permitted the lower section of the foot to be displaced backward, making the heel prominent, and carrying the leg bones with the astragalus and upper sections of the anterior tarsal bones forward. Next an in-

cision was made transversely over the inner side of the insertion of the tendo Achillis, and another incision over the lower fourth of the fibula. The peroneal tendons, previously divided below, were then drawn out of the last mentioned incision and from there were carried across between the tendo Achillis and the leg bones to the incision made over the inner side of the heel; and they were then sutured to the periosteum of the calcaneum on its inner side, with the foot in a position of slight equinus. Finally the ligamentous and fascial structures on both sides of the foot were sutured in such a way as to maintain the posterior displacement of the foot. All four skin wounds were closed with chromic gut, and the foot was dressed in plaster of Paris in a position of slight equinovarus, taking care to maintain the posterior displacement. The time of the operation was one hour and twenty minutes.

June 11, 1913, the cast was removed; the patient had been walking around the ward for some time with it on. The incisions were all healed, and the foot in good position; the heel projected well (Fig. 9) and could be raised from the floor by means of the transplanted peroneal muscles, even against considerable resistance. Brace ordered to prevent dorsiflexion of the foot. December 15th, returned to orthopedic dispensary. There was scarcely any motion in the subastragalar joint. The heel projected well beyond the line of the leg bones, throwing the centre of support well forward on the foot. Circumference of the left calf 22 cm.; of the right calf 17 cm. She walked with the heel coming down firmly and the toes lightly so; she now wore out the soles of her shoes, which she never did before the operation, when she walked on the heel. The foot was stable, and she rarely fell. The brace to be discontinued very soon. January 26, 1914, wore ordinary shoes, walked with scarcely perceptible "flap" of right foot, which formed a stable support.

CASE VII. Paralysis of extensors of toes and big toe, tibialis anticus, and peronei of both extremities, resulting in equinovarus deformity; genu valgum of the right knee; paralytic posterior luxation of the head of the left femur; tendon lengthening; osteotomy; arthrotomy of hip and reefing of capsule. George R., aged five years, admitted to the hospital August 21, 1913. At the age of eighteen months the child had an attack of fever, diarrhea, etc., which the family physician diagnosed as summer complaint. A few days following the initial attack the patient became paralyzed in all four extremities, the back and neck. The muscles of the neck, back, and right arm soon regained their strength, those of the left arm slowly so; the lower limbs had improved very little. Was given massage and electricity, and support in the form of braces to the legs for two years by an outside physician. Examination on admission: Right upper extremity normal. The deltoid was atrophied, unable to abduct the arm. Trapezius in good condition. Flexion and extension of the forearm and wrist present, but weak in comparison with the opposite arm. Rotators of the forearm good. Right lower extremity lay in complete external rotation, and there was equinovarus of the foot and knock knee. Paralysis of the extensors of toes and big toe, of anterior tibial and peronei; calf muscles good. Left lower extremity held in flexion and adduction at the hip and the foot was in equinovarus position. The trochanter was on the same level of the anterior superior spine of the ilium and head of the femur could not be felt below Poupert's ligament. There was dorsal luxation of the hip, which was easily reduced by circumduction or direct traction. The hip was a flail joint; the quadriceps extensor was powerless and the hamstrings were weak. Paralysis of all the extensors and flexors of the toes, and of anterior tibial and peronei muscles. There was marked paralytic lordosis of the lumbar spine, and almost complete loss of power in the gluteal muscles.

First operation, September 10th, right foot and knee. A crescent shaped incision was made over the tendo Achillis. The sheath of this tendon was opened. The tendon was split in half, beginning at the insertion and extending upward for 1.5 inch. The inner half of the tendon was cut on a level with its insertion, the outer half 1.5 inch above the insertion. The two ends were sutured together with mattress sutures of chromic catgut. The sheath was closed over the tendon and the skin incision closed.

An osteotomy of the right femur for genu valgum was also done. The entire right extremity was put in plaster cast with the genu valgum overcorrected, and the foot in acute dorsal flexion. October 10th, cast removed from the

right foot and leg. Incision healed. Knock knee corrected. Apparatus applied to hold the foot at right angles with the leg. Massage ordered.

Second operation, October 15th, left hip and left leg: An incision beginning at the anterior superior spine was made extending downward and backward to the great trochanter. The tensor fasciæ latæ was cut across in the line of the skin incision near its origin and found to be nothing more than fat and fibrous tissue. The capsule of the hip joint was exposed in front of the anterior border of the gluteus medius. The rim of the acetabulum seemed to be in good condition, though the capsule was relaxed, thus allowing the head to luxate posteriorly with the greatest ease. An incision was now made in the capsule of the joint, beginning at the acetabulum and extending downward and outward, following the neck for two inches to the great trochanter, then an incision perpendicular to this following the base of the neck anteriorly, the incision making a reversed L. After reduction of the dislocation, the lower flap of capsule was drawn over the upper flap and the upper flap was sutured to the base of the lower flap with mattress sutures. Then the free margin of the lower flap was sutured to the upper part of the capsule between the acetabulum and trochanter. Fascia, muscle, and skin sutured with chromic catgut. The head of the femur was found to be held firm within the socket, it being impossible to luxate it even by direct pressure when the femur was adducted and flexed. No drain. The tendo Achillis was lengthened, by the usual technic (Z plasty). Plaster cast applied with the left lower extremity in the "frog position."

December 17th, cast removed. Incisions healed. Head of femur remained in acetabulum (Figs. 10 and 11). Massage ordered. Braces adjusted to hold the left thigh in the frog position. February 23, 1914, progress of case interrupted by an attack of measles. Still in bed. The left hip remained firmly in the acetabulum; the knee could not be fully extended, nor could the thigh be brought down parallel to the other thigh. Massage and passive motion ordered, and braces temporarily discontinued. March 9th, weight extension applied to left limb, in effort to overcome flexion and abduction at hip. The feet were in reasonably good position, but there still was a tendency to equinus deformity. The right lower extremity was stronger at the hip, and as soon as the deformity at the left hip could be overcome it would be possible to teach the child to walk with the aid of braces. May 6th. The contractures at the hip and knee were overcome some weeks ago, and braces were applied. The boy could now walk a little with support. The greatest disability was from weakness of the gluteal muscles.

CASE VIII. Infantile paralysis of both lower extremities, with contractures. Tenotomies at right hip, and lengthening of tendo Achillis in both feet. Julia L., aged two years, was admitted into the hospital, August 8, 1913. Had an attack of anterior poliomyelitis at the age of eight months. Three days after the initial attack the patient became paralyzed in the right upper and lower extremity. Within three weeks the child regained the power and usefulness in the right upper extremity, but the lower extremity remained unimproved. Two weeks after the initial onset the left lower extremity became paralyzed. With the appearance of the last paralysis the child was taken to a neighboring hospital where it received massage and electricity three times a week. The mother said the child improved a great deal from the treatment, so she continued to take the child to the dispensary for one year. On admission to this hospital, examination showed as follows: Left lower extremity, slight power in the adductors and glutei. Good power in the hamstrings, calf, and flexor muscles of the toes. Paralysis of the quadriceps and anterior tibial. Good power in the peronei and extensor longus hallucis. Slight power in the extensors of the toes. Slight contractures of the sartorius and of the long head of the rectus at the hip, and marked contracture of tendo Achillis. Right lower extremity: Slight power in the iliopsoas and glutei. No power in any other muscles. Contractures of sartorius and rectus at the hip, and of the tendo Achillis. Massage and electricity were ordered three times a week.

Operation, October 8th, sartorius, rectus, and tensor fasciæ latæ of the right side divided close to their origin, by open incision; tendo Achillis of both legs lengthened by the usual technic (Z plasty). The right thigh was ex-

tended and the foot dorsiflexed, and plaster cast applied to the pelvis, thigh, leg, and foot. The left foot was dorsiflexed, and cast applied.

November 4th, cast removed from the left extremity. Foot in good position. November 11th, cast removed from right extremity. Foot in good position and hip could be fully extended. Braces ordered, pelvic bands on both sides, knee joints set back, instep straps, and elastics to maintain dorsiflexion of feet. February, 1914, the patient remained in the hospital, and was very gradually learning to walk. When supported by the wheel crutch (Fig. 12) she was able to make considerable progress, but the right leg was still almost powerless.

EPISCOPAL HOSPITAL.

IS THE CONSUMPTION CRUSADE BECOMING A BURLESQUE?

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The discovery of the tubercle bacillus inspired the almost universal confidence that it was the long looked for key to solve the mystery of the cure and prevention of pulmonary consumption. The certainty of this became so great, and gained strength with such remarkable rapidity, that all opposition was met with unreasoning scorn and intolerance, and contemptuously cast aside. The die was cast, the machinery was set in motion, and the bacillus and the disease were to be annihilated without question in less than twenty-five years, as we were frequently assured, and the only thing that remained to be determined was, which of the sprinters would reach the goal first.

As reinforcing means, a circular campaign of education was designed and carried on throughout the country, exhibitions of the anatomical horrors of the disease were held in many of the larger cities, and everything that could possibly inflame the passions of the people in regard to the great contagiousness and dangers of this disease, was pressed into service. Day in and day out, preachments were rung into the ears of the multitude that it is an absolutely demonstrated fact that the tubercle bacillus is and can be the only cause of consumption; that this germ is contained in the expectoration of every consumptive—some of whom expectorate as many as three billions (3,000,000,000) of them in the course of twenty-four hours; that every consumptive at some time inhaled these germs from another consumptive and became infected.

A campaign of education like this was naturally followed by widespread terror and demoralization. The people were driven to frenzy, because none knew how soon his turn would come to inhale this everpresent deadly germ, and to fall a victim to this terrible plague. The solicitude became so deeply impressed that the ordinary feelings of pity and sympathy were chilled and caloused. A consumptive in a family is frequently neglected by the other members. Coughing on the street, in public conveyances, churches, and theatres, is viewed with suspicion. Even the members of a family in which there is a sufferer of this disease are circumspectly avoided. The doors of hotels, of boarding houses, and even of health resorts are closed against them. One of our leading

weekly popular magazines is said to have stated that "ten cases of leprosy at large would be a less source of danger than one case of consumption."

The anguish and cruelty called forth by such a barbarous environment have driven many a consumptive to suicide. To all it is a source of despair, of worry, of grief, of wounded affection, which greatly diminish vital resistance to the disease, and lessen the chances of recovery.

After a while, it began to dawn on the leaders that the campaign of education, in its present form, is carried to extremes; that it caused a revulsion in the minds of the people, and that it became advisable to eliminate some of its cruder elements, like the chamber of horrors, etc., and to proceed on less strenuous lines. And while still maintaining a firm demeanor in regard to the grave nature of this disease, they began to soften the sharp edges of the movement by assuring the public that, after all, consumption is not such a contagious disease as it was represented to be.

It was ludicrous to find one of the chief offenders in this respect accusing a fellow worker of frightening "the people into a state of insane fear" on account of this disease; when it is well known that he himself was the prime mover in this scheme, and he never tired of singing in no uncertain tones the whole gamut of woes and perils which he believed to accompany consumption. It was indeed a fitting illustration of the fable in which the lion, standing up the stream, accused the lamb below of muddying the water.

The game of evasion became still more interesting when the announcement was made that consumption hospitals, conducted on the modern precautionary plan, are the safest places in the world for well people, to avoid getting consumption. This was undoubtedly done, in the first place, to allay the apprehension which had been aroused concerning the danger of contracting the disease; and, in the second place, to show how easily and effectually the present prevention measures can render a hazardous place perfectly harmless in the midst of the sick. In making this statement, however, the leaders conveniently forget to mention that investigation of the largest consumption hospitals of the world, like the Brompton of London, Friederichshain of Berlin, Brehmer's of Goerbersdorf, and other similar institutions, clearly established the fact that previous to twenty-five years ago, and before modern methods were even dreamed of, there was just as little evidence of contagion in those hospitals as there is now.

One of the most recent of this extraordinary series of gyrational performances, is the pronouncement that about ninety per cent. of the people have or have had tuberculosis, coupled with the soothing implication, that that which everybody has, cannot in any event be such a great misfortune. This is further proof that this whole contagion movement has overdone itself, has exhausted its vitality, and like some of our garden vegetables "has run to seed." To say that everybody is or has been tuberculous, practically is one thing, but to imply by this that general tuberculous diseases are the same as pulmonary consumption, is a futile effort to sidetrack the main issue.

Of greater importance, however, is the assertion of the same authority that general tuberculous patients, as well as those with slight lung affections, recover because an immunity has been established between the human constitution and the tubercle bacillus; while in the case of consumption, when the disease has advanced beyond a slight affection, no such immunity exists, and hence such patients are doomed. Aside from the dark and gloomy view which is presented here, it seems that it would be in greater harmony with the facts, to say that consumption does not exist in any form, not because there is a lack of immunity between it and the tubercle bacillus, but because there is a lack of immunity, or of adaptation, between the forces of the body which constitute life, and of those of its environment.

However, if consumption is the result of a warfare between the tubercle bacillus and the human body, and if the disease vanishes if there is established an immunity, or an adjustment, between the bacillus and the human body, then the disease decreases in proportion to the firmer establishment of this immunity, or, in other words, the immunity is established in proportion as the power of the bacilli over the body becomes impaired or destroyed. On the other hand, if consumption is the outcome of a want of adjustment or immunity between the body and its environment regardless of the bacilli, then the decrease of this disease varies with the degree of adjustment that exists between these two factors.

But after all is said and done, the question whether consumption is the result of a want of adjustment between the body and the tubercle bacilli, or between the body and its natural environment, is one which must be solved largely by information gleaned from the field of practical experience. Let those who deny that consumption does not depend on a lack of adjustment between the human body and its normal surroundings, explain why, since the present prevention crusade—the only object of which is to annihilate and suppress the power of the tubercle bacilli—has been installed almost everywhere, the death rate of this disease has been gradually increasing in this country, in England, and in Wales, while the death rate of general diseases is diminishing at the same time. Let them also explain why it was, that before the crusade came into existence, and when nothing whatever was done to affect the disease directly, yet the consumption death rate, as well as the general death rate, decreased greatly.

It is true that, during the time just referred to, there was a general advancement in personal and public hygiene, better housing, better food, better care, better wages, and less poverty. There was no bug hunting nor bug extermination, no spitting in cups, no coughing to one side, no disinfection, no fumigation, no public control; and still this terribly contagious disease diminished as it never had done before nor has since. Of course they were ignorant, at that time, of the modern paraphernalia of prevention. For such ignorance, many thanks from every breast that is not hardened by an adamant heart. Ignorance of this kind meant at least peace, happiness, and contentment through a lin-

gering illness. The sufferers were just as near to their friends and family as those were who died of other diseases. They were not harassed and haunted with the feeling that they were lepers, outcasts, and alone in the world. They knew nothing of inquisitorial health boards which spied them through their sickness, and which virtually took charge of their remains as soon as life was extinct.

And furthermore let them explain why, when the American government occupied Santiago de Cuba, in 1898, and forced that city, which was the filthiest in the world, to become one of the cleanest, and without paying special attention to consumption or its bacillus, the death rate from this disease fell sixty-seven per cent. in three years, and yellow fever was swept out entirely; while, on the other hand, the career of the great modern machinery of prevention has been a calamitous failure wherever it has been applied during the last dozen years.

In spite of all the changes in plans and methods which have already been noted, it became more evident than ever that the campaign of education had signally failed to make an impression on the course of consumption, and, as a last resort, it is resolved to enforce a rigid control of the disease, which practically means the imprisonment of all consumptives in closed institutions, so that they will be unable to disseminate their germs of disease among the well. This is the last horrible culmination of a most desperate movement, which, after causing irreparable injury, will end in greater failure than any of its preceding steps.

It is a measure that first saw daylight in Italy, in 1754. That was an age "when knighthood was in flower," and when the word of the ruler was law; when the inhabitants of a country were divided into the oppressed and the oppressor; when, under the veil of hypocrisy, rulers guarded the people with an air of fatherly interest in order to make them more dependent and easier to control; when the dangers of real and imaginary evils were greatly exaggerated, for the purpose of intensifying the fears and superstitions of their subjects; when the spirit of independent thought was lulled to sleep, and the instinct of individual effort was paralyzed; and when, as at present, the apprehensions and anxieties of the populace were aroused and excited concerning the absolute and hopeless fatality of pulmonary consumption, and when the decree was issued that the only deliverance from the destruction of this disease was in accepting that mechanism of prevention of which we have the exact counterpart in use today.

It is a long stride from 1754 to 1914, so long that it seems that the considerate would have hesitated to go back to that gloomy and distant recess, and excavate sanitary laws and measures which, in effect, were forced on the people by the medicopolitical rulers of that day; which, on account of their indescribable heartlessness and injury, were later rejected by a coalition between the people and the medical profession, and which are now being foisted on free America, as new and most useful ideas. If the Italians threw this adventurous scheme into the back street after giving it a good

and faithful trial, is that any good reason why we should take it up and bow our knee to it? No, the truth is that we have fallen into the hands of the Philistines, who, under the guise of public health officials, are compelling us to dance to all kinds of tunes and to pay the fiddlers too.

Thousands and hundreds of thousands have given up their lives in this country since 1776 for the defense of human liberty, and as a shield against every sort of oppression. Let us not close our eyes to the stern reality, that, while we are at peace with the outside world, we are not without foes that threaten our freedom from within. The medicopolitical reformers of the present day are just as active in concocting schemes and designs to impose on the rights of the people as they were a century and a half ago, and as a sequence of this we are nursing a monster in the form of the goddess of health, which has already riveted the yoke of oppression on half a million of our consumptive countrymen, and this on evidence so frail that it would not be tolerated for a single moment by any impartial tribunal in the land.

1829 SPRUCE STREET.

ROENTGEN DIAGNOSIS IN FRACTURES OF THE CRANIUM IN CHILDREN.

BY GEORGE ROSENBAUM, M. D.,
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Fractures of the skull in infants and young children are very uncommon occurrences, because of the elasticity of the cranial bones. As Sir Frederick Treves says, "it is not easy actually to fracture the skull of a young infant." This statement

may be applied to children and to a great extent also to adults.

In early life the bones composing the skull are soft, yielding, and elastic. Ossification is imperfect, the sutures are wide open, and there is much cartilage and membrane interposed between the bones. As Treves so aptly expressed it, "the skull

of an infant is to that of an old man as a cranium of tin would be to a cranium of strong earthenware."

But even in adults the skull is far more elastic and less liable to fracture than is commonly supposed. The study of dried skulls leads one to erroneous conclusions, for during life there are present a number of anatomical conditions tending to minimize the effects of violence; for instance, the thickness of the scalp and its great mobility, the mobility of the head upon the spine, and the elasticity of the cranial bones themselves. After forty years, when the sutures are obliterated, fractures are more liable to occur from direct violence.

Fractures of the skull are best classified by their anatomical position, as fractures of the vault and

fractures of the base. The former are caused by direct violence upon the vault, while the latter are usually due to extension from a fracture of the vault or to indirect violence; for instance, a fall in which the person may alight upon the feet or buttocks. A blow upon the lower jaw sometimes causes fracture of the base. Fractures of the base are occasionally caused by direct violence where pointed instruments perforate the orbital or nasal cavities and forcibly strike the base.

The mechanism of fractures of the skull is explained by two factors, the elasticity of the bones of the cranium, and the nature and manner of the force applied. The vault is far more elastic and yielding than the base, and this limited amount of elasticity of the base compared with that of the vault is the cause of indirect, or as it is sometimes called, fracture by *contre-coup*. In these cases the blow or force must come from a blunt instrument; that is, the force must be diffused as happens when the head strikes the ground or in blows from a sandbag. But if the violence is limited to a small area, as happens when the vault is struck by a small hammer or any sharp instrument, the bones at the point of contact give way, and there results a small localized fracture, usually a depressed one.

Fractures of the vault may be simple fissures (Fig. 1) or stellate and comminuted fractures, according to the nature of the causative factor. Frac-

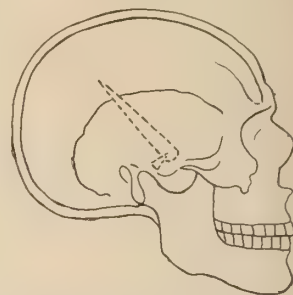


FIG. 2.—(Case II) Fracture through the parietal region of the vault, extending to the base, reaching as far as the sella turcica, with complete fracture of the dorsum ephippii. Dotted lines show extent of fracture.

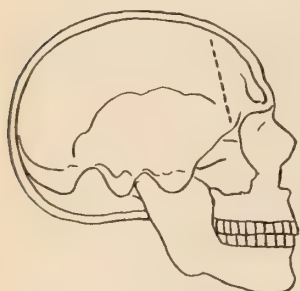


FIG. 1.—(Case I) Simple fissure of frontal bone.

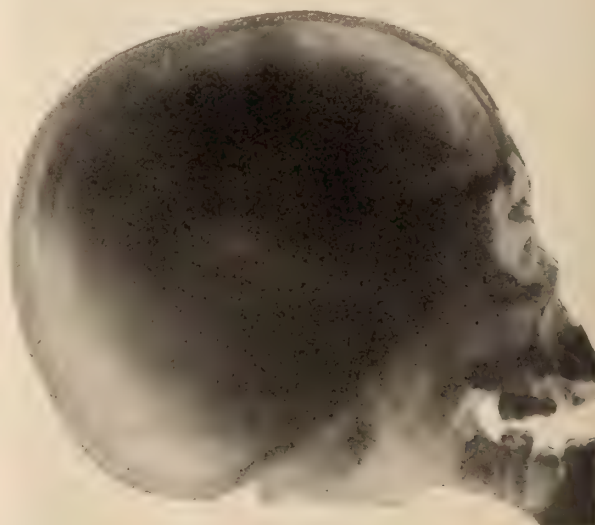


FIG. 3.—X ray picture of the fracture shown in Fig. 1.

tures of the base are nearly always produced by the extension of a fissure from the vault, as in direct violence due to a fall upon the head (Fig. 2). The course of such fractures is in a direct line, regardless of sutures or density of bone encountered.

A general rule, to which there are but few excep-

tions, is that fractures of the frontal region of the vault extend to the anterior fossa of the base, fractures of the parietal region to the middle fossa, and fractures of the occipital region to the posterior fossa.

In fractures of the vault, the parietal region is most frequently involved as is the middle fossa in fractures of the base. The usual course of a fracture through the middle fossa is as follows: Starting from the point struck, which is usually somewhere near the parietal eminence, the line of fracture runs downward through the parietal and squamous portions of the temporal bone and across the petrous portion of this bone, frequently traversing and implicating the internal auditory meatus to the middle lacerated foramen. From here it may pass across the body of the sphenoid to the pituitary fossa to the middle lacerated foramen of the other side, and may indeed travel around the whole cranium, so as completely to separate the anterior from the posterior part.

The following two cases illustrate well two types of fracture of the skull.

CASE I. Rosie M., aged nine years, run over by a wagon, was admitted to hospital in the service of Dr. Harry Lowenburg. Physical examination showed a fracture through the middle of the right femur. The right side of the face showed numerous contusions and much ecchymosis. The child was extremely restless. Röntgen examination of the skull revealed a simple fissure of the right frontal bone (Fig. 1). After many weeks of stormy illness, the patient eventually made a perfect recovery.

CASE II. Esther R., aged eight years, fell a distance of about fifty feet, striking upon her head. The child was dead upon admittance. Röntgen examination revealed a fracture of the parietal region of the vault, extending into the middle fossa as far as the sella turcica. There was a complete fracture of the dorsum ephippii (Figs. 2 and 3).

FLANDERS BUILDING, FIFTEENTH AND WALNUT STREETS.

CONGENITAL MALFORMATIONS OF THE RECTUM AND ANUS.

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Among the vagaries of Nature occurring in the newly born, malformations of the rectum and anus are reasonably common and many are amenable to surgical treatment. In the embryo the anus is noticed in the early weeks as a depression in the epiblast; this appears first as a dimple, which later deepens and is known as the proctodeum. The primitive alimentary canal is loosely attached to the anterior part of the notochord; and the lowermost portion of the hind gut, which eventually forms the rectum and sigmoid, is separated from the proctodeum below by a thin septum. This septum normally disappears about the fourth week of intra-uterine life, leaving the sigmoid, rectum, and anus in continuity; the persistence of this septum caused the condition found in the case herein reported.

The anal depression at the time of fusion with the hind gut has, opening into it, the intestine posteriorly and the urachus anteriorly, and at this period of fetal life is called the cloaca. At about the second month of development this cloaca is

divided transversely by a septum—which later forms the perineal body—thus separating the bowel behind from the bladder in front. Persistence of the fetal openings will result in the various congenital vesical, urethral, ureteral, uterine, or vaginal fistulas, and the nondisappearance of the septum between the proctodeum and the hind gut, and the variations from the normal approach of these two, constitute the salient features of imperforate anus and rectum.

CASE. Baby S., aged three days, female, was admitted to Lebanon Hospital January 26, 1913, in the service of Dr. Parker Syms. The history obtained was that the child was born normally and suckled, but its bowels had never moved and after the first day it vomited all it drank. Its abdomen began to grow larger, and on inserting a thermometer in the rectum, an obstruction was encountered about one inch from the anus. Temperature 100° F., pulse 130, respirations 30.

Examination—The child looked ill, skin warm and dry. Abdomen markedly distended with the veins very prominent. Cord clean. A lubricated thermometer met with an obstruction at the point mentioned.

Operation, Doctor Bookman. No anesthesia, but preparations for light ether analgesia should it be necessary. Child placed crosswise on the operating table under a good light. An ordinary spring wire nasal speculum was used to overcome sphincteric action, which was slight, and to hold the anus open. At the upper part of this blind pouch a slight bulge was seen and felt. A needle of slightly larger calibre than an ordinary hypodermic needle was used for exploration, the point being directed slightly backward so as to avoid the peritoneal cavity. After a few insertions, some gas escaped and a large exploring needle was placed alongside of the first with the escape of more gas and some meconium. The opening was now dilated, and after washing out the bowel, the septum was found to be about one sixteenth of an inch in thickness at the centre; this was trimmed off with the scissors and the colon irrigated. The size of the abdomen had decreased to a marked degree after the escape of gas and meconium and for a time the stools were blood streaked. No vomiting occurred after the operation. Sent home to be nursed, January 29, 1913.

This type of case represents the simplest form of malformation of the rectum, and with the increasing distance between the proctodeum and the lowest portion of the primitive rectum, greater difficulties are encountered. The use of the exploring needle in these cases where a septum is found, greatly facilitates matters, and when gas or meconium escapes, it serves as a guide for further dissection. If an anesthetic is necessary, only light analgesia should be employed, for then the child will strain and often demonstrate the apex of the pouch to the touch.

The cases of imperforate ani are somewhat more difficult to handle, for at times even the dimple denoting the site of the anus is absent. These cases are best treated by a vertical incision over the perineum at the situation of the normal anus and gradual dissection upward and backward in a good light aided by the exploring needle. Should the bowel be found, the end should be mobilized and brought down, under not too great tension, and fastened to the skin by silk sutures. The site of the emergence of the bowel ought to be approximately at the place where the normal anus should be, so as to take advantage of the fibres of the sphincter, which are usually ill developed. In cases where the bowel is high up and not to be reached from below, and the child's condition is not very good, it is best to do a colostomy and establish an artificial anus with a Mixer or Paul tube, or a rubber tube, and later attempt to readjust matters.

Every justifiable attempt should be made, however, to mobilize the rectum and effect a junction with the anal opening if the child's condition will permit, as the establishment of an artificial anus usually predicates disaster, for the attendant results of the fecal stream on the child's skin, in spite of the best of care, are nearly always precursors of an early death.

The rectovaginal and rectouterine fistulas may be repaired by plastic operations when the child is older, but the rectovesical and rectoureteral fistulas, if possible, had best be repaired as soon as conditions permit, for when colon and other bacilli begin to appear in the stools, ascending infections of the urinary tract are common and the results are as may be expected. Occasionally there are small fistulas, which may close of their own accord, but these are the exceptions.

The aftercare of these cases is important; the rectum should be kept well dilated with the finger or with suitable bougies lubricated and inserted carefully. This seems a needless precaution, but the writer has seen the peritoneal cavity entered and polluted by the careless introduction of a Wales bougie in the case of an adult with a stricture of the rectum. The bowel movements of semisolid consistence should be encouraged by suitable diet, medication, and enemata, or some bland oil may be injected into the rectum with a small syringe and catheter just before defecation.

THE INJURIOUS EFFECTS OF LIGHT ON THE EYES.*

With Special Reference to Functional Disturbances Without Visible Anatomical Lesions.

BY WALTER B. LANCASTER, M. D.,
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As the fields of medicine and ophthalmology widen, it becomes increasingly difficult for us to keep fresh in mind the facts and theories which underlie any discussion like this of the effect of light on the eye. This is my apology for prefacing what I have to say with a brief review of some of the fundamental things we ought to remember about light. I say of *some* of the things, for my allotted space is too short to attempt to cover everything.

The physicists tell us that waves radiating from luminous bodies are transmitted by the ether and, reaching the eye, give rise to the sensation of light. These radiating waves can be analyzed by the spectroscopic and are found to be of various frequencies of vibration, corresponding to various wave lengths. The most striking property of light depends on these differences in rates of vibration or wave lengths, viz., color. The longest visible wave lengths appear red and are about $700 \pi\pi$ long. The shortest visible radiations are violet, and are about $400 \pi\pi$ long. The unit of length for microscopic objects is the micron $= 0.001 \mu\mu$. One of the units of length for wave lengths of light is $1/1,000$ of this, viz., the micromillimetre $\pi\pi$ one millionth of a millimetre.

Moreover, they tell us that the vibrations which are visible are but a small portion of a long series of similar radiations which they have means of studying, though they do not cause sensations of color or light—are not visible. Those radiations which are longer than the longest visible are called the infrared radiations and those which are shorter than the shortest violet are called the ultraviolet radiations. The most striking property possessed by all these radiations, infrared, visible and ultraviolet, is that of producing heat. A few, as above stated, are visible. Some have chemical properties, so called because they decompose certain chemicals. These are particularly the ultraviolet. But chemical properties are not limited to the ultraviolet, nor heat to the infrared.

Now the effects of these radiations on the eye are threefold: 1. They produce the sensation of color—are visible. 2. They raise the temperature—produce heat. 3. Some cause peculiar biochemical or abiotic effects. All of these have been the subject of careful study, and the physical effects on the tissues which can be seen with the microscope have been described. Clinically, we are familiar with the burns that result from too great heat, e. g., in eclipse blindness, when the heat of the sun's rays focused on the retina as by a burning glass, burns it; and we are familiar with the abiotic effects which, after a characteristic latent period of a few hours, follow as the result of exposure to radiations of short wave lengths of sufficient intensity, e. g., in snow blindness or in electric ophthalmia. Both snow blindness and electric ophthalmia are caused by exposure to radiations of short wave lengths. They may be grouped under the name proposed by Parsons—photophthalmia.

Whether exposure to any of these radiations of less intensity than will produce the foregoing results can, if repeated long enough, produce chronic changes such as glass blowers' cataract, or possibly retinal changes, is unknown, but worthy of investigation. Whether exposures to visible radiations of great intensity but not sufficient to raise the temperature to the burning point, can cause by an *exaggerated physiological action*, any demonstrable physical lesions in the retina, is unknown. It is certain that such an exposure can quickly cause a scotoma (blind area), but whether this can go on to demonstrable microscopical changes of a pathological nature has not been proved. It is very natural to think so, but what little evidence we have is rather opposed to that view.

I suggest that the reason why exposure for long periods to radiations of relatively small intensity does not cause damage, is that the reparative processes keep pace with the injurious action, and so no cumulative effect appears as long as the intensity is below a critical point. This is well illustrated by the action of heat. Suppose a tissue has a certain capacity to lose heat (by radiation, evaporation, conduction, and convection); you may apply heat to this tissue for indefinite periods without damage, if the quantity applied is below the capacity of the tissue to dispose of, because you have no cumulative effect, no rise of temperature above the safety limit. Thus no noxious agent will do harm until its in-

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tensity and rate of action exceed those of the reparative processes. In the case of visible radiations, apparently the scotoma is caused by the exhaustion of some substance or substances like the visual purple, not by damage to some nerve ending or tissue of that sort. Now when the visual substance is exhausted, the area where it is exhausted is blind—does not respond to stimulation by radiations since there is no substance to be affected to start the response; but no harm appears to be done to the *tissues*. Later when the stimulus is removed or reduced, the activating substance which was being formed all the time but not fast enough to keep up with the rate of destruction, now accumulates once more and vision returns.

If this explanation is correct, it is no longer difficult to understand how exposure to very intense light causes no permanent damage to the retina from its action *as light*; only when it produces sufficient *heat* to burn the tissue, is it capable of harmful results. Microorganisms, like all other living tissues, are susceptible to injury from exposure to ultraviolet radiations. It appears that they are less susceptible than human tissues. Shorter wave lengths are needed, or else greater intensity or longer duration of exposure, to damage microorganisms than to damage human tissues. Possibly this may be not because of any specific immunity on their part, but because they do not intercept so much of the radiations because they are so much smaller and therefore more transparent. The larger human cells intercept more of the radiations and so are more damaged.

If it is asked whether there is any other way that light can affect the eye than those above alluded to, the answer must be yes. There are, in fact, harmful results which are far more frequent clinically and far more important practically to the ophthalmologist and to the public than any of the foregoing, which after all are chiefly of interest from the theoretical point of view. We rarely have to treat patients with burns or photophthalmia due to improper illumination. We often encounter problems arising from *eye strain* due to improper illumination. Let us, therefore, devote our attention more particularly to this side of the subject.

When I speak of eye strain from improper illumination, I mean that work under improper conditions of illumination can cause in susceptible persons such symptoms as the following: Sandy, scratchy feelings in the conjunctiva; dry, hot, burning, itching sensations; increased frequency of winking; lacrymation; difficulty in keeping the eyes open; tired, aching feelings in the eyes and in the orbits, and extending to other parts of the head; blurred, indistinct vision, improved by rubbing the eyes and resting a short time, but quickly returning. These symptoms are familiar to us as arising from eye strain due to refractive errors or other causes. In other words, they are signs of eye strain in general and not characteristic of any particular kind of eye strain. They may be classified as: 1. Symptoms of conjunctival origin due to conjunctival hyperemia or inflammation, for hyperemia may go on to inflammation following long continued exposure to any of the causes of eye

strain. These symptoms comprise the hot, dry, itchy, scratchy feelings with increased frequency of winking, and desire to rub the eyes. 2. Symptoms due to fatigue of the eyes; these are blurring; difficulty in keeping the eyes open; sensitiveness to light. 3. Symptoms of pain in eyes, orbit, head, or more remote places.

It is not necessary to go more fully into this picture of asthenopia, but I wish to call attention to two things: 1. The question, What constitutes improper illumination? Just what things are likely to be amiss and how can we tell whether a given arrangement of lights and lighting may cause eye strain? 2. When improper or defective illumination causes eye strain, how does it do it? How does it act on the eye and what gives out, or is strained, that we speak of it as eye strain?

1. What constitutes improper illumination? What should we guard against in planning the lighting of a room? The following factors need to be considered:

Intensity,
Quality,
Distribution, which includes
Direction
Intrinsic brilliancy of source
Diffusion.

Intensity is of such obvious and well recognized importance that we need not wait to enlarge upon it. The eyes have the power to adapt themselves to an extraordinarily wide range of intensity without trouble, if other factors are satisfactory. Illuminating engineers have gone into this question pretty carefully, because it is a question of cost—how much light must be provided for certain results. The amount varies widely with the conditions. For reading, the light of five metre candles is small; the light of fifty is large. It is not uncommon nowadays to find that too great intensity is used because light is so plentiful, cheap, and so easily concentrated on the work.

Many have thought and probably many still think that quality, i. e., wave length or color, is a very important if not the most important factor to be considered in explaining ocular discomfort and loss of efficiency when working with improper illumination. Thus Black and Vaughan, writing last year, try to show that this is the chief factor because artificial illuminants differ from daylight in their quality, daylight having fewer long infrared and red, and more orange, green, and especially blue wave lengths. Ives, in discussing this paper and in other discussions, thinks that the excess of infrared in artificial illumination compared with daylight is the important factor, or at least an important factor. I am unable to convince myself that these assertions are well founded. Still less reason is there for believing that the ultraviolet rays are the harmful agent when light is improperly used. Daylight has far more short wave lengths than any of the ordinary artificial illuminants, and anyway the ultraviolet rays do not reach the retina, because the cornea and lens are not transparent to them. Let me repeat what I said earlier, for it needs to be reiterated if we expect to correct the widespread erroneous views, ultraviolet rays as they occur in daylight may cause sunburn of the skin

and snow blindness of the eyes (which is an irritation of the superficial parts of the eye, not an affection of the retina as its name would imply). As they occur in artificial sources, ultraviolet radiations may cause electric ophthalmia, which is another name for the same lesions found after exposure to radiations of short wave length from the sun and called snow blindness or desert blindness. Ordinary artificial illuminants contain far less ultraviolet radiations than daylight. This applies to gas mantles, tungsten electric lights, and common ordinary arc lights.

On the other hand, infrared rays act on the eye simply as heat producers. There is no evidence of any other harmful effect. They are present in large quantities in sunlight; they are present in still larger percentage in most artificial sources, though usually less in total amount, since sunlight is so much more intense than most artificial sources.

There is something to be said about the fact that some colors, i. e., wave lengths of light, are more agreeable than others as sources, and so may have some effect in causing eyestrain. There is little or no proof of actual eyestrain having been caused in this way when all other factors are excluded as possible causes.

Direction is an important factor. The old and tried advice to have the light come from behind and to the left still holds good if the light is mainly unidirectional. It is better not to have light mainly unidirectional. The name is self explanatory. Light is never wholly unidirectional under ordinary working conditions, since with a single primary source in a room all the walls and other objects act as secondary sources of more or less importance according to their coefficients of reflection. Each secondary source sends out light and the result is that light comes from many directions to any object, as a book, in such a room. The effect of the primary source is often increased fifty per cent. in this way by diffusion in a moderate sized room with light ceiling. It is desirable to have a ready test for the degree of diffuseness of the light. My test for this is an examination of the shadows cast by some object as a pencil held three to five inches from a sheet of paper. If light comes from only one direction, the shadow will be very dark or dense. In proportion as light comes from all directions equally, the shadow will be reduced to nothing. When there is a good deal of diffused light, but one source is plainly stronger than all the others, there will be a shadow cast by this brighter source, but not a dense shadow. One more point while we are discussing shadows. The sharpness of the edge of a shadow depends on how nearly the source which casts the shadow approaches in size to a point, taking into account also its distance. Thus a fairly strong source which is very small (and to be strong and at the same time small it must be concentrated, must have high intrinsic brilliancy) gives sharp shadows.

Obviously many kinds of work are made more difficult and so may cause eyestrain if there are dense shadows falling on the work. On the other hand, some shadow is in certain kinds of work a help in locating things. This is especially true

where color contrasts are lacking and where, in the absence of shadows, things seem to blend together and are hard to distinguish clearly and locate accurately, and perspective is lost. It is important in examining the lighting arrangements of a work-room, shop, office, or the like to take account of the shadows.

Another important thing that is much influenced by direction is glare. Glare is caused *par excellence* by the reflection, as by a mirror, of a source of light. Such reflection is called specular reflection from *speculum*, a mirror. It requires, therefore, three things: 1. A surface capable of reflecting specularly, i. e., a more or less polished or shiny surface; 2, a source of light capable of having its image formed; that is a more or less concentrated source; or, which amounts to the same thing, light coming from one predominant direction; 3, the direction must be such that the angle of reflection (which equals the angle of incidence) will take the reflected rays to the eye. The application of this is too obvious to delay us longer.

Under distribution we have considered direction and alluded to intrinsic brilliancy. Let us take up further the subject of intrinsic brilliancy. I said that to get a large amount of light from a small sized source the light must be concentrated. The degree of concentration is expressed by the intensity in candle power to the unit of area (square cm. or square inches or square feet) and is called intrinsic brilliancy. The intrinsic brilliancy of a ceiling may be, say, 0.1 candle to the square inch; of the filament of a tungsten lamp 1,000 to the square inch; of a frosted globe five; of the sky two to three.

Now, two things of great practical importance depend on intrinsic brilliancy: 1. If the light is so placed that it shines directly into the eye, even at an oblique angle, an image of this intense light source is formed on the retina and irritates it. 2. If it is so placed that a reflected image, glare, falls on the retina, that also irritates. 3. It causes sharper shadows.

In practice no fault is commoner than the use of sources of too high intrinsic brilliancy without so disposing them that they cannot be seen, i. e., either shading them by frosted or other diffusing globes or hiding them so that light comes to the eye only indirectly after reflection from other surfaces and those not specular.

Diffusion is another subdivision of distribution. We have already shown that diffused light means light from many directions. Perfectly diffused light would be light coming equally from all directions. It is the opposite extreme from unidirectional light. Experience, which is the only safe and reliable test, shows that diffused light is the most agreeable for the vast majority of purposes. The diffuseness of daylight is of enormously greater importance in determining its agreeableness than is its color or quality as expressed in wave lengths. Conversely, in arranging an artificial lighting system, it is far more important to look out for diffuseness than for color or quality. This does not mean that one never gets trouble from too great diffuseness, for one does, as stated above, when I was discussing shadows.

Let me say a few words about the classification of lighting systems. We have three commonly spoken of:

- Direct,
- Indirect,
- Semiindirect or direct-indirect.

From what I said above, it is clear that we practically never have all light direct; some is reflected from walls, ceiling, or other surrounding objects. When the quantity coming from these secondary sources as indirect light is a small proportion of the whole, we call it a direct system. Where most of the light comes after reflection from these secondary sources, usually ceiling and walls, we call it indirect. The semiindirect or direct-indirect is a combination of the two with the proviso that the light which comes directly has to pass through a diffusing shade so that the immediate source is not of high intrinsic brilliancy.

We might devote a good deal of time to a discussion of the relative merits of these different systems, taking them up from the point of view of economy and efficiency, of artistic merit, and of hygiene. My space is too limited to allow me to state more than briefly my views without giving my reasons.

I reject any system which allows exposed sources of high intrinsic brilliancy. I prefer well diffused light. I do not object to a moderate proportion of directed light provided the source is not of high intrinsic brilliancy. I am sure that neither is the best for all purposes, but that skillfully managed either can be made economical, artistic, and hygienic.

In a given case of improper or unsatisfactory illumination, nine times out of ten, if not oftener, the fault will be found to be one of distribution rather than of intensity or color (quality). Rarely the fault is too completely diffused light; often the fault is lack of diffusion and exposure of sources of high intrinsic brilliancy.

HOW EYESTRAIN IS CAUSED BY IMPROPER LIGHTING.

Let us return to the question of eyestrain from working with improper illumination and ask how it is that the symptoms of conjunctival hyperemia, sandiness, etc., and the symptoms of fatigue (blur and pain) are produced. Attempts have been made to explain them as direct effects of the radiations either of ultraviolet rays or infrared rays, or visible rays of unsuitable color. These attempts were quite unconvincing to me and so I sought further light and finally constructed the following explanation, partly from suggestions made by various men, partly from my own.

In order to understand how working with poor illumination causes symptoms such as enumerated above, let us consider how other well known causes produce similar symptoms, when we use our eyes under conditions that are unfavorable, such as on a moving car, in a flickering light, a dim light, a glare, with troublesome shadows, with a source of high intrinsic brilliancy shining into the eye, etc.

We say we *strain* to see. What is it that we strain? Do we strain anything? I think we do. It feels as if we did. We are more or less conscious of not getting satisfactory images on the

retina of the objects looked at, conscious certainly of exerting greater effort to fix and focus and decipher what we are looking at. Now a little reflection will show that in the act of seeing, certain adjustments of the eyes have first of all to be made; then certain sensations are experienced, and lastly these sensations are interpreted by the higher centres. Which of these three is concerned in the strain? I believe it is the first, the adjusting mechanisms, as I like to call them. The eye is an optical instrument. It has to be adjusted, 1, to fix the object; 2, to focus it; 3, there are adjustments to the amount of light.

Fixation is a complicated act. It ordinarily involves two eyes, twelve muscles at least. How exact does it have to be? You are familiar with the well known standard of resolving power of the eye of 1', i. e., two black lines on a white ground can be distinguished as two if the angular separation equals 1'. While this is the limit of resolving power of the average eye, this does not represent the limit of refinement of space perception. This may be measured with more nicety by stereoscopic tests and has been placed as low as under 3", certainly under 12", or one fifth to one twenty-fifth of the usual standard of resolving power. We test the fixation power in the laboratory by taking two black points on a white ground well illuminated, and moving away from them until we can no longer discern whether we are fixing one or the other. We find that as long as we can distinguish that there are two (i. e., until the two melt into one, owing to lack of resolving power of the eye), we can tell which we are fixing. Thus the limit of refinement in fixing is at least as small as 1'. This corresponds to a retinal image less than 5 μ in diameter. Now make all the allowance you wish for certain factors that should be considered, still it is abundantly proved that fixation is capable of extraordinary refinement. When we do our best we can fix an eye to within a few thousandths of a m. m.

How about the two eyes? Here is where binocular vision comes in. Any displacement of one eye with reference to the other by throwing the image on to noncorresponding points can change the perspective. Under the most favorable conditions of testing, this is capable of a refinement down to a few seconds of angle, as stated above. Again, allow liberally for the various factors which must be considered, and still we have a limit for binocular fixation that is almost inconceivable. A retinal image of less than 1 μ !

I have gone into this simply to give a more vivid idea of what it means to fix as carefully as you can. Bear in mind that the eyes are moving so that the time allowed is almost infinitesimal and the difficulty grows. With focusing, a similar nicety of adjustment is possible.

In ordinary reading, however, we do not by any means make any such refined fixation and focusing. On the contrary, we glance along the lines and so far from fixing each letter, we do not even fix each word. A suggestion is enough—our mental processes move still more rapidly and supply the gaps. This is assuming that conditions are favorable: good print, good light, text easily under-

stood. But let the conditions become unfavorable and it is quite another matter. Is the light unsatisfactory; are we on a moving car; is the print poor, the paper shiny and causing a glare? Immediately the eyes try to compensate for any of these or similar defects by securing a better image; greater nicety in focusing; more precision in fixing; better adjustment to light intensity. This greater effort takes in not only the coordinating centres, but also the muscles, etc., which execute the adjustments. These are put on a greater tension, additional muscles are put in action, increased flow of blood is provided; in short, we get conditions which are favorable to hyperemia and fatigue. Given these, and the symptoms enumerated above as characteristic of eyestrain, are easily explained, hyperemia of conjunctiva and lids with sandy, scratchy, itchy, dry, hot feelings. When they become chronic we get blepharitis, conjunctivitis, and other diseases by processes too obvious to require elaboration, viz., hyperemia, fatigue, lowered resistance, invasion by bacteria. Moreover, these are not limited to the conjunctiva; the deeper tissues of the eyeball and orbit, and doubtless the cerebral centres partake of the same processes.

I have said nothing of the mechanism for adjusting the eye to quantity of light (iris, pupil) in this attempt to explain eyestrain from improper illumination, but have put all the burden on the adjustments for fixation and focusing. This is contrary to the opinion of various men of authority and requires further elucidation. In the first place, it is apparent that my explanation accounts for the fact that the symptoms of eyestrain from improper illumination are the same as those of eyestrain due to the ordinary causes, viz., errors of refraction and muscular balance. In these latter conditions no one would hold that the iris plays an important part. It plays an indirect part of some importance in that when the pupil is habitually large, errors of refraction are magnified, 1, because the circles of diffusion are larger and so the focusing has to be more accurate on the part of the ciliary muscle to get equal perfection of retinal image, and, 2, because the larger area of the lens through which the light enters when the pupils are large, introduces the important element of aberration—of differences of refraction between different parts of the lens. The centre and the periphery are rarely the same and often differ more than a diopetre. Gullstrand found in a "normal" eye a difference of 4 D. between the centre of the optical zone and a point two mm. removed from the centre (Hess, in Gräfe-Sämisch's *Handbuch der gesamten Augenheilkunde*, VIII, p. 121). Stadfelt found that in the zone lying between two mm. and 3.5 mm. from the centre, the aberrations average 2 D. (Tscherning, *Physiological Optics*, p. 107). It is a fact frequently observed that patients with large pupils have more trouble with their refractive errors. But it is not a fact that activity of the iris in changing and adjusting the size of the pupils is a factor in eyestrain from errors of refraction. Neither, in my opinion, is it a factor in the eyestrain from improper illumination, except in the case of flicker. Continuous contraction of the

sphincter of the iris can be kept up indefinitely without discomfort. An important fact that is usually lost sight of is that this muscle is smooth muscle like other sphincters of the body, e. g., of the bladder, and it is characteristic of these that they normally maintain continuous tonic contraction without discomfort or fatigue. Experiments which I have been carrying on at the Harvard ophthalmic laboratory indicate that the same is true of the ciliary muscle. Continuous tonic contraction can be kept up for hours without fatigue. Why, then, it may be asked, does ciliary fatigue play a more important part than iris fatigue if both muscles can maintain continuous tonic contraction without discomfort? It is not the continuous steady normal contraction that causes the fatigue and discomfort. Even in the case of the iris, if it is exposed to considerable changes in illumination at such a rate as severely to tax its power of adjustment, say three or four times a second, there is reason to believe that it will cause severe discomfort in short order. This applies to flickering light, but is probably not the only factor in the discomfort which results from trying to work with a flickering light. In the case of the ciliary muscle, as I conceive of it, it is not the normal, continuous, steady contraction, a contraction that is necessary for adjusting the eye to near work (or in case of hyperopia, even to distant vision) which produces fatigue and discomfort, but rather it is either when the amount of adjustment is unduly near the limit or capacity of the eye, as in hyperopia of sufficient degree or in presbyopia, or else it is when the eye is making futile attempts to secure a better image by trying to change its adjustment. Thus either too strong a contraction or a *shifting changing adjustment*, a futile groping after a more satisfactory but not attainable adjustment, will produce fatigue. If a satisfactory adjustment was attained and did not require an excessive degree of contraction, it could be maintained without discomfort.

A factor in this may be the inability of the two eyes to focus independently. As far as we know, equal stimuli are always sent to both. Now seldom are the two eyes so similar that equal ciliary contraction produces the best results for each. When the retinal images are not satisfactory there may be attempts to improve by trying now one, now the other eye in the attempt to attain satisfactory results. The strain on the mechanism of fixation is, in my own case (individuals differ), an even more important factor than the focusing. As has been stated above, we do not, when using the eyes under ordinary favorable conditions, fix with the utmost nicety and precision. It is sufficient if the image is brought to lie on the fovea without having to be brought to the very best spot on the fovea and without that slight shifting of fixation so that the image falls now on one group, now on a slightly different group of cones, which is such an aid in the finest grades of perception. This added refinement produced by slight shifting of fixation, is one reason why the acuity of perception is greater than it would be if figured on the mathematical basis of the size of the cones in the retina as formerly accepted by most writers, including Helm-

holtz and many others.¹ Now under unfavorable conditions the eye is stimulated to greater precision of fixation and to the slight changes in fixation and to any other devices by which perception can be improved. In making these adjustments of fixation, not only are the centres stimulated to greater nicety of adjustment, but the muscles are put on greater tension, the eyes are held more firmly, as it were, which is obviously fatiguing in a much higher degree. Some of these theories can be subjected to experiment and we propose to test them. Meantime they are offered as more plausible than those proposed hitherto, and criticism is invited.

101 NEWBURY STREET.

PLACENTAL BLOOD FOR TRANSFUSION.

BY GEORGE RUBIN, M. D.,

Chicago.

A patient with pernicious anemia now under observation in my service at the Maimonides Hospital, received three intravenous injections of defibrinated blood, and one injection in the gluteal muscles, with remarkable results.

CASE. Woman, aged fifty-five years, with a general history and blood picture of a typical pernicious anemia. Red blood cells, 1,100,000; poikilocytosis; megaloblasts; megalocytes; normoblasts; leucocytes, 6,500. Blood analysis made by Doctor Bissell, the house pathologist. She had frequent attacks of dyspnea and tachycardia. The corneas were tinged yellow; skin blanched. Lips, conjunctiva, and other mucous membranes seemed bloodless. Faintness and dizziness on least exertion. She received six ounces of defibrinated fresh placental blood, mixed with an equal amount of normal sodium chloride solution; making a total of twelve ounces. This was injected through a vein in the flexure at the elbow, the blood being kept at about body temperature. The red blood cells increased 400,000 in less than twenty-four hours. The patient showed signs of immediate improvement. There was no dyspnea nor tachycardia. Complexion improved and she felt less exhausted. A week later sixteen ounces of blood in normal salt solution were again injected intravenously in the other arm, but, after ten ounces had run in, extravasation took place and blocked the vein, so the balance of six ounces was injected in the gluteal region. The red cells increased 200,000 within twenty-four hours, making a total, to date, of 1,700,000. A third injection of sixteen ounces of blood in normal salt was made a week later, increasing the red cells 500,000 in twenty-four hours. The patient's general condition improved even more than the blood. The case will be reported in detail later. The object of this report is to call attention to this new method of obtaining human blood for transfusion.

Technic: The technic is quite simple. The most important thing is asepsis. After having determined the normal condition of the woman in labor, or about to go into labor, have ready a sterile vessel and a defibrinator, the latter usually consisting of several rods of wire. Of course, it is expected that the woman is properly prepared by the obstetrician. After the child is delivered and all amniotic fluid drained off, we are ready for the placenta. Allow the placental blood to drain off from its surface and the cut cord, and then, by squeezing the placenta gently, additional blood is obtained. Uterine blood is also collected. From three to six or even more ounces of blood can be obtained in each case. The blood should be imme-

diately defibrinated, and, to insure against clots, should be strained through, say, about four layers of the ordinary surgical gauze. Then dilute it with an equal amount of normal salt solution, if to be used intravenously, as it is possible to inject the thinned blood through a medium sized needle suitable for the basilic or cephalic vein in the arm. It is best to inject it fresh—and this can be easily accomplished in the hospital. But, if necessary, the defibrinated blood may be kept sterile for twenty-four hours, or even longer, and then used after warming it up to body temperature.

The apparatus for injection consists of an ordinary large glass syringe, a needle, and a small piece of rubber tubing connecting the needle to the syringe, so as to avoid moving the needle while it is in the vein. The salvarsan, especially the neosalvarsan apparatus, is well adapted for this purpose.

To demonstrate the ease with which post partum blood can be obtained and in almost unlimited quantities (as the defibrinated blood of several donors can be mixed), and to demonstrate the enormous amount of good that may be derived from its use in certain cases, are the purposes of this brief report, so that the profession may try this new procedure at the earliest opportunity. It is well to suggest here that post partum blood ought to be collected as a routine practice, especially in hospitals, and defibrinated for possible use for the mother, or in case of hemorrhagic conditions in the child.

25 EAST WASHINGTON STREET.

AN AID IN THE USE OF THE ALLIS INHALER.

BY PHILIP ATLEE SHEAFF, M. D.,

Philadelphia.

In the successful administration of ether for general anesthesia, the importance and necessity of support of the lower jaw are undeniable, no matter what method is used. When using the Allis inhaler, it is sometimes difficult with one hand to keep the inhaler in proper position and simultaneously maintain necessary traction on the jaw, while the right hand remains free for manipulation of the ether bottle.

The device illustrated consists of a strip of metal, preferably aluminum, six and three quarter inches long and about one and a half and seven eighths of an inch wide for either extremity. The narrow end is slotted freely to engage the shank of a rivet attached to the inhaler, and is bent so that it offsets the palmar portion by one and three eighths inch, allowing free movement of the inhaler up and down and in a rotary direction.

In use, the expanded extremity is held to the palm of the hand by the thumb, the inhaler automatically



FIG. — Illustrating an aid in the use of the Allis inhaler.

¹For a fuller statement of the later views and a quotation from Hering, see Hess, in *Gracfe-Samich*, VIII, p. 126.

adjusts itself to the face, maintains its position, and all four fingers are free to make ample support or traction on the body of the mandible.

This device, by aiding the anesthetist still further to give his undivided and uninterrupted attention to the task in hand, where the Allis inhaler is used, prompts me to offer the suggestion to those who may see fit to use it.

4008 BARING STREET.

Therapeutic Notes.

Treatment of Rhachitis.—Landolfi, in *Nouveaux remèdes* for August 24, 1913, is credited with advising systematic massage of the back and extremities twice daily in rhachitic children. In cases seen late in childhood, Swedish gymnastics should be ordered. Baths in sea water, chalybeate or saline mineral waters, or sand, are useful, baths being contraindicated, however, in the presence of tuberculosis with fever, ophthalmia, skin affections, or pronounced nervousness.

Calcium phosphate may be prescribed thus:

℞ Dicalcium phosphate, ... 3ivss (17 grams);
Dilute hydrochloric acid, ... 3iiss (10 grams);
Distilled water, ... Oii (973 grams).
M. Sig.: One to four teaspoonfuls daily.

Combined administration of calcium and iron is advised by some:

I.
℞ Ferrous lactate, ... }
Precipitated calcium }
phosphate, ... } of each gr. iss (0.1 gram).
Precipitated calcium }
carbonate, ... }
M. For one powder.
Sig.: One or two powders a day in milk.

II.
℞ Ferric hydroxide, .. }
Precipitated calcium }
phosphate, ... } of each 3iiss (10 grams).
M. Sig.: Enough to cover the tip of a penknife blade twice a day.

The patient's general condition should be ameliorated by the administration of codliver oil, beginning with two teaspoonfuls and gradually increasing to two tablespoonfuls. To nurslings the following preparation may be given:

℞ Codliver oil, ... 3iiss-v (10 to 20 grams);
Powdered gum arabic, } of each, enough to make
Spring water, ... } 3iii (90 grams).
M. Make an emulsion.
Sig.: Four teaspoonfuls daily.

The oil is contraindicated during very hot weather and where there is gastrointestinal disturbance.

Phosphates and codliver oil may be given together. Some authors prefer phosphorus:

℞ Phosphorus, ... gr. 1/64 (0.001 gram);
Absolute alcohol, ... 3vi (20 grams);
Spirit of peppermint, ... ℥viii (0.5 gram);
Glycerin, ... 3ii (60 grams).
M. Sig.: One teaspoonful daily.

Any digestive disturbances present should be overcome with gastric lavage, nux vomica, hydrochloric acid and pepsin, etc. Spasmodic manifestations should be treated by means of purgatives, simple or chloral hydrate enemas, tincture of belladonna in doses of two to five drops per diem, and tepid baths.

Treatment of Whooping Cough.—Cavazzani, in *Journal de médecine de Paris* for September 13, 1913, is credited with having recommended the administration of iodine in whooping cough. The formula he employs by preference is:

℞ Iodi, ... gr. xv (1 gram);
Potassii iodidi, . }
Aquæ destillatæ, } āā 3ss (15 grams).
M. et ft. solutio.

This solution is given in sweetened milk in daily (fractional) doses of four to six drops for infants a year old, six to ten drops for children two to five years old, and ten to fifteen drops for older children. No phenomena of intolerance ever appear. Where indicated, quinine and bromides can be given in conjunction with the iodine.

Treatment of Narcotic Drug Addiction.—G. E. Pettey, in his recently issued book on *Narcotic Drug Diseases and Allied Ailments*, states that, while many physicians treating narcotic drug addiction depend entirely upon saline cathartics to empty the intestinal tube, these cathartics alone do not give satisfactory results, allowing considerable quantities of toxic matter to remain, the presence of which accounts for the nervousness, nausea, and other distressing symptoms from which patients thus treated suffer. The following are given as examples of physiologically balanced purgative combinations:

I.
℞ Hydrargyri chloridi mitis, . }
Extracti rhamni purshianæ, } . āā gr. x (0.6 gram);
Ipecacuanhæ pulveris, ... gr. i (0.06 gram);
Strychninæ nitratis, ... gr. 1/8-1/6 (0.008-0.01 gram);
Atropinæ sulphatis, ... gr. 1/50 (0.0012 gram).
M. et ft. capsulæ No. iv.
Sig.: One every two hours, preferably at 4, 6, 8, and 10 p. m., fasting.

II.
℞ Hydrargyri chloridi mitis, ... gr. v (0.3 gram);
Resinæ podophylli, ... gr. i (0.06 gram);
Extracti rhamni purshianæ, ... gr. x (0.6 gram);
Ipecacuanhæ pulveris, ... gr. i (0.06 gram);
Strychninæ nitratis, ... gr. 1/8-1/6 (0.008-0.01 gram);
Atropinæ sulphatis, ... gr. 1/50 (0.0012 gram).
M. et ft. capsulæ No. iv.
Sig.: One every two hours on an empty stomach.

For aged persons, when mercury is objectionable, the following combination is useful:

III.
℞ Resinæ podophylli, .. }
Ipecacuanhæ pulveris, } āā gr. i (0.06 gram);
Aloini, ... gr. ii (0.12 gram);
Extracti rhamni purshianæ, ... gr. x (0.6 gram);
Strychninæ nitratis, ... gr. 1/8-1/6 (0.008-0.01 gram);
Atropinæ sulphatis, ... gr. 1/50 (0.0012 gram).
M. et ft. capsulæ No. iv.
Sig.: One every two hours on an empty stomach.

In all patients addicted to a narcotic drug, the strychnine in each of the foregoing formulæ should be increased to the extent of from fifty to 100 per cent.

The following pill is considered by the author one of the best of its kind ever formulated. It is, strictly speaking, rather an evacuant than a purgative:

℞ Aloini, ... gr. ss (0.03 gram);
Strychninæ, ... gr. 1/60 (0.001 gram);
Extracti belladonnæ foliorum, ... gr. 1/4 (0.008 gram);
Ipecacuanhæ pulveris, ... gr. 1/16 (0.004 gram).
M. et ft. pulula No. i.

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THE PATHOGENESIS OF SURGICAL SHOCK.

Although numerous investigations, both experi-
mental and clinical, have been conducted in recent
years on the pathogenesis of surgical shock, unani-
mity in the conclusions reached has been con-
spicuously lacking. Even the stress laid by Crile
on excessive peripheral nerve stimulation as a fac-
tor in shock, though seemingly fully justified by
his experiments on dogs and the results obtained
in clinical surgery through preventive anoci associ-
ation, has not wholly escaped opposition from
workers who have upheld such theories as that
of acapnia (Henderson) inhibition of the cardio-
inhibitory centre (Howell), contraction of the
peripheral arteries (Malcolm), and depression of
the sensory synapses (Leonard Hill), to account,
in part or wholly, for the phenomena witnessed.
Manifestly of considerable influence in leading to
divergent conclusions and confusing the issue, have
been the different meanings accorded the term
"shock," some accepting lowered blood pressure as
its sole and necessary manifestation, others adding
to this a rapid pulse and irregular breathing as es-
sential requirements, in spite of the fact that all
these conditions can be produced by anesthesia
alone. Indeed, Benon contributes to the sympto-
matology of shock, a mental component, temporary

amnesia or mental confusion, forming part, along
with motor weakness, of his conception of the mor-
bid process, when due to traumatism.

F. C. Mann, in a careful analysis of the subject
(*Johns Hopkins Hospital Bulletin*, July, 1914),
states that in his own experiments, no animal was
regarded as being in a condition of shock until the
following signs were present. 1. Loss of sensibili-
ty, as shown by the needlessness of an anesthetic,
even though the eye reflex was present; 2, pallor of
the mucous membranes; 3, small, weak pulse; 4,
irregular, rapid, shallow, or gasping respiration; 5,
markedly lowered blood pressure. Mann's con-
clusions, based on the results of former experi-
ments and his own, are of considerable interest and
significance. He found it impossible to reduce an
anesthetized animal to a state of shock by any de-
gree of sensory stimulation, provided all hemorrhage
was prevented and the abdomen was not opened.
Stretching of both sciatic nerves, anterior crural,
and brachial plexus, for four hours, failed to induce
the signs of shock; the blood pressure fluctuated
but slightly, rarely more than ten mm. Hg. Vari-
ous types of experiments are cited to show that
the vasomotor centre is not depressed, nor fatigued
in shock; it is in fact, the most resistant of all vital
centres. Neither is shock due to primary cardiac
failure or to involvement of the cardioinhibitory
or cardioaccelerator mechanism. Respiratory dis-
turbance does not cause shock, though the respira-
tory centre is more quickly injured thereby than
any other centre. The peripheral arteries, as well
as untraumatized visceral arteries, e. g., of the kid-
neys, are constricted, not dilated in shock. The
essential point is, that while exposure and trauma-
tization of the abdominal viscera constitutes the
easiest and most certain method of producing shock,
the resulting condition, as shown by Mann's crucial
experiments, is due, not alone to vasomotor paraly-
sis in the splanchnic area, but to the great loss of
cells and fluid from the blood through stasis, dia-
pedesis, and exudation, occurring as a reaction of
the great peritoneal surface—an area as great as
that of the entire skin—to exposure to the air,
changes of temperature, and to trauma. In the course
of operations in which the abdomen has not been
opened, the loss of fluid and cells from the blood
is relatively unimportant, unless large areas of sub-
cutaneous tissue have been exposed, or hemorrhage
has occurred; hence the comparative absence of
shock. Degenerative changes in the cells of the
central nervous system are the result, not the cause
of shock; and since general anesthesia of moderate
depth prevents painful impulses from affecting the
centre, nerve blocking is useless so far as the pre-
vention of shock is concerned.

According to Mann's observations, the chief feature of surgical shock is thus a great diminution in the amount of circulatory fluid, owing to stagnation in, or exudation from the venules and capillaries. This conception harmonizes with the commonly noted fact that hemorrhage produces a condition almost identical with shock, and markedly favors its occurrence. Prophylactic measures suggest themselves in the avoidance, as far as possible, of irritation of the intraabdominal tissues and of hemorrhage, while in the active treatment of shock, special stress should be laid on the replacement of blood losses, both as regards bulk of fluid and cellular content.

THE SANITARY OFFICER IN THE FIELD.

Major Frederick Schavoir, of the medical corps of the Connecticut National Guard, contributes to the *Military Surgeon* for September an article on the wartime duties of the sanitary officer, which contains some surprises for the general practitioner who is unfamiliar with the mass of nonmedical knowledge which the army surgeon must master in addition to his needful professional knowledge. The sanitary officer, it appears, is first a military officer and secondly a medical man; his responsibility is as great as that of any other officer, although the performance of his duties may be less spectacular. In addition to maintaining the health and efficiency of the troops in camp and on the march, and attending to the sick and wounded and their transportation to points where they may be patched up for duty, the sanitary officer must not only read and interpret topographical maps, but be prepared and equipped to sketch a map himself. This enables him to calculate the time required for troops to cover certain distances and to dispose of his sanitary forces accordingly. The chief surgeon should know exactly the size, location, and transportation facilities of the sanitary troops under his orders. He will ascertain the probable location of casualties, taking under consideration the terrain, time, distance, weather and climate conditions, as well as the presence of streams, wells, and other water supply, the location of buildings or shelter for wounded, the availability of wagons for their evacuation to the rear, in fact anything which may play a part in the work of the sanitary troops. The ideal disposition of sanitary units and their appurtenances, such as first aid stations, dressing stations, ambulances, field hospitals, etc., is that which enables them to be always within reach, yet never in the way. The latter is a most important point and an ill considered move may have the gravest consequences.

As to his subordinate officers, the chief surgeon should always give his orders in writing and be careful that these are as complete and as clear as possible; he indicates where he is and with what organization, gives the hour and minute of writing, and states the rate of travel, such as ordinary, rapid, or urgent.

We commend to those interested Major Schavoir's article, of which we are able to give but a very imperfect summary. After showing how a battlefield is evacuated, and commending to students actual experience with troops, the author concludes with ten cardinal rules, as follows:

1. Read or write orders, messages, and reports thoroughly to avoid misunderstandings.
2. Study your map and locate yourself exactly.
3. When choosing cover, be sure of its efficiency.
4. Always try to select vicinity of a water supply.
5. Remain in touch with your superior officer and keep him informed of your whereabouts and doings.
6. Never leave any body of troops without some sanitary protection, but concentrate at important points.
7. If short of litter squads, remember the band.
8. If short of ambulances, remember returning supply train wagons. Rent or impress civilian help if necessary.
9. Be always on hand but never in the way. Avoid blocking of roads which are used for the movements of combatant troops; hunt out parallels if there are any.
10. Do not expose yourself nor your personnel unnecessarily and remember that your services are too important to the general success to risk your being disabled.

DIFFICULTIES IN QUARANTINE.

One of the difficulties in preventing the spread of contagious diseases is that of maintaining proper quarantine. The primary purpose is to protect members of the community from acquiring the disease; if there was nothing else to consider, that would be comparatively simple.

The quarantine should be such as to give the maximum protection with the minimum of inconvenience and expense. Unfortunately medical science has not advanced to the point that enables us to act with complete knowledge. There are many diseases, such as measles, scarlet fever, small-pox, and anterior poliomyelitis, the causes and carriers of which we know nothing. Consequently we establish rules which we hope will bring about the localization of the contagion, and, for fear lest something escape our precautions, the quarantine is continued for weeks. In many instances this is entirely unnecessary, as recent investigations concerning measles indicate that the chief infectious period is probably during the coryza stage before the diagnosis has been made. Yet some three weeks must elapse before the family is released from quarantine. In some cities the authorities are distinctly skeptical in regard to the necessity of a six weeks' isolation for scarlet fever, but it is enforced. Another factor that has to be considered is that

of the transmitters of the disease. When we know how diseases spread, we are in a much better position to handle the outbreak. The methods of attacking yellow fever have been revolutionized since the discovery of the carrier. As long as there are no mosquitoes to bite the sufferer and carry the contagion, the disease is not as dangerous as typhoid fever. In regard to plague, too, it has been found that the rat and rat fleas are the conveyors of the bacilli, so our efforts are directed against them.

At present there is a general tendency to make quarantine as simple and as little burdensome as possible. No one cares to be shut away from his fellow men; but what is more important is the interference with the bread winners. Unless our laws can be modified considerably, the public must make better provision for care of the family involved.

THE REPORTING OF DISEASE.

Although the dwellers in the larger cities have become accustomed to the reporting of contagious diseases and consider it nothing unusual, yet a large part of our population will have none of it. A recent paper read by a layman before the meeting of the Association of Life Insurance Presidents presents conditions that should be considered carefully by all physicians.

As our knowledge of infectious diseases has increased, particularly in regard to their causation and transmission, we should realize that prevention is the essential element in controlling the spread of disease. In order to do this satisfactorily, all instances of contagious diseases in particular, but certain others as well, must be reported and the public saved from exposure. There must be registration, and in some cases, quarantine; without these, preventive medicine may become almost a dead letter. Mr. Dublin, on writing to the health officers of the various States, received many letters indicating that this important matter was sadly neglected. When one considers that there are some 1,500,000 persons seriously ill from preventable causes, at any given time in the United States, it becomes evident how necessary such methods are. The value of registration is not only to the public, but to the individual as well. It means, for instance, that all of the facilities of the community for diagnosis, treatment, and nursing are immediately at his disposal. If diphtheria is suspected, the diagnosis is quickly made and if the report is positive, the patient receives the tremendous advantage that results from early recognition.

Then, too, the registration of the communicable diseases will enable health officers to discover foci

of infection in time to prevent further spread. In several other respects registration is also valuable, such as the reporting of occupational diseases and the obtaining of a large amount of important data. In fact, thorough registration is such a tremendous factor in the health of the community that it cannot be disregarded, and should be urged and encouraged by a united medical profession.

THE WAR AND THE MEDICAL PROFESSION IN ENGLAND.

The far reaching effects of war are exemplified in a striking way in the issue of the *British Medical Journal* for August 15th. There are but few communications or other articles which do not refer more or less directly to the duties and obligations in the present crisis of the British practitioner. Among the headings are the following: Medical Attendance on Patients of Practitioners on Military Duty, The Hospitals and Military Requirements, Requisitions of Cars and Horses and the Supply of Petrol, Drug Stocks, Medical Assistance for Rural Districts, Insured Men in the Army and Navy Reserves and Territorials, Families of Territorials and Reservists, The Sanitary Service of the Territorial Force, Volunteers for Medical Service with the Army, Antityphoid Inoculation, Central Advisory Committee for the Prevention and Relief of Distress, The Prince of Wales's Fund, The British Red Cross Society, Royal Army Medical Corps. The *Lancet* of the same date has over a dozen articles bearing directly on war problems.

THE HEMORRHAGIC DIATHESIS IN TUBERCULOSIS.

Hermann Faschingbauer, in *Wiener klinische Wochenschrift* for June 4, 1914, describes in detail six cases of purpura which he has encountered during the last five years among 1,261 cases of tuberculosis. His conclusions are that purpura is not rarely an associated symptom of tuberculosis; it may be the first symptom of a beginning tuberculosis, or it may set in at any part of the course, even in the stage of cachexia. Most of the cases were associated with an exacerbation of tuberculosis. The cause may be an oversupply of the organism with the toxins of the tubercle bacillus. Every purpura the cause of which is not clear should cause one to think of latent tuberculosis.

CHRONIC COPPER POISONING FROM A DENTAL BRIDGE.

Erich Harnack reports in *Deutsche medizinische Wochenschrift* for July 23, 1914, an interesting case of obstinate chronic poisoning of this type which occurred in a young woman as the result of absorption of the copper contained in an alloy of gold used in bridge work on her teeth. The alloy was only eight carat fine.

News Items.

Changes of Address.—Dr. Joseph M. Polisar, to 391 Pennsylvania Avenue, Brooklyn, N. Y.

New Nurses' Home for Harper Hospital, Detroit.—The \$100,000 nurses' home, presented to Harper Hospital by Vernon Richmond, has been opened.

Kentucky State Medical Association.—The annual meeting of this association will be held in Newport on Thursday, Friday, and Saturday, September 24th, 25th, and 26th, under the presidency of Dr. W. O. Roberts, of Louisville.

Gift to Baugh Institute of Anatomy.—It is announced that Mr. Daniel Baugh, of Philadelphia, founder of the Baugh Institute of Anatomy, Jefferson Medical College, has purchased the premises at 238 Pine Street as an addition to the school, and has given \$5,000 for improvements and equipment.

Plague in New Orleans.—Reports from New Orleans to the United States Public Health Service show that from the outbreak of plague in that city to August 14, 1914, there have been reported fifteen cases of plague in man and fifty-one cases in rodents. Since that date four cases in man have been reported and seven in rodents.

Special Anesthesia Supplement.—The *American Journal of Surgery*, beginning with the October issue and quarterly thereafter, will publish a 32 page supplement devoted exclusively to anesthesia and analgesia. The editor of this supplement will be Dr. F. Hoeffler McMechan, of Cincinnati; he will be assisted by a staff of well known specialists in anesthesia.

Long Island State Hospital for the Insane.—This institution, which has heretofore been leased from the city of New York by the State for the nominal figure of \$1 per annum, since the State Care Act went into effect in 1895, was by deed transferred from the city of New York to the State of New York, August 10, 1914, and the deed has been recorded by the attorney general.

The Red Cross Fund.—The New York branch of the American Red Cross Society announces that on Tuesday, August 25th, subscriptions to the European fund of the society amounting to \$3,679 were received. The total amount of the New York subscriptions is now \$39,927.91. Supplies, mostly medical and surgical, are also being received for the Red Cross steamer. A call has been issued for nurses to go to Europe for service; those who are selected will be equipped in New York without expense to themselves.

Oregon State Medical Association.—The annual meeting of this association will be held in Portland on Thursday and Friday, September 10th and 11th, under the presidency of Dr. Calvin S. White, of Portland. An excellent program is being prepared. Special attention will be given to the social features of the meeting, an interesting series of entertainments being prepared for the visiting physicians and their friends. The principal social function will be a banquet on Friday evening given by the Portland City and County Medical Society. Dr. M. B. Marcellus, of Portland, is secretary of the association.

Personal.—Dr. Alexis Carrel, who has elected to remain in France during the war, is said to be in charge of a large military hospital in or near Paris.

Dr. Virgil H. Moon, of the Memorial Institute for Infectious Diseases, Chicago, has been appointed head of the department of pathology of the Indiana University Medical College, Indianapolis.

Dr. John E. B. Buckenham, of Philadelphia, first assistant resident physician at the Municipal Hospital, has been appointed acting superintendent of the hospital, succeeding Dr. William H. Walsh, whose resignation takes effect on September 30th.

Dr. Severance Burrage, associate professor of sanitary science in Purdue University, Lafayette, Ind., has been elected president of the Indiana Academy of Sciences.

Dr. Mazyck P. Ravenel, formerly professor of bacteriology in the University of Wisconsin, has been appointed a member of the advisory board of the hygienic laboratory of the United States Public Health Service.

Dr. James W. Jobling, pathologist to the Michael Reese Hospital, Chicago, has been appointed professor of pathology in the Vanderbilt University, Nashville, Tenn.

Appointments in the Medical Corps of the Army.—The following doctors have passed the preliminary examination, which was held the week beginning July 13, 1914, for appointments in the Medical Corps of the Army, and will be brought to the session of the Army Medical School beginning October 1st: Grover Cleveland Bunton, of Thompsonville, Ill.; George Davis Chunn, of Baltimore, Md.; Frank Henry Dixon, of Washington, D. C.; William Heaton, of Wahoo, Neb.; Augustus Benjamin Jones, of Eastman, Ga.; Herman Gustav Maul, of Washington, D. C.; Harry Dummont Offutt, of Garret Park, Md.; Thomas Iliff Price, of New York; Lloyd Earl Tefft, of Friendship, N. Y.; D. D. Hogan, Medical Reserve Corps, United States Army, Fort Yellowstone, Wyo.

Death Rate of New York City.—Despite the extremely hot weather which prevailed last week, the death rate was 0.40 point lower than that of the preceding week and only 0.04 point higher than the rate during the corresponding week of last year. As was to be expected, the deaths from gastrointestinal diseases among infants continued high. There were four deaths from sunstroke last week.

Despite the slight increase in the death rate over that of the corresponding week of last year, the actual number of deaths of infants under one year is slightly less. This becomes more distinct if the increase in the population is considered. The death rate for the first thirty-four weeks of 1914 was 14.16 against 14.40 for the corresponding period of last year.

Typhoid Fever on Hart's Island.—A localized outbreak of typhoid fever among the inmates and employees on Hart's Island is being studied by the department of health. To date, twenty cases have developed, seventeen among inmates and employees of the workhouse, and three among the inmates of the reformatory. In addition to at once arranging for the boiling of all milk and water used on the island, all the inmates and employees, almost eight hundred in number, are being given protective inoculations of typhoid vaccine. When the outbreak is fully controlled and the investigation as to its cause has been completed, a full report will be published in the *Weekly Bulletin*. At the present time neither the milk supply nor the drinking water appears to be involved.

Indiana State Medical Association.—This association will meet in annual session in Lafayette on Thursday and Friday, September 24th and 25th. A preliminary program has been issued which indicates that the meeting will be of unusual interest. An interesting feature of the program will be a symposium on goitre, which will be presented at the general session on Thursday morning. The medical and surgical sections will meet on Thursday afternoon and Friday forenoon, and on Friday afternoon there will be another general session. On Thursday evening Dr. Victor C. Vaughan, of Ann Arbor, Mich., president of the American Medical Association, will deliver an address to which the public is invited. The officers of the association are: President, Dr. A. C. Kimberlin, of Indianapolis; president-elect, Dr. J. P. Salb, of Jasper; first vice-president, Dr. C. E. Stone, of Shoals; second vice-president, Dr. P. H. Linthicum, of Evansville; third vice-president, Dr. Charles Botkin, of Farmland; secretary, Dr. Charles N. Combs, of Terre Haute; treasurer, Dr. David W. Stevenson, of Richmond.

Peddlers, Syphilis, and Open Tuberculosis.—The department of health and the department of licenses have determined to extend the scope of the medical examination now made of applicants for peddler's licenses, and to include in each instance a Wassermann test. In the boroughs of Manhattan, Bronx, Queens, and Richmond, physical examinations will be made in the various tuberculosis clinics as at present, the applicants then being referred to the nearest Wassermann clinic of the department. The Wassermann report will be sent to the physician in charge, and, together with the physical condition report, will then be forwarded to the borough chief for transmission, with recommendations to the department of licenses. In the borough of Brooklyn the physical examination of all applicants will be made at 29 Third Avenue daily, from 10 a. m. to 12 m., and on Tuesday and Friday evenings from 8 to 9 p. m., in conjunction with the Wassermann clinic of the department.

Hereafter, a license will be denied to tuberculous persons whose sputum shows the presence of tubercle bacilli, and to those whose blood gives a ++ Wassermann reaction.

Clinical Congress of Surgeons of North America

Fifth Annual Session

London, England

Week of July 27, 1914



PRESIDENTIAL MEETING, MONDAY, JULY 27TH. EVENING.

It must be very gratifying to all concerned to know that the somewhat hazardous experiment of holding the fifth clinical Congress of Surgeons of North America in a country so far removed as England, has proved a complete success from every point of view. For this happy result, undoubtedly, a large share of the credit must be accorded to the organization of the secretary general of the Congress, Dr. Franklin H. Martin, of Chicago, who was ably seconded by the general manager, Mr. A. D. Ballou. This success is all the more gratifying from the fact that unfortunately the date of the congress clashed with the annual meeting of the British Medical Association in Aberdeen. On this account, excellent as was the representation of the British surgeons, not a few members of the medical profession of Great Britain, whose presence would have been welcome and who greatly regretted their inability to attend, were unable to take part in the proceedings.

The general plan of the congress consisted in morning and afternoon hospital operative clinics, at which the members of the congress had the opportunity of witnessing the clinical methods of a very large number of well known English surgeons, operating in the environment and with the assistance to which they were accustomed. All official entertainments were sternly barred, and the evenings were devoted to a series of limited discussions on live surgical subjects, great care being commendably taken to prevent any overcrowding of the program. The convenient juxtaposition of the Hotel Cecil and the Hotel Savoy, which jointly constituted the headquarters of the congress, made it convenient to hold the discussions on general surgery and gynecology in the Hotel Cecil and those on ophthalmology, laryngology, rhinology, and otology, orthopedic surgery, and genitourinary surgery in the Hotel Savoy. With characteristic American energy the congress got to work at its clinical sessions on

the morning of Monday, July 27th, without waiting for the formal opening, or presidential meeting, which occupied that, the first evening of the congress.

On Monday evening the presidential dinner took place, at which the presidents of the Royal College of Surgeons of England and Ireland, the presidents of the Royal College of Physicians of London and of the Royal Society of Medicine, and other distinguished British and Continental surgeons sat down with the president of the congress, Dr. J. B. Murphy; with the president elect of the American Medical Association, Dr. W. L. Rodman, the president of the American Gynecological Society, Dr. T. Watkins, Dr. C. H. Mayo, Dr. A. B. Kanavel, and others. The dinner was honored by the presence of the American Ambassador, the Hon. W. Hines Page. An adjournment was made at 8.30 to the grand hall of the Hotel Cecil, which, by that time, was thronged to its entire seating capacity. Sir Rickman Godlee, president of the Royal College of Surgeons, extended to the members of the Congress a hearty welcome from the British medical profession.

Doctor Murphy, on his inauguration as president, referred to the very high opinion of British surgery already established in the minds of the American surgeons, and reinforced by what they had recently seen of it. Dr. W. L. Rodman, the president elect of the American Medical Association, in tendering the cordial greetings of the American Medical Association to the British medical profession and the congress, spoke of the excellent work done for the betterment of medicine in America by the various councils of that association, and pointed out that the American College of Surgeons was the natural and logical outgrowth of the Clinical Congress of Surgeons of North America. That college, he said, ought to have a permanent home, preferably in Washington, D. C., where it would be removed from all hampering restrictions that might be imposed by States, rival

schools, hospitals, etc. He referred to the great advantage to the congress of the visit to London, where the work of London surgeons and the co-operation of surgeons from Austria, Germany,



Colonnade of Guy's Hospital, London.

France, and other countries, made it a unique occasion.

The American ambassador welcomed his fellow countrymen in his customary felicitous manner, the charm of which has gained for him golden opinions in England. An eminent English surgeon had recently said to him that he always told his pupils that they could not consider their surgical education entirely complete until they had visited America and observed the work of its distinguished surgeons. Now that some of those surgeons had come over to England on a similar errand, he thought that "honors were easy."

The meeting then proceeded to its first scientific program, which consisted of a paper by Professor A. von Eiselsberg, of Vienna, on the Choice of the Operative Method for Ulcer of the Stomach, which was followed by a discussion by Sir Watson Cheyne and Mr. James Sherren. The meeting closed with the presidential address of Dr. J. B. Murphy, on Arthroplasty and Bone Transplantation: Its Limitations and Technic.

It would be out of the question to attempt to give here a summary of the work of the congress. We refer our readers to the account below. It is sufficient to say for the present that some hundreds of demonstrations of operative surgery were given by 260 surgeons at thirty-eight different hospitals, general and special. By means of bulletin boards at headquarters, on which in the preceding late afternoon the items of each day's program were posted, it was possible for each member of the congress to arrange a profitable day's attendance for himself and secure his tickets for those clinics he wished to attend; for each clinic was limited to such a number as could be adequately accommodated in the seats of each amphitheatre or operating room, which were numbered and allotted like the stalls of a theatre. By this means overcrowding was commendably avoided. Beside these clinics, series of special demonstrations were given at the Royal College of Surgeons, the Royal Society of Medicine, the Medical Society of London, and various hospitals, and, on August 1st, a special trip was organized to the Lord Mayor Treloar's Cripples'

Home, Alton, where cases of tuberculosis of the spine and joints are treated, mainly by special splints and exposure to the sun.

London offers a unique field for such a campaign of observation as constitutes the *raison d'être* of this clinical congress. In European Continental countries the clinical work is largely dominated by a few men, so that, to obtain an exhaustive view of a great variety of procedures, the clinics of many different cities and countries must be visited. In London, on the other hand, every separate hospital has its own method of procedure and almost every surgeon—of whom there are several to each hospital, each one entirely independent of his colleagues—has his own technic. Nowhere in the world, probably, could so extensive a view of all the highways and byways of surgical methods be obtained in close proximity. It is gratifying, therefore, to learn that the general opinion of the congress has borne a striking testimony to the high average standard of British surgery, and we do not doubt that one of the results of the London congress will be to awaken among American surgeons a more adequate appreciation of the advantages of London as a field for postgraduate surgical study in the future. Nor can it be doubted, on the other hand, that the informal discussion by the visiting members of the congress, which naturally took place between them and the demonstrating surgeons, over their work, will be a source of far more profitable advantage, not only to the American surgeons, but also to their British colleagues, than any amount of theoretical and academic discussion, such as forms the staple of the ordinary medical congress.

The Choice of Operative Method for Ulcer of the Stomach.—Professor A. VON EISELSBERG, of Vienna, remarked that, in spite of all the progress in diagnostics, the method of operation in the treatment of gastric and duodenal ulcer could be selected only after the abdominal cavity had been opened. In the work of collecting his series of 434 patients on whom operations had been undertaken for ulcerative processes of the stomach, his pupil, Professor Clairmont, had rendered him very special assistance, and in the following paper he



New medical buildings of Guy's Hospital, London.

would refer to many interesting details in the work he was about to publish. Here in a few words was a summary of the results of their observations: 1. Symptoms of perforation of the

ulcer into the general peritoneal cavity called for immediate operation, irrigation of the peritoneal cavity, closure of the perforation, and in bad cases jejunostomy in addition, for the purpose of administering nourishment. 2. In the other complication of ulcer of which they heard so much, namely, hemorrhage, operation in most cases was best left alone. 3. In typical stenosis of the pylorus, especially when in the case of a long standing ulcer no new symptoms had occurred, gastroenterostomy was the operation to be chosen. Sixty per cent. of all cases of stricture of the pylorus were completely cured by gastroenterostomy, while in the case of open ulcer, gastroenterostomy was successful only in

in cases of ulcer of the pylorus itself. This, his pupil Professor Clairmont was the first to show on the evidence of the collected experiments of the clinic. It offered only thirty-four per cent. of successes contrasted with fifty-four per cent. of successful cases of pyloric ulcer. 6. High hydrochloric acid values of the gastric contents, by distinctly favoring the development of postoperative peptic ulcer, detracted very much from the value of gastroenterostomy and exclusion. 7. He had seen the postoperative peptic ulcer after operation done by himself and his assistants in the hospital as well as in patients who had been operated upon by other surgeons, so that the growth of such an ulcer could



Guy's House, South Side.

forty-one per cent. of cases. Among 334 gastroenterostomies for ulcer of the stomach and duodenum and its complications, eighteen deaths occurred, of these eight (nearly half) through continued bleeding from the ulcer, therefore gastroenterostomy was not in all cases a complete protection against continuance of hemorrhage. 4. Unilateral pyloric exclusion (which he did first in 1894) offered the greatest security in dealing with ulcer and its complications. It should receive special consideration if the ulcer was still fresh and causing much pain, and finally in cases of duodenal ulcer, it seemed to offer a better guarantee of stopping hemorrhage, even though this guarantee was not complete. 5. For ulcer situated at a distance from the pylorus, gastroenterostomy was not so feasible as

not have been attributed to their perhaps faulty technic. The danger of the formation of peptic ulcer was in the cases of high hydrochloric acid, especially in those cases where gastroenterostomy was not strictly indicated. There were cases in which the history of the patient given by himself pointed to a gastric ulcer, but in which the signs of gastric ulcer were wanting at the laparotomy. There might be perhaps merely a relatively small stenosis of the pylorus, some adhesions or cicatricial tissue in the stomach. In former years it was more easy to decide on gastroenterostomy in such cases. One regarded it as a safety valve, also a prophylactic against a stenosis later and therefore more serious. Since Doctor Braun had made them familiar with the serious complication of postoperative peptic

ulcer of the jejunum, great care was necessary with regard to it. In cases when by necropsy *in vivo* he had found no tangible condition to indicate what one had expected to find, judging from the history of the case, and nothing to show what it was, he had done simple exploratory laparotomy and had refrained from doing what he may term "concession gastroenterostomy." In fifteen cases of postoperative peptic ulcers of the jejunum which he had seen after gastroenterostomies performed in his own clinic and by other surgeons, a whole series of measures, some of them very complicated, were tried, to reproduce normal conditions, but only two patients were cured, four improved, in three results were unknown, two were unrelieved, and five died. So they saw that peptic ulcer was a very serious condition. 8. In cases of ulcer situated at a distance from the pylorus as well as in cases where there was high hydrochloric acid, transverse resection seemed to him the operation of choice, as this of all other resections, for instance, extirpation methods of operation, had the best security against subsequent complications. It must be made whenever there was the least suspicion that the tumor under consideration might be of a malignant nature. Of 269 patients on whom gastroenterostomy was done at his clinic, and who could be kept under observation for some time after, forty-one died at a later stage of the disease, thirteen from carcinoma, while six died with continuance of the symptoms of the ulcer. These later deaths spoke decidedly in favor of the radical operation. Transverse stomach resection was also the correct operation when the ulcer had invaded neighboring organs, as nothing except removal of the ulcer would be of any real assistance.

Transverse resection as planned by Riedel, also advocated by Payn and Küttner, was a relatively safe operation. They had up to January, 1914, done eleven transverse resections, to which six more could be added up to July 11th, making seventeen and not a single death. He had never seen a peptic ulcer or any other harm after this operation. When transverse resection could not be done, method Billroth II should be employed; method Billroth I was the third in order to be considered. Partial excision was to be entirely rejected. In extreme cases only, when other operations were not feasible, jejunostomy might be considered as had been suggested already in cases of perforated ulcer, when

the patient was so weak that he had to be fed immediately after the operation. Jejunostomy made it possible for nourishment to be given even on the operating table. Further, in cases of peptic ulcer in which for exceptional reasons excision was not possible, it was the easiest and most rapid of all operations for gastric ulcers, and above all it left the stomach undisturbed. As it had been done only in extreme cases, one could not wonder it had met with so little success, and it was noticeable that so many cases of peritonitis had been associated with it. They were patients whose peritoneums had lost their powers of resistance.

Sir WATSON CHEYNE said that there were three requirements for successfully treating gastric ulcer, rest of the organ, avoidance of chemical irritation, and nourishment of the system. Movements of the stomach should be avoided as far as possible. Three methods of operation were indicated, gastroenterostomy, excision of the ulcer, and jejunostomy. Sir Watson did not seem to be in favor of gastroenterostomy, but was of the opinion that gastrectomy had much to recommend it, as it eliminated movements of the stomach.

Mr. JAMES SHERREN also discussed the subject at considerable length, and in the course of his remarks said that the choice of operation to be performed for gastric ulcer could only be decided upon after the abdomen had been opened. His contribution to the discussion

was based upon a personal operative experience in 200 cases of chronic gastric ulcer and 224 cases of chronic duodenal ulcer. These figures included only those in which an unhealed chronic ulcer was present and excluded operations for acute perforation by both acute and chronic ulcers, and those in which scarring had produced symptoms. The treatment of chronic duodenal ulcer consisted in unfolding the ulcer when it was in its usual situation on the anterior wall, and in doing postgastrojejunostomy. In his series there were four deaths all in men over sixty years of age, three from bronchopneumonia and one from acute edema of the lungs, twenty-four hours after operation. The results of gastrojejunostomy in this condition were, in his experience, unequalled by any other operation. Acute perforation of a chronic duodenal ulcer should be treated by closure or excision, followed by gastrojejunostomy. All surgeons who had had a wide experience of the treat-



Clarence Memorial wing of St. Mary's Hospital.

ment of gastric ulcer had found that gastrojejunostomy failed to bring about healing in certain cases and that relapse occurred in many of those operated in by excision alone. He was convinced that gastrojejunostomy alone so greatly modified gastric conditions that ulcers healed; and only when complications had arisen was excision or partial gastrectomy necessary. Although gastrojejunostomy was curative in the majority of cases, it should not become the sole routine procedure. His present practice was to perform gastrojejunostomy in every case, the posterior vertical no loop operation by preference, or if this was impossible from adhesions or the situation of the ulcer, the anterior no loop operation, which he first car-

operation. The indications for excision or partial gastrectomy were the same as in ulcer without this complication. Acute perforation of a chronic gastric ulcer was a rare event which should be treated, if the condition of the patient admitted, by closure or excision of the ulcer, followed by gastrojejunostomy. Hemorrhage in chronic ulcer called for operation as soon as possible after the first attack, usually within the first twenty-four hours. The ulcers should be directly treated by ligature of the vessels on each side, by inversion or excision followed by gastrojejunostomy. Treated on these lines, the results of the operative treatment of chronic gastric ulcer both immediate and remote were excellent. Among 200 cases, excluding those in which perfora-



University College Hospital, London.

ried out ten years ago, in which a portion of jejunum close to the duodenojejunal flexure was brought through the transverse mesocolon and gastroduodenal omentum and united to the surface of the stomach, the edges of the opening through the great omentum being sutured to the stomach, around the anastomosis. After excision alone, recurrence of ulceration was common. It should never be done except as a complement to gastrojejunostomy. When there was indication for excision and the ulcer was large, he believed that partial gastrectomy was preferable to simple excision and gastrojejunostomy. In no instance had he found it necessary to practise any method of pyloric exclusion. He did not believe in the view that every chronic ulcer should be excised on account of the possibility of becoming malignant. When hourglass stomach had supervened, gastrojejunostomy on the central side of the obstruction, single if there was one obstruction only, double if two, was the most satisfactory

operation. The indications for excision or partial gastrectomy were the same as in ulcer without this complication. Acute perforation of a chronic gastric ulcer was a rare event which should be treated, if the condition of the patient admitted, by closure or excision of the ulcer, followed by gastrojejunostomy. Hemorrhage in chronic ulcer called for operation as soon as possible after the first attack, usually within the first twenty-four hours. The ulcers should be directly treated by ligature of the vessels on each side, by inversion or excision followed by gastrojejunostomy. Treated on these lines, the results of the operative treatment of chronic gastric ulcer both immediate and remote were excellent. Among 200 cases, excluding those in which perfora-

tion had occurred, but including those in which the immediate indication for operation was hematemesis (eight cases), there were six deaths. The results during over two years of cases operated in by all methods were briefly as follows: Cases operated in over two years ago, with four operative deaths, were 121; 109 of the survivors were traced for over two years; ninety-nine of these remained perfectly well, five were better, but not quite well. One only received no relief. One of his early cases was that of a woman in whom there were extensive adhesions to the spleen and left lobe of the liver, treated by gastrojejunostomy alone. In four patients second operations became necessary, two to excise portions of ulcer which were adherent to the pancreas, and two for true jejunal ulceration. There was no difficulty whatever in the results in those cases operated in for ulcer at a distance from the pylorus and those at the pylorus, or in those in which the ulcer

was excised in addition to gastrojejunostomy. In conclusion, he would say that gastrojejunostomy still remained the operation of choice in chronic duodenal ulcer and in the large proportion of cases of chronic gastric ulcer.



St. Bartholomew's Hospital; view of new buildings from Giltspur Street.

Presidential Address: Arthrodesis and Bone Transplantation; Limitations and Technic.—

Dr. JOHN B. MURPHY, of Chicago, said that so far as ankylosis was concerned, prophylaxis was of greater importance than treatment. Infection originated in two tissues, vascular layers of the synovial membrane and the bone end; metastasis took place in one of these two tissues. This infection rarely took place on the surface of joints. Metastasis was carried by bloodvessels. Acute infection did not originate in the joint. A chill was the primary danger signal. Rheumatism, so called, was never a primary infection. The difficulty in tracing the infection consisted in the fact that a long period elapsed between primary infection and manifestations in the joint. Infection by streptococci was manifested in the early days of recrudescence of the disease and not in the early stage, and that was why they had difficulty in connecting the primary infection with the joint lesions. In arthritis the organisms were held in joint fluid. Prophylaxis came in to prevent disintegration of the joints. Three points had to be considered: 1. Evidence of infection; 2, tension in the joints; 3, articular pressure in the joints. Means to avoid ankylosis and relieved tension, demanded careful technic. If they opened and exposed the serous membrane, they would have destruction of the endothelial cells, and and if they drained the joint, they would produce ankylosis. The joint might be incised and the products of infection allowed to escape, thus relieving tension. The joint must be immediately closed by washing out the joint and closing, and by aspirating and repeating aspiration, if the fluid reappeared. The violence of the infection might be minimized by injections into the joint. Turpentine seemed to him to be the ideal fluid for this purpose, but was not available because it could not be controlled and therefore might destroy tissue. He recommended the employment of formalin one to three per cent. in glycerol. This produced a fluid in the joint which was opposed to the growth of micro-organisms and would bring about the highest possi-

ble polynuclear cytolysis. When high pressure and inflammation were present in the joint, the cartilages become softened and contact with the bony end resulted. What could be done to prevent this? They must occasion separation of the bony ends. Surgeons were considered responsible for the deformities brought about by injury, but were not considered responsible for the deformities of arthritis. According to his view, they could absolutely control arthritis, but in order to control such deformities, treatment must begin as soon as infection showed itself. If allowed to persist, deformities became ineradicable. They could make a movable sliding joint. This has been contradicted, but if in one hundred cases, they had one successful case, it showed that it could be done. It was a matter of technic and asepsis. As for ankylosis of the jaw, operation should be performed on the opposite side to that on which the flattening occurred. The hip joint was the easiest on which the surgeon could exhibit his arthroplastic skill, and the knee joint was the most difficult, but gave the surgeon the most satisfaction. The knee should be hanging over the edge of the table when an operation of this kind was being done, and the surgeon should never introduce his hand into the cavity. The normal configuration of the knee must be always preserved.

The paper of Doctor Murphy was illustrated by a large number of beautiful pictures thrown upon the screen, which, together with the speaker's remarkably clear exposition of his subject, rendered all the minutiae of arthrodesis and bone transplantation dealt with by him, excellently and plainly evident to his hearers.

THE CLINICS AT THE LONDON HOSPITALS.

The clinical demonstrations given at practically all the London hospitals were largely attended. To prevent overcrowding, numbered tickets were issued for each clinic and demonstration up to the capacity of the room in which the clinic or demonstration was given. Despite this precaution, from some of the clinics, especially those held in hospitals by surgeons whose names are well known to the American profession by reason of their skill and originality, numbers had to be turned away. The clinic of Sir Watson Cheyne attracted a large audi-



One of the Hebrew wards in London Hospital.

ence, both on account of the reputation and personality of the operator and because King's College Hospital, of which Sir Watson is the surgeon, is a new building and is absolutely the last word in

modern hospital construction. Sir Watson operated for the removal of a scirrhus cancer of the breast, and also removed an adenomatous tumor of the thyroid gland.

The clinic of Sir Arbuthnot Lane at Guy's Hospital, was likewise the Mecca of many, owing doubtless greatly to the fact that Sir Arbuthnot and his surgical skill and originality are almost as famous in America as in England, and those who had not had the opportunity to watch him operate in the United States or Canada, were eager to see for themselves the technic of the distinguished surgeon. Sir Arbuthnot, demonstrated his shortcircuiting method of operation for the cure or relief of intractable intestinal stasis.

Mr. Herbert J. Paterson, surgeon to the London Temperance Hospital, gave an exceedingly interesting clinical demonstration at the hospital on the morning of July 27th. The first operation performed was that of appendectomy for the relief

spect to the method of preventing adhesions in the abdominal cavity employed at St. Bartholomew's Hospital. Mr. McAdam Eccles did a bone transplantation, and at the London Hospital, Sir Frederick Eve operated in stomach cases. At St. Mary's Hospital, Dr. William Hill demonstrated the treatment of cancer of the esophagus by means of radium.

EVENING SESSION, JULY 28TH.

Transplantation of the Ovaries.—Professor TUFFIER, of Paris, read a paper on the transplantation of the ovaries, in which he said that he wished to present his experience in the transplanting of the ovaries after salpingitis and in cases of fibroid of the uterus. In the course of five years he had performed 204 such operations. In the heterografting of these organs, i. e., transplanting from one subject to another, there had been twenty-four operations, and they had not been successful. There had not been a single good result in an operation of this



London Hospital.

of a condition diagnosed as appendicitis with stasis and appendicular gastralgia. On operating, a dermoid cyst was also found to be present. The next operation was upon a woman, whose affection was diagnosed as gastric ulcer and chronic appendicitis, and the third operation was upon a woman for the relief of appendicular gastralgia. In these operations Mr. Paterson employed the anoci association method concerning which he spoke favorably. Dr. J. B. Murphy, who was present, commended Mr. Paterson for his extreme carefulness in all operative details, for instance, the insertion of a drainage tube as a precautionary measure, even when such a procedure did not appear to be especially indicated. Mr. Paterson referred to Doctor Murphy as not only the greatest teacher of surgery in America, but probably in the world. Among other remarks made by Mr. Paterson, was the recommendation that an operation for abdominal trouble should not be performed on the strength of radiographic examination alone.

Professor Arthur Keith gave a special demonstration at the Royal College of Surgeons with re-

sort. The ovary had decreased in size. He thought that with an improvement in technic, they should be able to operate successfully. The various elements of the body were attacked by the macrocytes; when they were able to find some chemical substance, to protect the grafted limb, they would be able to do the operation.

The other form of operation was autografting, that is, grafting the ovary from the woman's own body. After hysterectomy, the implantation of one or two ovaries would overcome the symptoms of change of life. In such cases the graft took and there was no change in the patient's subsequent condition. In sixty-five cases he had removed the uterus and the salpinx from one or both sides and had then grafted the ovary deep in the fatty tissue.

The technic of the operation was illustrated by a series of lantern slides, and it was remarked that this operation had been shown to give great relief to the patient after salpingectomy, when the ovary was grafted near the uterus or some other tissue.

With regard to technic, in chronic salpingitis the abdomen was opened, the ovaries and tubes were



SIR RICKMAN GODLEE,
F.R.C.S.,
President, Royal College of
Surgeons.



SIR WATSON CHEYNE, Bart.,
Surgeon, King's College
Hospital.

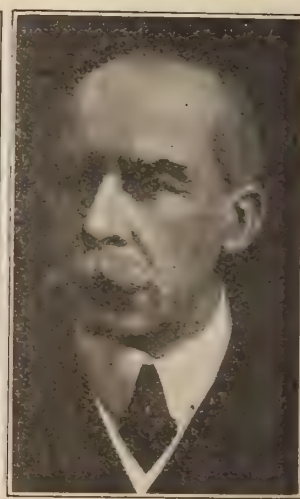
held in the finger, the pedicle was cut, the ovary taken in sterilized forceps and imbedded deep in the fatty abdominal tissue. After such an operation the broad ligament was in a normal position and the abdomen was closed with three layers of sutures. During this operation all bleeding vessels must be anastomosed. If, in an operation of this description, the ovary appeared septic, it was dipped in iodine. The after result of this sterilization with iodine was that the ovary did not function nor did the patient menstruate for a considerable period. The ovary in such circumstances appeared nodular and lay dormant for three to four months. It was tender, the patient had symptoms of change of life, but, after the sixth month, the ovary increased in size and menstruation reappeared. The operation presented no greater danger than hysterectomy and he had never lost a patient from this cause. In thirty-four cases of grafting after hysterectomy, thirty-two patients had normal periods. The other two patients were septic. In twenty-eight cases of grafting of both ovaries, nineteen patients had regular menstruation. After forty years of age, the grafting of ovaries had little or no effect. The question might possibly be raised that the renewed menstruation could be due to a portion of the gland that had been left at the time of operation. A portion of the gland had not been found to produce function, and if the ovary was grafted, the ovary produced function soon after grafting. In an early case the ovary had been grafted near the surface of the abdomen and the result had not been so good, as the swelling and congestion of the ovary had produced distention of the abdomen. Ovulation and the internal secretion of the ovary, therefore, were not so important as had been believed. These experiments had led Professor Tuffier to a new theory of the function of menstruation. He now believed that every month the female organism secreted internally a chemical substance, which was sufficient to act on the ovary. This chemical substance was eliminated by the menstrual flow, and if this was retained by the body it caused an autointoxication. Thus he had been able to produce menstruation by injection of defibri-

nated blood from a woman about to menstruate, into a woman in whom the menses were suppressed. The dose of twenty-four c. c. of this serum had caused menstruation in patients who had not menstruated for two years after confinement. The flow appeared in from two to six days. These studies led them further in the direction of conserving the female organs. Resection of part of the uterus might be done without causing the symptoms of change of life. How much of the uterus might be taken in these conditions, it was impossible to say, but in his own experience one third of that organ could be safely removed. In cases of adhesions between ovaries and pelvis, this operation was not so satisfactory, the patient always complaining of pain, but with this exception the operation held good. It was especially helpful in the case of young and nervous patients with excessive thyroid secretion.

Suture of the Levator ani in Perineorrhaphy Operations.—Dr. HENRY JELLETT, master of the Rotunda Hospital, Dublin, described in detail the technic of suturing the levator ani in perineorrhaphy operations and said, in part, that he had practised systematically this method for the past six or seven years, and thought he might say that he had sutured the muscle in every case in which he had performed perineorrhaphy during this period, except when the muscle was absent or atrophied, but when he had stated this fact at a discussion on the subject, he had been told that he had never sutured it. The reasons given for this statement were, first, that Krönig had showed how easy it was to mistake a more superficial muscle for the levator ani; and, secondly, that Martin had said that suture of the levator was a difficult operation involving an extensive dissection, whereas Jellett's operation was a simple and easy one. It was just because it was simple and easy that he took up the time of the society with his paper, in which he desired to show, first, that there were no anatomical difficulties in the way of muscle suture; and, secondly, that there were no practical difficulties. His conclusions were summed up as follows: 1. Routine suture of the levator ani was an essential part of perineorrhaphy. 2. Routine su-



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SIR ANTHONY BOWLBY,
Surgeon, St. Bartholomew's
Hospital.



SIR W. ARBUTHNOT LANE,
Surgeon, Grey's Hospital.



MR. HENRY S. PENDLE-
BURY, F.R.C.S.,
Surgeon, St. George's Hospital.

ture was always practicable, except when the muscle was wanting, owing to atrophy after injury. Such injury was very rare, and when it occurred, it was impossible to reconstitute the perineum satisfactorily. The exposure and suture of the levator ani were neither difficult nor dangerous.

Dr. Jellett's paper was illustrated by pictures on the screen.

Dr. J. F. McCANN, of London, said that he was in complete accord with Doctor Jellett's advocacy of the routine suture of the levator ani in operating for prolapse. The levator ani was both the strength and the weakness of the pelvic floor, and any operation which was to restore the floor after laceration must include suture both of the fascia and the muscle. He described the technic of the operation.

Internal Derangements of the Knee.—Mr. ROBERT JONES, of Liverpool, said that he had chosen this subject because comparatively little had been written about it in the United States, and this had always been a matter of great surprise to him, for American sports, like English games, were rough, and they in England knew to their cost that American youths were very skilled and very strenuous. He had been credibly informed that the anatomy of American knee joints differed but little from that of English knee joints, and he was forced to conclude, either that American cartilages were more securely placed than English, or, which was most unlikely, that the condition was not so generally recognized as it should be. By far the most common derangement of the knee was injury to the internal semilunar cartilage. It occurred eight times more often than injury to the external meniscus. The internal cartilage was more firmly fixed and was not allowed the give and take movement vouchsafed the external, and, in addition, it bore a greater strain during the normal movements of the joint, often becoming thin, red, and frayed along its inner margin. The line of force was carried through the inner side of the knee in the normal relation of the femur to the tibia, while the abducted position of the foot, when exaggerated, produced outward rotation of the leg. In nearly all cases the cartilage was displaced inward, and on those rare occasions where a protrusion

had been felt from the outside, it was due to hemorrhage following a tear, a localized bruising of tissue, or a buckling of cartilage accompanied by effusion, which gave rise to an irregular outline of the articular margin. The most constant symptom of a displaced or fractured semilunar cartilage was a sudden inability to extend the knee. The most frequent cause of a displacement or fracture was strain thrown on the internal lateral ligament, while the knee was flexed and the tibia rotated outward. If an injured semilunar cartilage was rationally treated after its initial displacement, it stood a good chance of being completely cured. The first displacement was not often accompanied by any degenerative change; reduction, however, must be absolute. All movements of the cartilage must be prevented until union of the torn structure was complete, and no lateral strain must be allowed until the lateral ligament, so often injured, had had time to effect a recovery. There were many ways of reducing a cartilage, but if no anesthetic was used, he has always thought it wise to summon the assistance of the patient himself, who was told at the count of "three" to extend forcibly his own knee while he was helped by pressure from above. In this way the surgeon was materially assisted and the reduction was simplified. Jones had often in this manner reduced displacements of several weeks' duration, and the reduction could usually be felt by the surgeon. If the displacement was corrected, the patient usually knew definitely and at once, and the surgeon, if wise, would abide by his verdict. If the patient said that the cartilage was still out, he was generally right, and it was best to believe him. The knee should remain fully extended after reduction in all recent displacements. If the knee did not voluntarily remain completely extended, the displacement was not corrected. Such a joint, with a clear history of semilunar injury and strained or ruptured internal lateral ligament, should be treated by complete rest in full extension for four or five weeks, as the cartilage could be retained in a fixed position only when the limb was fully extended. They participated in all rotary and lateral movements of the joint. Rest of the limb in the fully extended position



MR. WALTER H. PAGE,
United States Ambassador to
England.



MR. JAMES BERRY,
Surgeon, Royal Free Hospital.



MR. ERNEST MILES,
Surgeon, Cancer Hospital,
Brompton.

tion was therefore indicated, and as long as the effusion lasted, the patient should be recumbent. Massage could be employed while the knee was being rested in extension, and it was still more valuable to encourage the patient to practise contracting the quadriceps without flexing the joint. When the patient was up, they should guard his internal lateral ligament from strain during walking, by directing him to walk with his toe slightly turned in and his foot everted. This was made easy by raising the heel of the shoe a third of an inch on the inner side, to deviate body weight from the inner to the outer lateral ligament, just as they would do in an early case of knock knee. The more prominent diagnostic symptoms were described, of which it was pointed out that locking was the most definite and reliable symptom. Attention was drawn to the fact that it was often impossible to diagnose accurately without an operation. Among such abnormal cases he had found the external cartilage on the inner side of the knee and he had found the fractured end of an internal cartilage lying on the outer side just internal to the external lateral ligament; also cartilages so split up that different segments of the same cartilage would become displaced at separate times, giving rise to destructive symptoms. Frequently he had found two separate lesions, either of which would account for the symptoms, and unless both had been rectified, the operation might have failed.



MR. GEORGE E. WAUGH.

Sometimes fringes and lipomata and pedunculated semidetached bodies had been present when he had expected a displaced cartilage, and he had sometimes even had to close the wound without having remedied any defect. These confessions showed that the knee was sometimes as secretive as the abdomen.

The symptoms were less acute in their primary onset in synovial fringes, the pain was

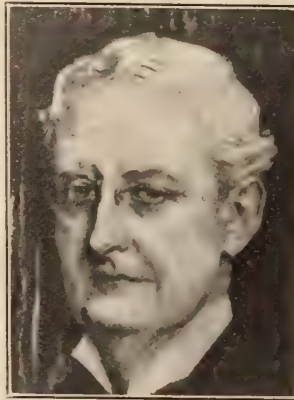
quite local and was not situated definitely in the internal lateral ligament. Creaking in the joint was common and effusion almost invariably followed each nipping. There was usually in the recurrent cases a thickening on each side of the ligament of the patella, due to hypertrophy of the postpatellar pad of fat.

He refused to operate in any case which he saw immediately after the first displacement, as so large a proportion of such cases improved under appropriate treatment, nor did he encourage operation in cases where the recurrent trouble was painless and was never followed by effusion in the joint. He strongly advocated operation where the recurrence was sometimes followed by acute symptoms, and he encouraged it in all recurrent cases where a strenuous athletic life was a means of livelihood or a physical necessity. Operation was a positive necessity in the case of men who worked among moving machinery or stood in positions where a yielding knee might mean disaster. He had operated upon patients from twelve to sixty years of age, therefore age was not a contraindication. An argument in favor of operation was the occurrence of tubercle and so called rheumatoid trouble as a direct result of the irritation of a displaced car-

tilage. If he decided to operate, he preferred to do so with the knee flexed to right angles, so that it need not be further flexed during the operation. He had a very real dread of accidental infection of a knee joint, for it might mean the loss of the limb. Further, he considered a knee which had been the seat of a trauma to be very susceptible to infection, and was careful not to operate during the presence of effusion nor to move it during operation for fear of the ingress of air or dust. The most convenient way was to leave the limb hanging in flexion over the end of the operating table. Some thicknesses of gauze squeezed out of



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Surgeons of North America.



SIR ST. CLAIR THOMSON.



SIR FREDERICK EVE.

a solution of biniodide of mercury were wrapped around the joint and the incision was made through the gauze, the cut edges of which were fixed into the wound. In this position it was not neces-



Hospital for Consumptives.

sary, excepting in very stout people, to make the incision longer than one inch and a half. The incision he now employed was nearly transverse, beginning just behind the ligament of the patella and traversing slightly above the tibial border, care being taken to spare the internal lateral ligament from injury. Through this small opening a most excellent view could be obtained of the joint with the aid of retractors. The fingers should never enter the joint. Neither the surgeon nor his assistant should touch the wound except with sterile instruments; the sutures for the capsule should be manipulated with forceps, the edges of the capsule being secured by a blanket stitch. The cartilage might be found in almost any conceivable position. It might be split along its inner margin, it might be fractured, it might be turned inward and, like a bucket handle, with its convexity inward, it might be nodular; the posterior part might be in front; the anterior portion might be loose; it might be attached at its extremities and free along the whole part of its outer border; it might be firmly fixed with its inner border frayed and serrated; the anterior part might be

terior portion and drawing the cartilage toward the front of the joint. The examination should be gentle and was made easier by the use of a small blunt hook. It was necessary to remove the loose portion of the cartilage if the remainder was firmly attached. If it was decided not to remove the whole cartilage, care should be taken to make the whole section without drawing upon the stump, otherwise it would be loosened and give rise to symptoms of recurrence. The capsule should not be closed until a search had been made for fringes, tabs, or other possible sources of derangement. He always applied a tourniquet and never tied a vessel nor drained the wound. Effusion, if it occurred, was usually trivial if the operation had been done gently. As no structure of any importance to the stability of the joint had been severed, walking might begin in from ten to fourteen days, the joint being protected for another week. Loose bodies of whatever type should be removed. An endeavor should first be made to localize and fix them. This should be done immediately before the anesthetic, when the patient's assistance could be obtained if necessary. The surgeon's hands should be sterilized and he



The Cancer Hospital (free).

should wear a mask and rubber gloves, and, when found, the fixed body should be placed in the keeping of a reliable assistant. The knee should be extended during the operation. These loose bodies were often found in connection with rheumatoid arthritis and should be removed whenever practicable, although this might involve splitting the patella longitudinally to obtain a good view of the interior of the joint. They were frequently found at the back of the joint, and obstructed flexion and sometimes extension. They could not be effectively removed by an inferior incision, and it would be necessary to approach the joint from behind. The narrow communication between the anterior and posterior portions of the joint prevented them from traveling if they should prove of any size, therefore their removal was not difficult. An incision was made through the popliteal space, the nerve and vessels being kept to the outer side, and usually the loose bodies could be felt through the capsule. This route had also been described by his friends Brackett and Osgood.

Mr. A. H. TUBBY, of London, when he decided to operate, did it on these grounds: 1. Where the patient was unable to give the necessary time and had



Westminster Hospital.

ground away or bound quite loose as a separate body; it might look quite normal, though its moorings were loose, or the posterior part might be split, which could be discovered only by detaching the an-

not the means to afford the apparatus required for mechanical treatment. 2. Where the patient was unable to obtain his livelihood shackled by a splint. 3. In the case of those who went up ladders, worked on scaffolds or near machinery, where a sudden and unexpected fall might be fatal. 4. Where a support had been faithfully tried and failed. In every case of operation its risks and results should be explained to the patient. He decided not to operate: 1. In any case of primary displacement. 2. Where a patient was content to wear an apparatus for a long period. He operated in only five per cent. of his cases of internal derangement of the knee joint, in private practice.

Mr. ROBERT MILNE, of London, said that in the first instance it was necessary to find out exactly what was wrong with the knee joint. He described the pathological conditions of the internal semilunar cartilage in cases which had come to his notice. He mentioned among such conditions longitudinal splitting of the cartilage, complete separation of the anterior end of the cartilage; a transverse tear and separation of the posterior end of the cartilage. According to him, the chief cause of displacement was rotation of the tibia inward on the femur, and the cardinal symptoms or "tripod" were three, viz., pain, effusion, and locking of the joint.

EVENING SESSION, JULY 29.

Typhoid Perforation.—Dr. GEORGE E. ARMSTRONG, of Montreal, said that in the two Provinces of Quebec and Ontario in Canada, there were during the five years 1908-1912, inclusive, 6,011 deaths from typhoid fever, an average of 1,202 deaths per annum. In the Province of Alberta during the five years 1909-1913, inclusive, there were 852 deaths from typhoid fever, an average of 170 per annum. In the United States during the four years 1909-1912, inclusive, there were 43,833 deaths from typhoid fever, an average of 11,458 deaths per annum. The average death rate was a little over twenty per 100,000 of population. The responsibility for this enormous waste of human lives could not be laid at the door of the medical profession. It was a reflection upon the humanitarianism and business acumen of the laity in those countries. Those who succumbed to typhoid were among the most promising in the country. The greatest susceptibility was from fifteen to twenty-five years of age. It had again and again been proved to a demonstration that pure water and efficient drainage prevented typhoid. Typhoid could be arrested by an act of Parliament and by municipal legislation. Regarded as a purely economic question, the money spent in removing the causes of typhoid would earn larger dividends than if invested in the best bonds in the world. Why should not municipalities, towns, and cities be made as responsible financially for the loss of time and loss of life from a preventable disease like typhoid, as were the transportation companies by land and water made responsible for preventable accidents? Typhoid was still with them, however, and it was still attended by a mortality from several complications, seventy-five per cent. of which were surgical. It was to one of the most important of these that he would call attention. One could not ap-

proach the subject of surgical complications of typhoid without an appreciation of the influence of W. W. Keen, who brought this subject so clearly and forcibly before the profession in his book published in 1898. The incidence of perforation varied in different years and in different epidemics. In Germany perforation was less common than in America. Recent figures embracing 9,713 cases collected in England, Canada, and the United States showed that more than one third of the deaths from typhoid were due to perforation. At Johns Hopkins Hospital there were forty-three perforations in 1,500 cases, or one in thirty-eight. In the Pennsylvania Hospital, there were fifty perforations in 1,948 cases, or one in thirty-nine. In the Royal Victoria Hospital, there were eighty-three intestinal perforations in 2,917 cases, or one in thirty-five, and two perforations of the gallbladder. In the Montreal General Hospital, there were 110 perforations in 2,494 cases or one in 22.5. In the Royal Victoria and Montreal General Hospitals, it was sometimes quite impossible to admit all the cases of typhoid that applied. Only the more severe cases were taken in. Again, quite a number of cases were admitted after perforation had occurred. In 15,224 collected cases there were 544 perforations, or about one in 31.5. Statistics showed perforation to be more common in men than in women; the reason was not obvious. In children perforation was rarer than in adults. After discussing the pathogenesis and prognosis of typhoid, Doctor Armstrong went on to deal with the diagnosis, and pointed out that early diagnosis was the crux of the problem in the surgical treatment of typhoid. If it would not be considered too presumptuous for a Colonial to criticise writers in the great educational centres of Great Britain, he would like to say that when a recent edition of Choyce's *Surgery* said that the symptoms that suggested perforation were the sudden onset of acute pain referred to the umbilicus or to the right lower half of the abdomen, with tenderness on pressure, and muscular rigidity, most marked in the right lower quadrant of the abdomen, and that there were nausea and vomiting and other symptoms of acute infection, and when Howard, in his *Practice of Surgery*, issued this year, said the symptoms of typhoid perforation were sudden, acute abdominal pain with collapse and fall in the temperature, they failed to appreciate the difficulties that surrounded the question of typhoid. The occurrence of perforation was but seldom indicated by such well marked and striking symptoms. Furthermore, a fatal peritonitis might develop in typhoid without any perforation discoverable at necropsy, as reported in the Munich necropsies and in various medical journals. The first indication that a perforation had occurred was usually pain. An important point in the training of a typhoid nurse was to teach her to send for the intern whenever a typhoid patient complained of abdominal pain. In twenty-five per cent. of cases not having pain at onset, the following conditions were found: In eleven per cent. toxemia obscured all signs; in four per cent. the condition was obscured by severe concurrent hemorrhage; four per cent. were not diagnosed; one per cent. had chills; two per cent. had rigidity; and four per cent. had vomiting.

(To be continued.)

Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT

July 6, 1914.

Indications and Limitations in Pyelography.—

L. Casper takes a very conservative stand relative to the indications for this procedure. Practically the only conditions for which it should be used, for want of a better method of diagnosis, are cases of horseshoe or deformed and fused kidneys, doubtful cases of nephritis, perinephritis, stones which do not show on x ray plates, hydronephrosis, and renal hemorrhage. In many of these the method fails and others are better suited. Inasmuch as other methods suffice for the accurate diagnosis of movable kidney, ureteral twists, kinks, stones, and malinsertions, renal calculi, tumors of the kidney, hypernephroma, renal dystopia, questionable abdominal tumors, etc., pyelography should not be employed. In addition, pyelography is not by any means a harmless procedure, and whenever it is possible to make a diagnosis without its aid, it should be avoided.

X Rays and Pregnancy.—H. Edelberg cites observations on the lower animals which have shown that the application of the rays to the ovaries will prevent fertilization, and after fertilization will cause deformity or death of the fetus. No observations have so far been made on the effect of radiation on these processes in the human subject and the case here presented is the first to be recorded. The patient, a woman thirty-eight years of age, was treated with x rays during the months of April, May, and June for the cure of a fibroid. The last exposure was given on the 3rd of June. Conception took place in the middle of this month, and she was subsequently delivered of a perfectly normal, full term child of average size. It is evident that the exposure to the rays had exerted no malign influence on the function of procreation.

Zeller's Paste.—Lange conducted careful observations on the actions of this silicic paste to determine its actions on normal and cancerous tissues, whether or not it was specific in the destruction of cancer cells, and the extent of its side actions. He found that the paste was not specifically destructive of cancer cells, but destroyed normal tissue quite as rapidly; that it could not be limited in its action; that it was not devoid of side actions; that its use was very painful; that its application must be prolonged to have any effects; and that it was productive of very marked and extensive scarring. He says that for all forms of tumors, benign, relatively malignant, and malignant, surgical measures are the only ones to be considered.

Clinical Determination of Carbon Dioxide Tension in Alveolar Air.—L. S. Fridericia has perfected a simple procedure for this purpose, which he describes in full, including apparatus, technic, and method of calculation. Briefly, the apparatus consists of a specially designed tube of 100 c. c. capacity for the accurate collection of the alveolar air. The tube is graduated in part so that the readings at the end of the experiment can be made either in per cent. of carbon dioxide or in tension in

millimetres. The carbon dioxide contained in the 100 c. c. is determined by absorption with potassium hydroxide solution. The entire process takes but a few minutes and the apparatus is simple and readily portable. The results obtained with this apparatus have been compared with those given by the methods of Petterson-Bohr and of Haldane, and the error was not greater than one tenth of one per cent.

Hysteroneurasthenia or Chronic Appendicitis.

—A. Rheindorf discusses the relation between the symptoms produced by the presence of oxyuris worms in the appendix and the symptoms of mild, afebrile appendicitis which have so often been attributed to a hysteroneurasthenic state. His wide researches here recapitulated, together with those of a few other observers, make it certain that the oxyuris is frequently present in the appendix and is the cause of chronic boring pain in the region of this organ, and produces typical microscopic changes in the walls of the appendix which are easily recognized by the trained observer.

July 13, 1914.

Atypical Gout.—Goldscheider analyzes a large number of cases under this description and divides them into two general classes; the one with tophus formation, the other with demonstrable joint disturbance which leads to friction rubs and usually to pain. The commonest sites of tophi are about the prepatellar region and the olecranon, sites which have been very commonly overlooked. These two classes of cases may be combined without rendering the picture typical, for there are no sudden paroxysms of joint involvement, the cases running a chronic course. Atypical gout occurs in the same classes of persons as does the typical form; namely, in those who are obese, who have signs of enlargement of the liver, in the arteriosclerotic, and among those who manifest a variety of nervous symptoms. A striking difference is the far greater frequency of atypical gout in the female sex. Men however are more liable to tophi than women, while the opposite is the case with simple chronic joint involvement.

The Blood in Atypical Gout.—Ernst Steinitz reports the uric acid content of the blood in normal persons, in typical, and in atypical gout. He states that the normal uric acid content of the blood is 1.5 mg. to 100 c. c. of blood; the amount may rise considerably under normal conditions. Amounts lying between three and four mg. are regarded as marking the neutral zone for typical gout. Such figures are not too high for certain normal persons, nor too low for cases of typical gout, though the latter cases usually give much higher figures. The neutral zone for atypical gout is wider, lying between 2.5 and four milligrams. Cases of atypical gout commonly give figures considerably above the normal, and most cases exceed the upper limit of the neutral zone. Values below the neutral zone are fairly indicative of the absence of gout; values within the neutral zone indicate the probability of gout, and the nearer they approach the upper limit; values above the neutral zone are almost pathognomonic of gout. There are a few exceptions to these generalizations.

Thymus and Rhachitis.—C. Hart, arguing

July 20, 1914.

from a large number of autopsies on children, both rhachitic and nonrhachitic, energetically combats the evidence obtained by others from animal experimentation to the effect that rickets is due to a disturbance or loss of thymus activity. In his extensive material, he has found many cases of true rickets in which the thymus was normal, others in which it was even abnormally large, and many in which it was greatly reduced in size. These latter cases would seem to support the view that thymus atrophy is a cause of the disease, but Hart states that the small thymus was found only in those cases fatal from some wasting disease, which, alone, is a cause of the atrophy. In cases in which there was no wasting disease, no thymus atrophy was found.

Augmentation of the Wassermann Reaction.—Franz Blumenthal discusses several methods recommended for bringing out this reaction in doubtful cases, and concludes that we have no method of increasing the accuracy or exactness of this reaction. There are methods by which the reaction can be made decidedly stronger, but these at the same time render the reaction nonspecific. It is better to preserve the specificity and only in exceptional cases to try to increase the reaction. In common with almost all other reactions of immunity, the Wassermann reaction is specific only within certain limits and when carried out in a definite manner.

Technical Improvements in the Abderhalden Test; Application in Psychiatry.—Schroeder recommends the use of only one fifth per cent. solution of peptone for the testing of the permeability of the sacs, as solutions stronger than this do not exclude membranes which are too permeable. Serum alone often gave a positive ninhydrin reaction, and it was found that this was due to the presence of a small number of red cells. This error can be avoided if the centrifuge tubes are only half filled with blood, so that there is no zone of stasis near the centre of the instrument. The ordinary method of preparation of the organs can be improved by the use of a meat chopper for mincing and by washing in a fine meshed sieve, the top of which is closed to avoid loss. Further, in the ordinary preparation not all the pieces are free from blood, but if after some washing with water, they are washed with a dilute solution of acetic acid in the cold, and subsequently rewashed in water, they can be made completely free from blood. Although the test is of value in psychiatric diagnosis as a supplemental observation, and in a confirmatory way, it shows such fluctuation in these cases that it cannot be relied upon.

Röntgenography of the Sphenoidal Region.—Béla Freystadt has devised an instrument which can be introduced into the pharynx by way of the mouth and which carries a miniature plate, so that this can be brought into contact with the wall of the sphenoid. By x ray illumination through the frontal region of the cranium from above, an accurate picture can be obtained of the sphenoidal sinuses. The method is simple and yields valuable information regarding this region hitherto so difficult to photograph.

Diphtheria Prophylaxis in Infants.—P. Rohmer measures the dose for infants of the new prophylactic mixture of diphtheria toxin and antitoxin, which von Behring tested on animals. It is possible to give the strongest preparation, TA.VI, to infants without unfavorable reaction. One tenth of one c. c. was chosen as the amount to be injected; in each case dilutions varying from one in twenty to one in five were injected. The dose was increased at each subsequent injection. In all sixteen children were given the injections, children of a variety of ages from two and a half months to two and a half years and of considerable difference in general health. In the infants under four or five months of age the injections failed to increase the antitoxin content of the serum, while in all above this age there was an increase, in some very marked. The agent was injected intracutaneously; the local reactions could be divided into three groups according to severity. The most marked reactions are specific, the reactions of the first and second order doubtfully so. No harm was caused in any of the children, and the agent is recommended for prophylaxis.

Experimental Pneumonia.—S. J. Meltzer induced pneumonia in dogs by direct intrabronchial insufflation of living cultures or emulsions of the several organisms used, which included pneumococci, Friedländer's pneumobacilli, Streptococcus mucosus, streptococci, staphylococci, and the influenza bacillus. The first three produced lobar pneumonia; the others either lobar pneumonia or bronchopneumonia. The microscopical findings in the lungs were typical. Organisms of varying degrees of virulence were used and the difference in the effects was that virulent forms caused a septicemia, while less virulent ones failed to do so. Pneumococci also differed from streptococci in the greater production of fibrin. Further experiments showed that it was possible also to produce typical pneumonia by insufflation of pure saprophytes and of organisms which were wholly nonvirulent under ordinary conditions. The process of pneumonia was observed in some cases by direct exposure of the lung through removal of a portion of the chest wall. In the five hours which these animals often lived the lung usually underwent consolidation. Meltzer expresses the opinion, based on his experiments, that pneumonia does not actually develop so suddenly as supposed, that there is a considerable interval of slight bronchitis preceding its clinical appearance. Bronchitis leads to the closure of some of the smaller tubes, into which the ever present pneumococci penetrate to undergo multiplication with the production of the disease.

Six Hour Retention in Gastric Ulcer.—Faullhaber concludes that ulcer of the stomach, when not at the pylorus, does not interfere with the motility of the organ unless the ulcer has involved the neighboring structures to a considerable extent. In the latter case the interference is due to the mechanical effect of adhesions. The supposed six hour retention was ascribed to a spasm of the pylorus, and Glaessner and Kreuzfuchs had stated that this disappeared when the ulcer had involved the pancreas. Both of these observations were found to be wrong,

and it was in just these cases of pancreatic involvement that the delay was caused by adhesions.

Relation of the Thymus to Exophthalmic Goitre.—Hermann Matti presents a most comprehensive analysis of the literature, and comes to the conclusion that the hyperplastic thymus so often found in this disease is not an accidental association, but that the enlarged organ plays an active part in the exophthalmic complex. In the present state of our knowledge it cannot be regarded as a regular accompaniment of the disease, although the vast majority of the cases of Graves's disease are found to have enlarged thymuses. Apparently the symptoms of thyroidism are increased by the action of the hyperplastic thymus, which directly damages the heart and indirectly leads to a hypoplasia of the medulla of the adrenals. The pathological significance of the thymus is not proportional to the size of the organ. The highest proportion of cases with enlarged thymus are found among those who die from the severity of their Graves's disease, or after operation for its relief. The exclusive thyroid theory of the disease no longer can be accepted. Thymus enlargement is a coordinated, parallel manifestation, and not a compensatory one. The thymus also plays an important role in the production of the typical blood picture of the disease.

PARIS MÉDICAL.

July 25, 1914.

Experimental Research on the Dangers of Exclusive Feeding with Decorticated Cereals.—E. Weill and G. Mouriquand repeated the experiments of Vedder, Clark, Funk, and others on the production of beriberi in pigeons by feeding them with decorticated rice, and in addition, tested the effect of decorticated barley. Pigeons fed exclusively with the latter showed similar wasting and paresis of the limbs and wings, followed by ataxic, cerebellar, or labyrinthine phenomena—the animal falling backward or laterally, with hyperextension of the limbs and head—and death. A cataleptoid condition sometimes preceded death where there had been no previous motor symptoms. Pigeons placed on a mixed diet of rice, barley, and wheat, all decorticated, also showed paralytic disturbances ending in death. Thus, symptoms of the beriberi type can result from decorticated cereals other than rice. Nutritive disturbances in infants are probably at times caused by a too exclusive feeding of sterile flours derived from decorticated cereals. The physician should take care to vary the diet of the weaned child, and include in it cereals from which the pericarp has not been removed.

The Blood of Radiologists.—C. Aubertin finds that in those habitually exposed to the x rays, there occurs a leucopenia, with especial diminution in the number of polymorphonuclear cells. This places the blood in an unfavorable condition to resist infection. In addition, there may occur at times, from strong doses of the rays, a distinct diminution in the number of red cells. A colleague of the author recently succumbed to pernicious anemia apparently brought on by x ray work. The autopsy showed marked impairment of the hematopoietic

organs, and in particular, considerable atrophy of the spleen.

Untoward Results of Hypertonic Glucose Solution Injections.—M. Giraud and G. Giraud report two cases. In the first, that of a patient with advanced nephritis, intravenous injections of 300 to 500 c. c. of a thirty per cent. glucose solution were followed by an increase of the urea in the blood, in the course of a month, from one to 6.7 grams. There was detected an intense indoxylemia, with passage of the indoxyl into the cerebrospinal fluid. Death followed. In the second case, one of sclerotic nephritis with uremia, two injections of glucose solution were followed by evidences of bulbar shock and an attack of acute pulmonary edema. This patient had previously suffered from dyspnea. The authors conclude that in cases with high blood pressure, glucose injections should be given in divided amounts, or at least, if given in any large amount, preceded by removal of thirty to forty c. c. of blood.

PRESSE MÉDICALE.

July 25, 1914.

Phenolsulphonephthalein Test in Bright's Disease.—F. Widal, A. Weill, and P. Valléry-Radot report a comparative study of the results of the phenolsulphonephthalein test and of urea excretion in nephritis, and conclude that the test and Ambard's ureosecretory coefficient yield similar clinical information. When the result of the test is normal, one may definitely conclude that the urea content of the blood and Ambard's coefficient are likewise. Where the figure obtained is subnormal, a disturbance of urea excretion is indicated, though this disturbance may not be permanent, the system being able to adapt itself to it without any nitrogen retention resulting. If phenolsulphonephthalein elimination is lessened over one half, the urea content of the blood is usually above normal, though it cannot be precisely estimated. If the dye is eliminated only in traces, it is permissible to conclude definitely that the urea of the blood serum amounts to more than two grams in 1,000 c. c. Thus, in all cases in which phthalein elimination is diminished, the amount of urea in the blood should be directly estimated, for this alone will permit of making an exact prognosis in Bright's disease, according to a series of rules previously laid down by the authors.

Pachydermia of the Scalp.—Malartic and Opin report a case of this uncommon condition, first described in 1907 by Unna under the name *cutis verrucosa gyrata*. The patient was a girl aged twelve years. The condition had existed since birth, and consisted of marked thickening, with irregularly disposed infoldings, of the entire right side of the scalp, which, after removal of the hair, looked much like the surface of the brain, with its convolutions. The abnormal tissues were surgically removed in four sittings, and the denuded area was covered with grafts from the thighs. Microscopically, the tissue removed showed all the features of a large nevus. Of unique interest in the case were the large extent of the affected area, the unilateral distribution, and the youth and sex of the patient, all previous cases having been met with in men.

REVUE MÉDICALE DE LA SUISSE ROMANDE.

June, 1914.

Diabetes and Tuberculosis.—Morin points out the relation of certain cases of diabetes to tuberculous infection. Other infections, especially when acute, have been observed to give rise to a temporary glycosuria. Whether the effect is due to toxins or directly to invading organisms, it arises especially through influences exerted on the internally secreting and other glands and upon the nervous system. The noxious influence of syphilis, alcoholism, and tuberculosis on these structures is well known, and it is readily conceived that tuberculosis, by disturbing the organs concerned with the regulation of sugar metabolism and with sugar combustion, or by the indirect action of toxins on the nervous system, may bring about hyperglycemia, glycosuria, and a confirmed diabetic state. In children, exhibiting a rapidly fatal variety of diabetes, syphilis and tuberculosis should be especially sought as its cause. The author reports the case of a child aged two years, in whom the discovery of glycosuria was followed by the appearance of mild tuberculous symptoms. The von Pirquet reaction was positive, and x ray examination showed unmistakable evidences of former, fibrosed, tuberculous disease of the right lung apex, as well as enlarged, indurated lymph nodes at the hilus. Marked general benefit followed heliotherapy at a mountain resort, and the glycosuria was reduced to a mere trace. Morin agrees with Wanner that treatment of cases of diabetes at mountain altitudes is capable of yielding benefit by favoring elimination of carbon dioxide and facilitating assimilation of nutriment.

BRITISH MEDICAL JOURNAL.

August 8, 1914.

Essential Preventives of Prostitution.—Lachlan Grant holds that this evil is not a medical matter any more than it is a moral or a police problem, but that it invades all fields of human social life. He believes that a very great factor in the causation of prostitution is poverty, and says: "Poverty is accountable for much of the ignorance that hinders moral and intellectual progress, and ignorance reacts in aggravating the conditions that make for poverty. Both must be grappled with, and in attacking one we attack the other. The recognition of women's economic independence, and, at all events, the same equality of opportunity as is claimed for men, will place them in a position of safety for commanding their own destiny in life, thus freeing them from the pressure of want and the temptation to sell themselves for the means of subsistence. To bring this about will require a new outlook as to the meaning of life, and far reaching legislative measures to give it effect. It will involve a searching criticism of our entire commercial and industrial system, and of the relations of the individual to the community and of the mother and the child to the State. There must be an adequate income for all workers, male and female, and a minimum standard of comfort for every citizen. Among the legislative and economic measures required are a national housing scheme insuring ample space and sanitary details in conformity with the

highest standard of health and morals; a generous endowment of motherhood and the encouragement of reasonably early marriages; free medical advice and nursing; more stringent control of conditions under which females are employed, and prohibition of their employment in dangerous or degrading occupations such as in chemical works and coal mines; abolition of the half time system and of the employment of young girls as vendors in the streets or public places; laws to control the conditions of domestic and farm service—from which a large proportion of the victims of prostitution are drawn. And there is need of reforms that will encourage the people to remain on the land and prevent the wholesale flocking of the young people to the towns and cities." Further: "The economic and legislative measures I have referred to would have a deterring and educational influence on men, and the inculcation of a higher ideal of womanhood, motherhood, and home life, accompanied by juster social conditions, would, in time, eliminate the worst elements in sexual immorality and create in the minds of young men a feeling of disgust for the brothel and the woman of the street. Celibacy, if voluntary, may be right for the few, but for the vast majority it is an evil, and doubly so when made compulsory owing to artificial social and economic conditions. Make these conditions more human; enable young men to marry honorably and get rooted to family life before they become worn and cynical; make the education of our young more of moral discipline and less of devil-take-the-hindmost competitive intellectualism; let us openly deny the vulgar and brutal ideas about woman that blunt the finer susceptibilities of so many men. If society will do these things, the demand for illicit and unnatural sexual indulgence will shrink into a negligible quantity and prostitution and all its horrors will be a thing of the past."

LANCET

August 8, 1914.

Cancer of the Uterus.—Charles Ryall's analysis of 760 cases of this disease confirms Leitch's observation that the greatest frequency of onset of this form of cancer is in the age period of forty to forty-five years, that is before the menopause and during the period of motherhood. The condition is far more frequent in parous women than in nulliparous, and the relative proportion of parous women with uterine cancer to nulliparous with the disease is far greater than the proportion of parous to nulliparous in the general population. This applies only to cancer of the cervix, that of the body being about equal in the two classes. The commonest cause of death is from involvement of the ureters, a condition found in seventy-five per cent. of cases at autopsy. In the treatment of inoperable cases the author recommends the ligation of both internal iliac and both ovarian arteries, combined, if possible, with removal of the infected glands. This does not materially prolong life, but it gives great relief from the distressing symptoms and allows patients to live their remaining days in comparative comfort.

The Nature of Peritoneal Adhesions.—Arthur Keith bases his remarks on a comparative study of

normal developmental peritoneal adhesion and of adhesion developing from trauma or infection. In the normal adhesion the serous coat is thickened, but remains smooth and glistening. It is seen to be covered by the normal single layer of tessellated endothelium, but beneath this there is marked proliferation of the cells in the subserous tissue. Apparently the same process takes place in the formation of adhesions secondary to inflammatory conditions. The only point of difference lies in the absence of exudate in the process of normal adhesion, or zygois. In normal zygois the bridge between the two adhering surfaces is made up of the two layers of endothelial cells only, and this is invaded and subsequently replaced by the subendothelial mesoblastic elements, just as the bridge of exudate in inflammatory adhesions is replaced by the same cells. The normal process of zygois may continue in some areas long after birth, and even far into adult life without the occurrence of any inflammatory process. It is an acquisition of the higher mammals and appears only in those which have assumed a more or less constant orthograde position. Its function is not to support the intestines, but to fix them in such a way that they will not become unduly displaced nor acquire volvulus due to peristaltic movements. In more than half of the newborn there is a peritoneal adhesion in the right iliac fossa which binds down the terminal portion of the ileum, "forming the anatomical basis of Lane's band. Normal zygois is merely a manifestation of growth, and in the same way the formation of peritoneal adhesions from inflammatory involvement must be looked upon as a growth phenomenon, though the stimulus which sets it up is pathological. These adhesions and bands, contrary to widespread ideas, never give rise to intestinal stasis if the muscular coats of the intestine are normally active, and in the majority of cases, in which portions of the intestine have been removed on account of stasis, section has shown that the muscular coats and nerve ganglia were not normal.

Osteoarthritis of the Hip.—R. L. J. Llewellyn and A. Bassett Jones are firm in their belief that this disease has been obscured by the fact that all descriptions given are usually descriptions only of the late stages, after irreparable damage has been done. The most characteristic feature of the disease is its extreme chronicity, and its recognition in the early stages, before bony changes have taken place, should offer some hope of checking its progress. The diagnostic features of the disease in its early stages may be stated as: 1. Deep seated articular pain, at first of abrupt incidence and disappearance, and later more constant and accompanied by capsular tenderness. 2. Referred pains, which likewise are subject to remissions and exacerbations, and which more commonly are felt, not only along the sciatic, but simultaneously along the obturator and crural trunks. 3. Fixity of joint, as shown by slight hip flexion with lordosis. 4. Limitation of extension, flexion, inward rotation, and abduction. 5. Eversion of foot and leg. The disease may be divided into two stages. 1. A primary or preosteophytic phase, often of prolonged duration, whose clinical characteristics are those of villous hypertrophy. 2. A secondary or terminal stage in which bony and cartilaginous outgrowths

make their appearance. It would seem that in the early stage the reduction of body weight, the removal of the static deformity in the lower extremity, the absolute or relative fixation of the joint when painful by some form of apparatus, the use of massage, passive movements, and the employment of suitable hydrotherapy should give favorable results in many cases.

Treatment of Yaws with Salvarsan.—Philip Harper was able to cure all but three cases of this disease out of a series of ninety by the intramuscular or intravenous injection of salvarsan or neosalvarsan. Small, repeated doses have given quite as good results as larger single doses and the dangers from the drug were thus reduced to a minimum.

Pneumosin in Pulmonary Tuberculosis.—A. E. Carver's experience of this new remedy has been very favorable. He states that he has been able to secure arrest of the disease in eleven cases, marked improvement in thirty-five, improvement in thirty-three, and no appreciable change in fifteen, while nine deteriorated under treatment. This series of 103 cases included all the stages. Patients in the first two stages of Turban gave the most favorable results, as was to be expected. The dose used initially was 0.25 c. c. for an adult, this being increased slowly until one c. c. was given at each dose. No local reactions were encountered, though there was pain in the arm in a few cases the day after the injection. A rise in the temperature was fairly common.

PRACTITIONER.

July, 1914.

Diagnosis and Treatment of Tropical Hepatic Abscess.—Sir Dyce Duckworth describes a case of hepatic abscess successfully operated in, and gives the following as the leading characteristics of amebic hepatic abscess: The abscesses are solitary or few in number, may be very large, form rapidly or occupy months before urgent obvious symptoms arise. The course is often latent and insidious. The connection with dysentery is not always traceable. Hepatic abscess is infrequent in women, unknown in children, rare before twenty, commoner after twenty-five years of age. It may occur in temperate and carefully living persons. It has a tendency to burst. Jaundice is slight. The spleen is not enlarged. Strumous subjects are more apt to suffer than others. It is commoner in the East than West Indies and may occur on the Mediterranean.

Necessity for a Systematic and Complete Examination of the Nervous System in Medicolegal Cases.—Sir John Collie points out that apart from the special examination of the result of an alleged accident, it is a matter of great importance to get into the habit of making a thorough and complete examination in all cases. Many medical men show considerable diffidence in controverting statements, often made in courts, to the effect that a plaintiff is suffering from an obscure organic disease as the result of an accident, but if one will systematically carry out a definite method of examination, one can confidently affirm the presence or absence of an organic nerve lesion. A very full description of the method he recommends follows, which is a thorough systematic examination of the entire body. If anything is found which directs attention particu-

larly to one symptom, a more exhaustive examination may be made along that line. Assuming that the result of the examination is negative, the medical report should be written so that laymen can understand it. Plain, simple language must be used which will make it clear that a searching examination did take place and that no disease was found. In a normal person, it might be stated: The pupils are equal and react to light and accommodation. Vision is good. All of the eye movements are of full range, and there is no weakness and no involuntary movements of the muscles of the eyes. The face muscles act well, and the nerves of the face show no changes. Hearing is normal. The palate movements are normal. The tongue is protruded normally, and shows no wasting. In the upper extremities there is no weakness or wasting. There is no inequality of balance, or of adjustment of the muscles. No defect in power of localization is present. All the principal nerve responses to stimuli are equal and normal on the two sides. There are no sensory changes. In the lower extremities there is no weakness or wasting. When asked to stand with both feet close together and to shut his eyes, the patient does so quite readily. There is no loss of sense of position. All the principal nerve responses, such as those of the knees, ankles, and great toes, are normal and equal on both sides. There are no sensory changes. When asked to walk along a straight line, the patient walks steadily. His memory is normal. His speech is normal. He has therefore no organic nerve disease.

BOSTON MEDICAL AND SURGICAL JOURNAL.

August 5, 1914.

Effects of Mixed Toxins (Coley) in Certain Cases of Sarcoma.—Torr Wagner Harmer presents the following conclusions: 1. The treatment of primary or recurrent inoperable sarcoma with mixed toxins must be intensive. The increment of dose and the interval between injections, require some experience to measure, but, even after a considerable experience, this method of treatment is always uncertain. 2. It is so uncertain and distressing that its use is unjustifiable in any case in which operative measures of reasonable safety offer hope of removal. A frank statement of the nature and severity of the reactions and the possibility of benefit should be made to the patient or to some responsible person before treatment is instituted. It should be instituted in no case not proved microscopically to be sarcoma. Its institution is unjustifiable in all cases of inoperable sarcoma. 3. Apparent cures may be regarded as varying from 9.4 to 18.8 per cent. 4. This study suggests that the toxins offer no expectation of benefit in cases with multiple melanotic growths, in cases with mixed cell growths, in cases with intraabdominal growths, and in cases with growths arising from subcutaneous tissue or bone, excepting perhaps giant cell growths. It suggests that they may be legitimately tried in cases with single melanotic growths, and that they are apparently of value in cases with sarcomas arising in nose and accessory sinuses, whether spindle celled, giant celled, or round celled. 5. The operative treatment of true giant cell tumors gives in the majority of cases such good results that the toxins are not indicated. Their use is, however,

warranted in those cases in which the growths are so situated that complete surgical eradication is impossible, such as giant cell tumor of the spine; in these the primary attack should be surgical, followed immediately by toxin treatment.

MEDICAL RECORD.

August 5, 1914.

Present Value of Radium in Surgery.—Robert Abbe says that the whole truth about radium will be written years hence, for we are in the first decade and the importance of radium still grows. In view of the confusion of methods, and the long time needed to attain permanent results by the few cautious observers, it is no wonder that slow progress is being made. Perhaps the first unqualified proof of the effect of radium on disease was afforded by its dissipating epithelial cancers of the face. The question naturally arises, Is there here a specific action? Is there a selective action against the component cells of a tumor, an action discriminating in favor of cells of a healthy growth? The author answers, Yes, and offers proof by several facts. He then refers to the curative action of radium in myeloid sarcoma, round celled sarcoma, papilloma, and basal celled epithelioma, as demonstrated by his personal experience; there is now an accumulation of cases of myoma, uterine fibroids, in which one or two irradiations of the tumor from the uterine cavity have been followed by progressive shrinkage year after year, until the growth was almost wholly gone. During the years of trial, he has necessarily tested radium in many of the massive and inoperable types of cancer, hard scirrhus breasts, encephaloid tumors, large fungating rectal cancers, and tongue cancers of all stages; so that out of the mass of the history of ten years he can speak in general terms with some precision. It is no small tribute to radium to say that in one tenth of these active cancers a retardation can be seen and one third in time added to the expectation of life. The method of action of radium in cancer does not seem to him to be specific in the sense that it is in the diseases narrated earlier. . . . It is fair to say, in conclusion, that, stripped of all extravagant claims, radium is an asset of permanent value to surgery in the treatment of those diseases, some of them justly called malignant, which he has heretofore defined. In the graver form of cancer, which has so long baffled us all, some definite progress has been made, as described; but hard research work must yet be done before some one puts his finger on the weak spot in its method of use.

Trichinosis.—M. H. Sicard reports fifteen cases, none of which terminated fatally. He says: "The disease occurs frequently enough to be borne in mind where unclassified symptoms of infection occur, and where the history is indefinite. The embryos develop in adult life in the stomach and intestine in about two days, the larvæ reaching the muscles in ten days after infection; the presence of the parasite in the intestinal tract causes a gastroenteritis of greater or less violence, according to the number of larvæ ingested; the incubation period, then, is short, and the invasion usually, though not always, is well marked. The temperature is remittent, varying from two to four degrees, and continues elevated for from one to five weeks. These

long continued increased temperatures, notwithstanding their remittent character, are not infrequently taken for typhoid fever, and a splenic tumor is sometimes present. Muscle pain and tenderness are usually, though by no means always, present; facial edema is common, and subconjunctival ecchymosis is present at times, the two together making quite a characteristic appearance. The eosinophiles are usually present in numbers ranging from fifteen to thirty per cent., or higher, but it must be remembered that during the active stage of the disease an increase may not yet have occurred, and may come on during convalescence. There is often present a mild albuminuria."

Bacillus coli Infections in Infancy and Early Life.—W. M. Hartshorn states that the following observations should be emphasized: 1. In children *Bacillus coli* may invade the nervous system, causing a meningitis indeterminable clinically from other forms. 2. It has been found in pure culture in diseases of the respiratory tract. 3. It may produce a septicemia, found in Winckle's disease and other reported conditions. 4. It has been found in acute catarrhal conjunctivitis. 5. It doubtless acts with other organisms of its group in diseases of the intestinal tract. 6. In the genitourinary tract it may be the cause of enuresis, cystitis, pyelitis, and pyelonephritis; these conditions accounting for many of the previously unexplained high temperatures with severe constitutional symptoms. 7. As the course of a pyelitis is frequently protracted, and as there are often exacerbations of symptoms after apparent cure, the treatment must be persistent, and should be continued until the urinary findings are normal. 8. The most satisfactory treatment appears to be the use of alkalies or the guarded use of hexamethylenamine in increasing doses. 9. The vaccine treatment of pyelitis should be considered, especially in obstinate cases and when other methods are not successful.

LANCET CLINIC.

August 15, 1914.

Goitre and Life Insurance.—Campbell investigated the question of goitre in relation to life insurance by writing to the larger companies throughout the United States. The different questions considered were: In what circumstances were applicants suffering from simple goitre accepted? How soon after an operation for simple and, if at all, for exophthalmic goitre? Inquiry was also made into the mortality of cases after operation as well as of those not treated by operation. Most replies stated that the company would insure applicants having a small goitre provided there was evidence of its not having grown in the past few years, and if there were no symptoms of pressure. The insurance would be on the endowment plan, to terminate about the fiftieth to the fifty-fifth year. Cases of simple goitre would be accepted from two to five years following operation provided no symptoms appeared in the interim. Exophthalmic goitres, whether operated on or not, were as a rule refused insurance. No statistics as to mortality could be obtained. If these conditions were diagnosed early, before irreparable changes in the vital organs have set in, and cured with surgical procedures, there is no reason why

they should not be considered the same as applications in which successful operations have been performed for other surgical conditions.

Tracheotomy.—Carroll reports five cases of tracheotomy. He prefers the high site of operation because the cases were of laryngeal diphtheria in which previous intubation had failed, and in which the membrane was already located in the trachea, either as a result of extension from the larynx or of its being pushed down in the attempt to intubate. The advantages of this site are that the intervening tissues are fewest in number; the chance of severe hemorrhage is less and the landmarks are evident. Dissection is preferred to stab tracheotomy in which the tissues and trachea are divided in one incision. Tracheotomy is indicated when an intubation or extubation fails to produce relief and when an abnormal retraction of the supraclavicular and infraclavicular fossæ remains after these procedures. Serum should not be depended upon too much, and tracheotomy put off too long, on account of its being used. The most important part of the after-treatment is stimulation and this should be given by hypodermic injection; in extreme cases, endocardiac injections should be given. The removal of the tube is to be experimented with until successful, which, in some cases, means careful watching for many days.

The Female Breast; Physiologically and Clinically.—Pirrung describes the breast as a compound, conglomerate gland, which reaches its full development only in the female. During menstruation the breasts increase in size and are slightly painful. In the virgin the breast is composed mostly of fat. Its fullest functional activity is developed during pregnancy. No pregnant woman should nurse a child, as there is likelihood of miscarriage from reflex irritability of the uterus and lack of nourishment to the embryo. If the breasts are painful and tender during the first pregnancy, light massage, alcohol rubbing, and daily inunctions of lanolin, menthol and boric acid are useful. If pendulous, they should be supported. To harden the nipples, alcohol and borax should be used; only during the eighth and ninth months, however, as otherwise too much irritation is caused. To lengthen the nipple, it should be drawn out with the thumb and forefinger. If nipples are hard and scaly, ten per cent. boric acid ointment should be used daily with frequent bathing with alcohol and warm water. Drugs such as potassium iodide, belladonna, camphor, opium, antipyrine, and ergot should not be given for any length of time during the course of the pregnancy, unless syphilis, lead poisoning, malaria, etc., are present. During lactation the nipple should be kept clean with borax or alkaline antiseptic solutions, and attention should be paid to the child's mouth. If the latter is sore, a breast pump should be used. The pump should also be employed when the nipples are sore, the milk being expressed from the breast and given to the child with a dropper. To increase the flow of milk give beer and malt. To decrease the flow give a dry diet, little meat, and increase the fluid intake. Drugs are seldom necessary. To prevent abscess formation, use binder and ice locally; also ointment of camphor and phenol and petrolatum. If abscess develops,

early incision and drainage is to be performed, the line of incision extending from the nipple in a radiating direction to the periphery. Never use hot applications in the treatment of this condition. Remove all cysts of the breast, as cancer sometimes develops on the outside of them. Tuberculous conditions of the breast require the general treatment for tuberculosis. Cancer requires radical surgical interference.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

July, 1914.

Acute Epidemic Poliomyelitis.—F. R. Fraser, of the Hospital of the Rockefeller Institute, reports ninety cases. The patients were admitted during the acute stages only, and, after remaining in the hospital from a few days to three months, reported at intervals, for observation and advice as to treatment. Fifty-seven were admitted in 1912, and among these the mortality was sixteen per cent., while in the thirty-three admitted during 1913 the mortality was nine per cent. In three fatal cases of 1913, death was due to secondary inflammatory conditions of the lungs, and not directly to the disease. Resulting paralyses, however, were as widespread and complete as those in 1912 and 1911. Although in only a very few instances could a direct or indirect contact with a patient suffering from the disease be recorded, the majority of the patients seen at any one time came from the same general locality in New York. Neither the prevalence of insects nor the neighborhood of stables was found to be a usual occurrence, and in no instance could a predisposing cause be ascertained. In view of the possible importance of the nose and throat as the points of entrance of the infection, the tonsils were in all cases inspected. In thirty-seven cases they were somewhat enlarged and congested, in eighteen, enlarged, and in four, slightly congested. In the remaining thirty-one they were normal or were not examined, as occurred in two rapidly fatal cases. In fifteen cases the tonsils were enucleated, and on removal proved larger than they had appeared. The author gives a full account of the symptomatology and cites a number of cases illustrating the diagnosis and prognosis. The general treatment in the acute stage of fever and general symptoms was similar to that of any acute infection. Twenty-two cases were treated with hexamethylenamine by the mouth. No beneficial results were observed. No decision as to its efficiency can be reached without the statistics of a larger number of cases, or by means of some precise method of estimating results. In eight patients in which paralysis was rapidly developing, and in which there was extreme respiratory involvement, intraspinal injections of adrenaline were tried, but it is impossible to say that in the three who survived, the cessation of progression in the paralysis was due to this measure. In the concluding portion of the paper, the treatment in the second and third stages of the disease is described.

Gallstones from a Surgical Standpoint.—N. Jacobson concludes: 1. Gallstones can exist through life without provoking any manifestations. 2. Single gallstones frequently form without infection. 3. Multiple gallstones are usually dependent upon a

preexisting cholecystitis. 4. The typhoid bacillus, the pneumococcus, or the streptococcus can awaken acute cholecystitis in a gallbladder containing stones. 5. Gallstones can, by traumatism, pressure, or interference with the biliary current, cause cholecystitis. 6. As a result of inflammation of the gallbladder, adhesions form, distorting the biliary route and changing the normal configuration of the gallbladder. 7. Perforation of the gallbladder may occur, causing localized or general peritonitis. 8. Through the perforation, a gallstone may pass of sufficient size to cause intestinal obstruction. 9. Cancer of the gallbladder may be a sequel of gallstones. 10. As a result of infection, hemorrhagic septicemia may occur, or, because of the persistent jaundice, hemorrhages may arise, or the character of the blood may become so altered as to interfere with its coagulation. 11. Gallstones are not harmless tenants of the body. 12. With the definite evidence of their presence, surgical attention is required. 13. Early operations are attended with little danger, and the removal of gallstones from a bladder, followed by drainage, promises permanent relief. 14. Neglected cases yield poor results, and fatal termination follows operations performed at the eleventh hour.

Lange's Colloidal Gold Reaction in Cerebrospinal Fluid.—R. I. Lee and W. A. Hinton conclude: A typical gold reaction is nearly constant in cases of syphilis of the central nervous system. The test is more delicate than the blood Wassermann reaction, spinal fluid Wassermann reaction, cell count, and globulin content. It has the advantage that it gives a reaction with pathological spinal fluids due to other causes than syphilis, which is characteristic and easily differentiated from the reaction typical of syphilis. Their experience confirms the findings of other observers that the gold test is delicate, and that the margin of error is exceedingly small.

Involution of the Nasopharynx.—W. S. Bryant states that vulnerability of the nasopharynx—that gateway of almost all human diseases—is due to three causes: Man's assumption of an upright position, the growth and development of the brain, and the retrograde metamorphosis of the nose, face, and teeth of man. Too much emphasis cannot be laid on the fact that almost all diseases are air borne. The number of these primary air tract infections is so great, and their importance so overwhelming, that the point of entry, the nasopharynx, is invested with strategic importance from an etiological and clinical point of view.

Letters to the Editors.

A DENIAL FROM MR. HOFFMAN.

NEWARK, N. J., August 21, 1914.

To the Editors:

My attention has been called to your editorial article in the issue of the NEW YORK MEDICAL JOURNAL for July 18, 1914, relative to my address on cancer. I never made the statement that "even if the Bashford criticism was correct, it should not have been published." My reply to the Bashford criticism of my statistical conclusions is published in full in the *Lancet* for April 11th, and it is therefore readily accessible. It is difficult to understand what public purpose you could serve by such criticism of alleged

utterances of mine, without at least first making an attempt to verify the statement, which, no doubt, you quoted in good faith. Furthermore, there is nothing contained in the Bashford letter to the *Lancet* for February 7th, that warrants your conclusion that "he seems to have an intimate knowledge of the manner in which vital statistics are gathered and tabulated here." To the contrary, my reply was to the effect, that the Bashford criticism displays his unconditional ignorance of American vital statistics, and his unreasoning prejudice against any or all conclusions that conflict with his own.

F. L. HOFFMAN.

[We had an apparently trustworthy report to the effect that Mr. Hoffman made the statement referred to at a meeting of the American Medical Editors' Association at Atlantic City. We regret that we were misinformed, as this letter avers.—EDS.]

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Materia Medica for Nurses. By A. S. BLUMGARTEN, M.D., Instructor in *Materia Medica* at the German Hospital Training School for Nurses, New York. New York: The Macmillan Company, 1914. Pp. xiii-644. (Price, \$2.50.)

The Macmillan Company has furnished through the author an unusually complete work on *materia medica*, considering the audience that is addressed, there being over 600 pages and a complete index. The book, we imagine, will be more useful for reference than for class recitations, although Doctor Blumgarten states that he hopes it will be of service in developing intelligent, trained observers of the effect of drugs. As the nurse's duty is to observe and administer, the instruction in therapeutics is wisely limited, while ample information is included on solutions, saturation points, and similar matters. The new and nonofficial remedies receive due attention. The book is well made, being light and convenient to handle, and altogether the work is to be highly commended.

Auricular Flutter. By WILLIAM THOMAS RITCHIE, M.D., F.R.C.P.E., F.R.S.E., Physician to the Deaconess Hospital; Assistant Physician to the Royal Infirmary, etc. Edinburgh and London: W. Green & Son, Ltd., 1914. Pp. xii-144.

This monograph of 133 pages comprises a preliminary account of the anatomy and physiology of the heart, the pulsations of the jugular veins, and the electrodiagram. The disturbances of cardiac action due to extrasystoles and auricular fibrillation and their relation to allied disorders are then taken up, and, in due course auricular flutter and the physiological, pathological, and clinical facts connected with it, together with some differential diagnosis, are explained. The 107 excellent illustrations are nearly all original. The book concludes with a discussion of the action of the common heart tonics and their derivatives, diagnosis, and prognosis. This book may be considered to be indispensable to the specialist and of value to the general practitioner who likes to go deeply into his subjects.

Kurze praktische Anleitung zur Erkennung aller Formen des Kopfschmerzes. Von Oberstabsarzt Dr. LOBENDANK HAGENAU I. E. Würzburg: Verlag von Curt Kabitzsch, 1914. Pp. 71.

The object of this monograph of seventy-one pages is to guide and assist the practitioner in arriving, in a practical manner, at the cause of the frequently distressing condition of headache. The first forty-one pages are devoted to the significance of the history of the case, personal habits, etc., and the facts underlying the careful examination of the patient, which includes the condition of the periosteum, the eyes, the nervous system, the ears, the nose and the accessory sinuses, the mouth, and the throat. The remaining pages contain a tabulation of the symptoms of the various conditions causing headache.

Renal Diagnosis in Medicine and Surgery. Being a Handbook of the Theory and Practice of Functional Testing of the Kidney. By Dr. VICTOR BLUM, Tutor in Urology at the University of Vienna. English Translation by WILFRED B. CHRISTOPHERSON. New York: William Wood & Co., 1914. Pp. vi-144. (Price, \$2.)

This volume, from the urological department of the Vienna Polyclinic under von Frisch, is an admirably balanced monograph on the value of functional diagnosis. The first seventy-six pages are devoted to a discussion of the physiology and pathology of the renal function, and the attempt is made to use certain tests for the diagnosis of diseases of various parts of the parenchyma. Thus the freezing point of urine, experimental polyuria, and the onset of indigo-carmin excretion, are said to suggest disease of the glomerulus; the freezing point of blood, the concentration of indigo-carmin, the nitrogen excretion, etc., measure the health of the convoluted tubules; while caffeine, diuretin, and the concentration test, measure the capacity of the collected tubules to resorb fluids. Such a theory is at least interesting. The latter half of the book is taken up with a case discussion of functional diagnosis in surgical and medical cases.

Teaching Sex Hygiene in the Public Schools. By E. B. LOWRY, M.D., Author of *Herself, Himself*, etc. Chicago: Forbes & Company, 1914. Pp. 94.

Doctor Lowry is strongly in favor of judicious instruction in sexual matters in the public schools. To those who hold that it is the province of the parents to impart the information, he cites hundreds of letters written to acknowledge ignorance of how to go about the matter, as well as ignorance of accurate information. Caution is given concerning the dangers surrounding teacher and scholar when instruction is improperly given. Good chapters are those on the blindness of parents, on the girl, on the boy, on the story of life, and on the coworkers. Conditions of almost inconceivable immorality have been found in country schools, due to ignorance. Those who insist on a policy of silence, seem to ignore the fact that there never has been silence; where there is no systematic instruction, the information is communicated in a garbled and injurious form from pupil to pupil. The book deserves reading by adherents of all theories on the subject.

Interclinical Notes.

In our editorial comments on war in the *JOURNAL* for August 15th, we spoke of it as an irresistible pastime for man, despite its horrors. Some of these are cited in the *New York Times* for August 23d from a book by M. Edith Durham, *The Struggle for Scutari*. Miss Durham writes:

"None who have not lived through the past few years on the spot can imagine the fraud, the treachery, the cold blooded cruelty and brutality with which the various rulers of Europe have striven each against each, to obtain, by hook or by crook, possession of or influence over that little corner of land in the near east which has lately been the seat of war and is now the seat of hopeless misery.

"To detail the mass of suffering which I myself have witnessed would take several volumes of monotonous horror. To unravel the complicated mesh of intrigues and lies would be impossible. . . .

"There are people, I believe, who still imagine that war brings forth fine qualities. To me it had appeared only as a sort of x ray, which showed up most pitilessly all that is base, most foul, and most bestial in human nature. The very few acts of kindness or generosity which I had witnessed were those of kindly individuals whom war had not corrupted. . . .

"There is but one thing more terrible than war, and that is the time that follows immediately afterward; it is then that the war's innocent victims—those who have escaped sudden or merciful death by shot and shell—crawl back to the blackened ruins of their homes to face a slow and cruel death from cold and starvation. . . .

"Women crouched in hovels made of a few sticks leaned against the ruined walls of their house, and cooked leaves and grass for children. Many were half naked."

Meetings of Local Medical Societies.

TUESDAY, September 1st.—Amsterdam City Medical Society; Lockport Academy of Medicine; Syracuse Academy of Medicine; Ogdensburg Medical Association; Oswego Academy of Medicine; Clinical Society of the West Side German Dispensary and School for Clinical Medicine; Medical Society of the County of Yates; Medical Society of the County of Tioga.

WEDNESDAY, September 2d.—Bronx Medical Association; Elmira Academy of Medicine; County of Rockland Medical Society; Long Island Society of Anesthetists.

THURSDAY, September 3d.—Practitioners' Club, Buffalo; Geneva Medical Society; Glens Falls Medical and Surgical Society.

FRIDAY, September 4th.—New Utrecht Medical Society, Brooklyn; Corning Medical Association.

SATURDAY, September 5th.—Benjamin Rush Medical Society, New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending August 19, 1914:

Ashford, F. A., Passed Assistant Surgeon. Granted one month's leave of absence from August 17, 1914. **Draper, W. F.**, Assistant Surgeon. At the request of the Office of Public Roads, Department of Agriculture, detailed to make an investigation of the sanitation of convict camps in the States of Colorado, Utah, Oregon, Washington, Wyoming, and such other States as the office may direct. **Poster, A. D.**, Passed Assistant Surgeon. Granted two days' leave of absence from August 15, 1914, on account of sickness. **Grubbs, S. B.**, Surgeon. Directed to proceed to Mobile, Ala., on request of health authorities, for duty in connection with rodent extermination campaign. **Harrington, F. E.**, Assistant Epidemiologist. Directed to proceed from Cambridge, Md., to New Albany, Miss., for duty in investigations of rural sanitation. **Kempf, G. A.**, Assistant Surgeon. Granted seven days' leave of absence from August 6, 1914, under paragraph 195, Service Regulations. **Kolb, Lawrence**, Passed Assistant Surgeon. Granted one month's leave of absence from August 27, 1914. **Pettus, W. J.**, Surgeon. Directed to proceed to Liverpool, England, for duty in connection with sanitation of vessels in plague precautionary measures. **Wilbert, M. I.**, Technical Assistant. Detailed to represent the service at the meeting of the American Pharmaceutical Association to be held in Detroit, Mich., August 24 to 29, 1914.

Boards Convened.

Board of commissioned medical officers convened to meet at the bureau at the call of the chairman, for the preparation of questions for the mental examination of Pharmacists C. C. Cannon and Ralph E. Knouse to determine their fitness for promotion to the grade of pharmacist of the second class. Detail for the board: Assistant Surgeon General W. C. Stimpson, chairman; Surgeon C. C. Pierce, recorder. Senior Surgeon H. R. Carter and Surgeon J. T. Burkhalter detailed as members of a revenue cutter service retiring board to meet at Baltimore, Md., by direction of the Secretary of the Treasury.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending August 22, 1914:

Arthur, William H., Colonel, Medical Corps. August 13th, reports return to duty, Fort Mason, California, from leave of absence. **Doole, T. P.**, First Lieutenant, Medical Reserve Corps. Reports relief from active duty in the Medical Reserve Corps, August 1, 1914. **Dowdle, Edward**, First Lieutenant, Medical Reserve Corps. Ordered to active duty in the Medical Reserve Corps, Fort Ontario, New York. **Farmer, H. G.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty

in the Medical Reserve Corps. **Gandy, Charles M.**, Colonel, Medical Corps. Relieved from duty in the office of the surgeon general; will sail for the Philippine Islands on December 5th. **Gosman, George H. R.**, Major, Medical Corps. Relieved from duty in the Letterman General Hospital, Presidio of San Francisco, California, and will proceed to Alcatraz, California, for duty in the Pacific Branch, United States Military Prison. **Havercampf, C. W.**, Captain, Medical Corps. Reported for duty August 20th, Fort Jay, New York. **Lombard, Marion S.**, First Lieutenant, Medical Reserve Corps. Resignation accepted as a first lieutenant in the Medical Reserve Corps, August 13th. **Love, Albert G.**, Captain, Medical Corps. Reports arrival at Fort Gibbon, Alaska, for duty and station. **Noble, Robert E.**, Major, Medical Corps. Relieved from duty with the United States forces at Vera Cruz, Mexico, and will repair to Washington, D. C., for duty in the surgeon general's office. **Persons, E. E.**, Major, Medical Corps. Reports departure from Army War College, Washington, D. C., en route for temporary duty at Vera Cruz, Mexico. **Pierson, R. H.**, Captain, Medical Corps. Reports arrival at Fort Williams, Maine, for station and duty. **Von Schrader, Alleyne**, Captain, Medical Corps. Upon arrival in the United States will proceed to Fort Sheridan, Illinois, for duty. **Whitcomb, Clement C.**, Major, Medical Corps. Will proceed to Newport News, Va., without delay, and will report to Lieutenant Colonel William E. Horton, Quartermaster Corps, for duty (temporarily) on a transport.

Births, Marriages, and Deaths.

Married.

Crary—Capen.—In New York, on Saturday, August 8th, Dr. David Crary, Jr., and Mrs. Flora M. Capen.

Died.

Betts.—In Crystal Lake, Mich., on Sunday, August 16th, Dr. Charles Betts, of Toledo, Ohio, aged fifty years. **Burgess.**—In Herkimer, N. Y., on Friday, August 14th, Dr. Maynard Gooding Burgess, aged thirty-eight years. **Cash.**—In Ulrichsville, Ohio, on Wednesday, August 12th, Dr. Nathan A. Cash, aged seventy-five years. **Coolidge.**—In North Waterford, Maine, on Wednesday, August 12th, Dr. C. M. Coolidge, aged fifty years. **Gibson.**—In Hill, N. H., on Sunday, August 16th, Dr. Robert F. Gibson, of West Somerville, Mass., aged forty-one years. **Harrison.**—In Sharpless, W. Va., on Wednesday, August 12th, Dr. Gwynne P. Harrison, of Longwood, Va., aged forty years. **Haskell.**—In Redlands, Cal., on Sunday, July 26th, Dr. Henry M. Haskell, aged sixty-two years. **MacFarlane.**—In Oswego, N. Y., on Wednesday, August 12th, Dr. Carrington MacFarlane, aged seventy-seven years. **Mangan.**—In South Attleboro, Mass., on Wednesday, August 12th, Dr. Patrick Henry Mangan. **Marshall.**—In Kittanning, Pa., on Thursday, August 20th, Dr. Robert Patterson Marshall, aged sixty-seven years. **Miller.**—In Milwaukee, Wis., on Thursday, August 13th, Dr. Wilmot F. Miller, aged fifty-three years. **Murphy.**—In Bangor, Maine, on Friday, August 14th, Dr. Thomas J. Murphy, aged fifty-one years. **Person.**—In Stanton, Neb., on Wednesday, August 12th, Dr. William H. Person, aged sixty years. **Plunket.**—In Lewis, Iowa, on Thursday, August 13th, Dr. Ira Z. Plunkett, aged forty-two years. **Ralston.**—In Evanston, Ind., on Tuesday, August 11th, Dr. W. G. Ralston, aged ninety-six years. **Robertson.**—In Steubenville, Ohio, on Monday, August 10th, Dr. Joseph F. Robertson, aged sixty-two years. **Rose.**—In Stoughton, Mass., on Thursday, August 13th, Dr. Daniel Campbell Rose, aged seventy-four years. **Rudicil.**—In Chickamauga, Ga., on Friday, August 14th, Dr. C. C. L. Rudicil, aged forty-eight years. **Safley.**—In Sacramento, Cal., on Sunday, August 16th, Dr. Grant Safley. **Smith.**—In Detroit, Mich., on Tuesday, August 11th, Dr. E. B. Smith, aged fifty-three years. **Thompson.**—In Hillsboro, N. H., on Friday, August 14th, Dr. G. A. Thompson. **Vail.**—In Little Rock, Ark., on Monday, August 17th, Dr. James L. Vail, aged forty-five years. **Walker.**—In New Orleans, La., on Sunday, August 16th, Dr. Gustave F. Walker, aged seventy-three years. **Whaley.**—In Winslow, Indiana, on Thursday, August 13th, Dr. L. T. Whaley, aged twenty-five years.

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Original Communications.

CARBOLIC INSTILLATION IN THE TREATMENT OF BLADDER TUBERCULOSIS.

BY EDWARD L. KEYES, JR., M. D.,
New York.

Nephrectomy is the real treatment of bladder tuberculosis, if the bladder lesion is secondary to a renal one. But nephrectomy is not enough. There are cases of bladder tuberculosis secondary to inoperable prostatic lesions; other cases secondary to inoperable bilateral renal lesions; other cases of bladder tuberculosis persisting after nephrectomy. For such cases we seek more or less vainly for relief other than that afforded by the lapse of time and the influence of hygiene.

Tuberculin seems to alleviate the bladder symptoms in certain cases. But its action is unquestionably slow, and, in my experience, most uncertain. After watching patients treated by tuberculin after nephrectomy for a number of years, and comparing their course with that of the patients not so treated, I remain in doubt as to its advantages.

Local treatment of the bladder lesions, on the other hand, is occasionally and brilliantly effective in relieving the painful symptoms of bladder tuberculosis. Many drugs have been employed for this purpose, but before enumerating these, let us lay down the three principles that must be recognized in the treatment of such cases.

1. *The instrument must not enter the bladder.*—There are cases of isolated ulceration about the ureter orifice or fundus that may be treated successfully by fulguration for example, but such cases are extremely rare. Usually the tuberculosis involves the trigonum up to the bladder neck, and the sensitiveness of this must be respected. It may be possible to introduce a soft rubber catheter through the inflamed bladder neck without causing undue pain, but it is always safer to employ an instillator of the Keyes or Guyon type, which may be introduced no further than the membranous urethra, and from this point inject a stream of medicament into the posterior urethra over the diseased bladder neck and into the diseased bladder itself. The only objection to the use of such instruments, is that the frequency of urination in bladder tuberculosis is sometimes in large measure due to an inflammatory rigidity of the bladder neck. This causes more or less retention of urine, and the mere passage of a cystoscope or other rigid instrument, painful though it be, overcomes this obstacle, relieving the

retention and greatly ameliorating the patient's symptoms. But the mere knowledge of this fact will protect us against overlooking such retention.

2. *The bladder must not be distended.*—Here there are no exceptions. If the patient's frequency of urination is because the physiological capacity of the bladder is reduced to less than 100 c. c., any injection that stretches the bladder to its capacity and so causes pain, is doing the patient unnecessary harm. I have obtained just as good results from injecting five to ten drops as I have from injecting larger quantities, and by using such small quantities of fluid, one avoids all danger of distending the bladder.

3. *The injection must give relief in proportion to the pain it inflicts.*—By giving the injection through an instillator in small quantity, we practically eliminate the mechanical element of pain; but every substance employed for injection carries with it a certain degree of chemical irritation, varying with the different substances employed and with the strength of the solution. I have known relief to follow injections of gomenol or thalline that were practically painless. But one frequently does not achieve any noteworthy result, except by the use of solutions so concentrated as to excite a definite painful reaction. The rule for the employment of such solutions is the one stated above. No matter how painful the injection, if the relief obtained from it is sufficient to gratify the patient so that he returns asking for more, the treatment is justified. On the other hand, however painless the injection, if it fails to relieve the pains due to tuberculosis, such treatment is unjustifiable. It is obviously proper, however, to continue the use of the milder injection in an exploratory way until a number of futile treatments have proved it vain. But strong and painful injections may not be so employed. Persistent painful treatment is never warranted unless it brings brilliant results in the relief of symptoms.

As to the solutions employed, I need enumerate only those substances that I have used for the relief of the symptoms of bladder tuberculosis. There are four: Thalline, gomenol, bichloride of mercury, and carbolic acid.

Thalline sulphate is not very irritating. A saturated solution in water contains twenty per cent. of the drug and is much less irritating than a one to 1,000 solution of silver nitrate. I have used it in instillation in strengths varying from three to twenty per cent. It usually gives no relief whatever; yet occasionally it is efficacious. I can recall one very brilliant case in the service of Doctor Chetwood, at the New York Polyclinic Hospital, which was en-

tirely relieved by infections of thalline given for many months.

Gomenol, though greatly praised by some, has in my hands achieved no more brilliant results than those obtained from thalline. As a rule it has not seemed peculiarly efficacious.

Bichloride of mercury, on the other hand, has been of great service to me in the treatment of these patients. It must, of course, be employed as an instillation, not as an irrigation. The initial dose should not exceed a strength of one to 20,000 parts of water. Repeating the instillation daily and increasing the strength rapidly, so long as the patient does not complain of any grave irritation, one soon reaches the strength of one part bichloride to five or ten thousand of water. At this point the patient is likely to note a considerable increase in the irritation resulting from the injection. One may continue to increase the strength of the solution, if the precaution is taken of diminishing the amount of fluid injected to some three or four drops and lengthening the intervals between injections to two or three days. On this basis one may reach a strength of one to 1,000 or even one to 500 parts of water before the resulting pain becomes truly severe. The continuation of treatment must then depend upon the rule enunciated above. Pain resulting from the injection must be compensated by the relief afforded the patient.

Carbolic acid acts when the foregoing fail. The results obtained by instillations of bichloride of mercury into the tuberculous bladder are often gratifying. But several of my patients who had proved refractory to treatment with tuberculin as well as with instillations of bichloride of mercury, have been markedly relieved by instillations of carbolic acid.

Rovsing suggested the use of this acid for the treatment of bladder tuberculosis, but no one has been able to achieve with Rovsing's method the success announced for it by its distinguished originator. He employs an irrigation of carbolic acid in five per cent. solution. He states that this solution should be injected into the bladder and permitted to flow out again, again reinjected, and so on, until the solution no longer returns smoky. The amount injected approximates the bladder capacity. I have not employed the treatment, but can well believe Rovsing's statement, that the pain occasioned by it is considerable, and question whether the results are likely to justify the agony which these injections must excite. I have, therefore, modified Rovsing's treatment to the extent of employing carbolic acid in instillation instead of irrigation, and in solutions of a strength varying in accordance with the sensitiveness of the patient.

One may safely begin with a solution of one to 200 of water and rapidly increase this to one per cent. before the patient complains of an increase in pain. The half dozen patients upon whom I have been able to employ this technic have shown no great benefit until the solution reached a strength of from two to five per cent. In two instances I have even employed a supersaturated solution, drawing into the instillator a few minims of pure carbolic acid, and then a few minims of water, thus making

an emulsion, of which one or two minims may be instilled into the posterior urethra. The reaction from such an instillation is likely to be very marked. Its use is justified only where all else fails. It is not necessarily any more efficacious than the solutions.

CASE I (25340). Man, aged forty-two years, denied venereal disease. In 1898 spontaneous suppuration and fistulization of both epididymes. In 1907, perineal abscess; opened five times in two years. Healed in 1910. There was frequent and painful urination for six weeks in 1906. Relapse in fall of 1909. From then until I first saw him in February, 1910, there was much bleeding, terminal pain, great diurnal frequency (about every half hour) though he was up to urinate only once at night. There was slight soreness in right side of back.

Physical examination. Small, lean man; weight 144 pounds. Nothing abnormal detected in lungs or in abdomen. Small, hard, insensitive lump at lower end of each epididymis. Prostate and vesicle slightly nodular. Urethra somewhat contracted in bulbous portion. A 21 F. sound had to be passed before the cystoscope would enter the bladder. Cystoscopy revealed an inflamed bladder base with an ulcer about one cm. in diameter fairly in the centre of the trigonum. The right ureter mouth was normal, the left inflamed. Indigo carmin injected and the right ureter catheterized.

Right ureter.

35 c. c.	in 1½ hr.	39 c. c.
20 to 26.	urea, gm. per litre.	11 to 13
No.	pus.	Yes
In 13 min.	indigo carmin.	In 24 min
More.	indigo carmin.	Less

Bladder.

January 15, 1913. After much hesitation and a second cystoscopy which confirmed my findings, he submitted to removal of left kidney. He urinated about every hour, day and night. February 5, 1913, returned home, healed, under treatment with tuberculin. March 14th, wound reopened today. Before this he could hold his urine three hours. May 14th, sinus healed. Still on tuberculin, but (as usual) the frequency became greater when the sinus opened, and he was now urinating every hour, day and night. February 18, 1914, still on tuberculin. I tried bichloride injections in vain. His irritability varied greatly. Sometimes he could hold his urine three hours by day, five hours by night. At other times he had to pass water every fifteen minutes by day, every two hours by night. A few weeks ago he had retention relieved by hot bath. General condition unchanged. Weight 144.5 pounds. Urine contained pus and tubercle bacilli. Phthalein injected intravenously, appeared within five minutes; forty per cent. in first half hour thereafter; fifteen per cent. in second half hour. I instilled two per cent. carbolic acid. February 23d, no improvement; five per cent. March 1st, the pain from this was intense, but relief was magical. He had been urinating every hour, night and day. Now he urinated but once at night and every two or three hours by day. Resumed at two per cent. June 1st, still took an occasional instillation and so kept urination comfortable, as at last record.

CASE II (26847). Woman, aged thirty-five years, general condition excellent; weight 128 pounds. Had had frequent and painful urination twenty years. The diagnosis of tuberculosis was made by guineapig eight years ago. Had had many tuberculin injections with occasional slight improvement. The left ureter had been catheterized and had shown "practically no pus," whatever that means. She now urinated at least every hour, day and night.

January 16, 1914. Cystoscopy. Big ulcer in region of right ureter orifice. Left one normal. Patchy and ulceration cystitis.

Bladder. Five per cent phthalein. Pus.

Left ureter. Pus. No bacteria. Urea 7 gm. Phthalein in 3 min., 10 per cent in 10 min. thereafter.

January 29th. As the left ureter catheter worked badly the last time, I cystoscoped again and again; failed to enter right ureter.

Bladder. No phthalein. Only a few bubbles of urea. Pus.

Left ureter. Five c. c. in 15 min. Pus. No bacteria. Urea 4 gm. to litre. Phthalein 12 per cent. in 15 minutes.

Radiograph showed right kidney distinctly smaller than left. Neither ureter palpable in vaginal vault. In 24 hours she passed 1505 c. c., 1,016; urea, 7 gm.; albumin, marked trace; no casts; pus. Intramuscular phthalein gave 34 per cent. excretion in first hour, 22 per cent. in second.

February 12th. Right kidney removed; it was cheesy throughout. March 15th, wound healed kindly. No complications in convalescence. As soon as she was out of bed, she could hold her urine five hours by night and three by day. But now a sinus had opened in loin and (as usual) her frequency had returned, as much as ever. Up ten times at night. April 20th, wound healed. Bladder no better. Began carbolic instillations. May 25th, after a trial of various strengths, two per cent. proved the best. She steadily improved; only five times at night. June 15th, worse again; eight times at night. June 29th, better; five times at night.

CASE III (10847). Man, aged forty-nine years. *Past history.* Three and a half years ago pleurisy, cured by two taps. Two years ago, abdominal pain and ascites, ascribed to alcoholic cirrhosis of liver. Relieved spontaneously after several months. One year ago, serous synovitis of knee. This was now improving spontaneously. Six months ago right testis became swollen and painful. It was removed shortly after and found tuberculous.

Present illness. At about this time his bladder irritability began. It grew worse until now he was up three times at night, and was so uncertain by day that he had to wear a urinal. He had never passed blood or grit. Urine had been vainly searched for tubercle bacilli. He had lost 10 pounds. *Physical examination.* Emaciated but rugged looking middle aged man, weight 153 pounds. A little dullness and a few rales at both apices. Right kidney palpable; not tender or enlarged. Liver small. No ascites. Sinus in right groin. Scar in right side of scrotum. Left testis normal. Both lobes of prostate thickened, but not distinctly nodular. Vesicles impalpable. Urine, specific gravity 1,010, cloudy with pus. Marked trace of albumin; no sugar. No bacteria, acidfast or other. Intravenous phthalein appeared within 5 minutes. He excreted 60 per cent. in 20 minutes thereafter.

November, 1913. I cystoscoped twice and vainly attempted to find the ureter orifices. The bladder was intensely inflamed; indigo carmin of no avail. November 24th, carbolic acid (?) a one per cent. solution instilled into posterior urethra. November 26th, two per cent. solution. December 5th, pain on urination much less; repeated. January 18, 1914. Pain had been almost entirely relieved by a continuation of the treatment. Since the urinary intervals were not lengthened, bichloride instillations were tried, but proved valueless. Ureters successfully catheterized, the bladder being much more tolerant since the instillations.

<i>Right ureter.</i>	<i>Left ureter.</i>
8 c. c. quantity in 20 min.	13 c. c.
16. urea, gm. per litre.	9
No. pus.	Much
Absent. acidfast bacilli.	Present
Green. indigo carmin.	No
In 7 min. phthalein appeared.	In 9 min.
27 per cent. phthalein excreted in 15 min.	13 per cent.

January 24th, constant severe pain in right side, with fever, ever since cystoscopy. Doctor Krueger, of Staten Island, removed a gangrenous appendix. February 25th, appendix wound healed, and sinus in groin as well. But pain on urination returned. Carbolic instillation resumed. April 14th, the second series of instillations did no good in strengths of two to five per cent. For the past week the temperature had been 102° F. daily. No evidence of pulmonary activity or pain in loin. Tubercle bacilli found in urine again. Left nephrectomy; tuberculous kidney removed. Two weeks later, he returned home, the wound having healed, the temperature high, the lungs full of rales. I have obtained no news of him since, except that he is still alive and his bladder unimproved.

Such is bladder tuberculosis; rebellious at best. And such are the carbolic instillations; the best local treatment I know of.

109 EAST THIRTY-FOURTH STREET.

COMPULSION NEUROSIS.*

A Primary Report of a Case.

BY ADOLPH STERN, M. D.,
New York.

In reporting this case, I have purposely omitted any discussion of the psychological mechanisms concerned in the symptom formation. I report the case now before the patient is well, because he is in a transitional period, with at least an even chance for recovery. In this way it seems to me the case is far more instructive than if presented as a cure. Perhaps he will not become well, in which event we will try to ascertain why and correct the error wherever it may be, and thus profit by a failure.

The patient presents symptoms of a compulsion neurosis of more than average severity, taking the form of an acute psychosis of a mild type. The symptoms have completely incapacitated him for three years. In addition, he shows a well marked paranoid condition. The ordinary treatment (suggestion, hydrotherapy, rest, light occupation, drugs, etc.) has been tried without any success whatever. Let us see what a psychanalysis has done for him.

X. Y. came to me in October, 1913. Even in his sickness he looked like a good type of a young American of exceptionally good mentality. He came of normal people. His father, however, is rather gruff, retiring and nonsociable, never capable of supporting his family well. His brothers and sisters are apparently sound mentally. As a young boy up to the age of twelve years, he had many gross sexual experiences, all of the aggressive form. His latent sexual period was very much delayed and of short duration, from his twelfth to his fourteenth year. From his twelfth year on he showed a very high standing in school work, and maintained this through his high school career. Up to this time his progress in school had been very poor. After leaving high school, he worked as an accountant, making rapid progress. He was never sociable, made but few acquaintances, and no friends. He was reserved, bashful, and uneasy in company, even in that of his schoolmates. From his fourteenth to his sixteenth years was his most bashful period. At about twenty years of age, he attempted normal intercourse for the first time, and thereafter irregularly, but never with psychic satisfaction, ejaculation always being premature. Throughout his life, from about the ninth year, he was conscious of the fact that there was something present in him which made him do things he consciously opposed. He was always jealous and envious of another's good fortune. He was considered quiet, even tempered, indifferent to women and acquaintances in general. To the casual observer he was so, but in reality he felt the opposite, but could not, for some unconscious reason, act as he felt. From eighteen to twenty-two years of age, he committed petty thefts in the face of all reason. He was bashful, especially in the presence of children and women, to such an extent that he would cross the street to avoid meeting a woman whom he actually wanted

*Read at the New York Academy of Medicine, Neurological Section, April 14, 1914.

to meet. He kept away from people when he wanted to be in their company. He hated his father, and also other relatives, though he felt that there ought to be some feeling between them other than hate. He told stories and fabrications which did him no conceivable good, when he vowed again and again that he would give up the habit. To sum up, he was conscious that throughout his life there was something unknown, unconscious, but present nevertheless, which prevented him from being his own real, conscious self. This unknown factor influenced him more than his conscious will, more than his conscious judgment and determination. As a social human being, he was to a great extent but a sham, a pretext, a make believe.

X. Y.'s first sickness, resembling the present attack, occurred suddenly about four years ago, when he became obsessed with the thought, "Some day I must die." Soon after he became depressed, anxious, restless, and sleepless. He continued at work irregularly and in the course of eight months the obsession, with its subsequent elaborations and argumentations, gradually disappeared and left him as well as before. This recovery apparently was spontaneous. He continued in good health mentally for about a year and a half. His present illness came on suddenly in November, 1911. He had had intercourse with the same woman on a number of occasions and, without any logical reason, became obsessed with the fear that he had impregnated her. This fear persisted alone for about three months and then broadened out into others. He feared that he would be legally liable for seducing the girl and also for having subjected her to an abortion. He had sent her to a physician, who examined her, but did not do anything to bring on an abortion. He feared that even though an abortion had been performed, still some signs would remain whereby a pregnancy could be detected, and thus he would still be liable to prosecution. He did not dare to talk over the telephone or even to physicians about his troubles lest he be overheard. He was abnormally afraid that people would find out that he had committed so wicked a crime and would shun him. He imagined that people whom he met, utter strangers to the girl, were nevertheless related to her; that people in general, but especially those to whom he told of his troubles, and physicians whom he had consulted relative to himself or the incident, would purposely persecute him by handing over any information they had to the district attorney, who would prosecute him. This has given the paranoid tendency to his condition. He tore up all letters he received and requested his relatives to do likewise with the letters he wrote to them. After reading a book, whether in a library or at home, he feared he had left something in it that would betray him. He argued continually, back and forth, pro and con, to arrive at some definite conclusion. He now was continually in doubt about everything and everybody, extremely anxious, depressed, emotional, restless, and sleepless. For six months after the onset of his trouble, he managed to work, on and off. He then stopped, feeling that he could not do justice to his employer or to himself. He traveled about the country and then went to a sanatorium for fourteen months, re-

turned to the city utterly despondent, all hope gone, ready to give up and go to an insane asylum where he could stay for a nominal sum, trusting to time to do again for him what it had done three years before. He then came under my observation.

After spending several sittings in gaining the patient's confidence and obtaining as detailed a history as possible, I directed my efforts to stimulating his associations so as to connect his present mental state with those of his past experiences which had an emotional content, i. e., with his repressed thoughts and wishes. This association is accomplished by interpreting his symptoms, fancies, dreams, and every day actions. I encouraged free mental play and impressed him with the importance of telling me whatever came to his consciousness, even though it seemed unpleasant, irrelevant, or unimportant. I was to be the judge and not the patient. I have tried at all times not to press or urge the patient too strongly to give up suddenly any repressed thoughts that had a marked emotional content; feeling that in this way as little psychic reaction as possible would result. There was already enough mental conflict. Progress was very slow at first, but as the patient slowly yet eagerly grasped what was given him, and became interested, the case gradually unfolded itself. The patient's active interest and cooperation are shown by his not having missed a single interview.

An early and interesting association that came to the surface was that between the morbid fear of being overheard and the occasions on which he stealthily visited his sister's bedroom to satisfy his amorous longings, thus awakening a similar psychological attitude. His sense of hearing at this time was on the alert for any sound that would warn him of detection. I will describe how the associations connecting his fear of being overheard with his repressed thoughts, became conscious, and we may take this as a method of eliciting or stimulating associations. As the patient sat facing me and talking, his sense of hearing seemed to be abnormally alert for any sound; his face was tense and he had the look of an individual expecting to be discovered in some overt act; his head turned toward the slightest sound that came from the adjoining waiting room. He seemed to be on the *qui vive*. I asked him to place himself, if possible, in a psychological attitude, existing perhaps long ago, resembling that in which he was at present. After a moment's thought, the patient's expression brightened, and with some hesitation and confusion he recounted several occasions on which at night he visited his sister's bedroom, his sense of hearing acutely on the alert to warn him of approaching danger; together we went over in as detailed a manner as his memory permitted, the different experiences, the special happenings, the noises he heard or thought he heard; and everything possible was elicited concerning these incidents so as to make them once more fully conscious and thus innocuous; for these repressed thoughts generate, so to speak, toxins (symptoms) that poison the psychic system just as toxins from a pus cavity will poison the physical system. With this fear also is associated a period covering the years

from eight to thirteen, during which he listened in his own room for any noise from his parents' room (adjoining his) indicative of sexual happenings. He also associated with this fear the habit that he had from about thirteen years of age, of watching his mother in her nightgown pass his bed, he pretending to be asleep. Thus do these stand as so called infantile fixations.

The fear above mentioned that many people were related to his paramour, he associated with many repressed incidents; his love for his sister, and a secret love for a first cousin. Other associations in which the kinship phobia appeared were on an occasion when he put his hands under the skirt of a half cousin, thereby causing sexual excitement; when seeing on one occasion one of his aunts and her fiancé in amorous embraces; also when seeing his mother lying nude in bed.

The fear of leaving anything in a book by means of which something concerning him would be found out, he associated with his habit of reading, usually at night, at the same time indulging in sexual fancies and masturbation, also that on several occasions he attempted to produce an emission by pressing his erect penis between the pages of a book. His fear of legal prosecution, due to his having seduced his paramour, he associated with his sexual aggression toward his brother and sister, both younger than himself. The same fear was associated with his having, on several occasions, taken small sums of money from his mother and from his employer, in the course of two years about \$5; also, with not having returned a book borrowed from night school about ten years before.

After these fears had been explained by means of their associations, and, on the part of the patient, had been received and recognized as pathological and at the same time as repressed wish fulfillments, a gradual but moderate improvement in the patient's condition took place. He no longer reacted to the symptoms with the same sense of morbid fear, anxiety, and dread as formerly. The symptoms arranged themselves into classes and some sort of order was restored. He showed more interest in his surroundings, conversed with some show of interest on subjects not immediately concerning himself, and on the whole seemed less depressed, although not very markedly so.

The main symptoms of his neurosis are those produced by the parent complex, showing an abundance of repressed material with an emotional content. This is especially evident in his fear "some day I must die," which appeared four years ago. Before analyzing this fear, it would be well to recall his attitude toward his parents. Toward his father he was always hostile, never on any footing that should normally exist between father and son. There was evident hate and constant strife. The father was in the patient's path toward money success because the former never earned but little and the burden of support rested on the latter's shoulders. The patient resented his father's having so many children through his mother, considering that their having intercourse was a criminal act. In connection herewith, the interpretation of a dream brought by the patient would help show his attitude toward his father. The patient dreamed that

he saw his little sister lying in bed, very sick. Associating, he related an actual experience that took place some ten years ago when his sister was sick; he got into an altercation with his father. A quarrel ensued in which the mother took the boy's part, and the father, in a fit of rage, left the house vowing that he would not return. Instead of feeling any remorse or regret at his father's leaving, the patient felt rather contented, and when at the end of a week the father, having heard that the little girl was much sicker, returned to the house, the boy became very angry, and insisted that the father again leave. Looking back, he can now see that his attitude of hostility and hatred had underlying it a strong unconscious repressed love for his mother. On several occasions, dating back five years before the onset of the neurosis, he had fancies in which his father appeared dead. On the other hand, the mother and son were on a friendly footing; to him she confided her marital troubles and together they often discussed his father's shortcomings. He was his mother's favorite child; she lavished on him that love which under normal circumstances would have gone to the husband. To the patient the mother was the ideal, and in selecting those women who attracted him sexually, he reproduced the physical qualities of his mother. Stout, mature women had a strong attraction for him, and his acme of sexual bliss was merely looking at a stout, mature woman, lying nude in bed; he had seen his mother thus on one occasion. He had several dreams in which he attempted intercourse with stout, mature women, in whom through associations he recognized his mother. We can now analyze his fear, "some day I must die." This fear occurred suddenly three days after his grandfather's death, while reading a certain passage in the *Expedition of Humphrey Clinker*, by Smollett. In this scene Matthew Bramble wrote a letter to his friend, Doctor Lewis, concerning a mutual friend whose wife, an extravagant woman, died, thus affording relief to the husband. To the patient, his grandfather had been a stumbling block, because he lived with the patient's family, and since the patient was the main support of the family, the thought had often occurred to the patient, that the death of the grandfather would be a help to him, the grandson. We can now see how, since death had been the means of affording relief by taking away an obstacle, and since the patient's father was a stumbling block in the path leading to his love for his mother, death, removing his father, would help attain the patient's aim in life. To the patient, "some day I must die" meant that his father was already dead. Soon after the obsession appeared, the patient began to notice that some old people were happy in spite of their old age, and wondered over the fact that although these people had so little time left to live, they yet were so happy. On the other hand, the patient was a young man, and the knowledge, "some day I must die," brought dread and fear. He began to count the number of years he had to live, and as they seemed too short, he reckoned them in months, weeks, then hours, and then minutes, yet this tremendous array of figures indicated a space of time all too short for what life had in store for him. Looking back now, it seems to the

patient that death was terrible for the following reason: Not that he had committed crimes which needed atonement, not that he had done something for which he should be punished and that death was the penalty, but the fear of death meant that what he had waited for so long was within his reach, not as a certainty, but only as a possibility, and with death even this possibility passed away. Now we can see why he wondered that old people who had but a few years to live, could be happy, and why he counted his time in years, months, weeks, then hours and minutes. All these thoughts came with obsessive persistence, clouding his intellectual horizon.

With the analysis of this symptom, which had disappeared spontaneously some three and a half years before, the patient showed a great deal of improvement, not that the fear obsessed him at present or that it had any emotional effect whatever, but that now he had a conscious knowledge of a process that had up to the present been totally unconscious. When his symptom disappeared some three and a half years ago, the patient became well, but merely apparently well, and only required a shock, some psychical trauma, to cause a regression to his infantile sexual life for gratification.

In his present illness the most depressing symptom, which was the only one present for some three months after its onset, was that he had impregnated the woman. This fear had been present for about ten days without any accompanying depression. It was a natural fear, since the woman missed her period for several days; but while standing in a hallway with her she informed him of the return of her menses. During this amorous interview, the patient had an ejaculation, but in no conceivable way could any impregnation have taken place. He feared, however, that some of the semen might have come in contact with her fingers, and she, in this way might impregnate herself by carrying the semen on her fingers into the vagina. The fear came on with morbid intensity about two hours later, and has been throughout his illness his most persistent and most depressing fear. This fear of impregnation broadened out into a fear that, by means of his nocturnal emissions, those who handled the bed linen, that is, his sister or mother and later on the maid, at the sanatorium, by contact with the linen, might become impregnated. He associated all these fears with his resentment against his father, who was harsh in the treatment of his children and wanted them to work when they were fourteen years old, yet persisted in begetting more children. The patient felt that intercourse between his father and mother under such conditions was a crime, and this developed into a feeling of disgust for intercourse and into fancies that if he ever married he would stipulate that no intercourse should take place. With these fears of impregnation were also associated all his previous experiences that helped to make up his repressed mother love.

The chain of associations in this phobia, linking it with the repressed material, is not complete. Some links are still missing to make the fear of impregnation fully clear to the patient. He feels that this fear is a direct sequel to the fear that "some day I must die." He feels that this latter fear is a

possibility only, while the impregnation phobia represents the consummation of the act. Just how this is brought about he does not as yet clearly see, nor have I thus far been able to break up his resistance which prevents the repressed material from becoming conscious.

What has the patient so far, through a psychic analysis, succeeded in accomplishing? He is far from well. Some of his fears are still present. He still doubts his ability to work, though not as much as before. Still some changes have taken place for the better. To my mind, that which more than any other one factor is working toward a cure, is a gradually increasing conscious knowledge of his heretofore unconscious processes; a knowledge of that unconscious which, if it does not harmonize with the conscious, causes a conflict and that, as in the present instance, brings anything but a condition of psychic quiet. In this way he learns to analyze his motives, his feelings, and his actions; he is made to know himself as he is, to know his real self. The patient is thus enabled to do a self analysis to a limited extent and to help himself. He has analyzed several habits of which I knew nothing.

The patient is beginning to realize that in very many respects, in fundamentals, he is still in an infantile or savage state; also that his being neurotic represents his attempt to break away from infantile desires, which we all at one time possess. He knows that his neurosis represents a compromise, a resultant of two opposing forces, namely, his repression and his libido. If he had retained and striven to fulfill his desires in their infantile form, he would then have been a pervert; unconsciously he has realized that the love life he attempted to lead was impossible under present social conditions. Our cultural development forbids a mother or sister love resembling a love one bears toward an individual not of kin; in the patient, however, his experiences with his sister and mother have fixed his love upon them and in his attempt to adjust himself as a grown up, social human being, he acquired a neurosis; had he known how, and had he known consciously what he was doing, he would have broken away from his infantile love life and become normal. He knows now and is slowly adjusting himself to his new knowledge. The knowledge that he is not so very different from the every day individual at one stage of his development makes the patient feel that he is still entitled to associate with people and enables him to view his repressed love in its proper way. In this way, his resistance, preventing associations between his present day life and his unbearable experiences, will slowly diminish and then disappear. Socially he has improved much. He goes out among people without fear, enjoys their company, feels almost at home wherever he happens to be, and as he puts it, "I manage to have a pretty good time, much better than I dared hope for six months ago." Toward his future brother in law, who is about to marry the sister whom he "unconsciously loved," he is more frank and open, whereas before he was very suspicious and distrustful. A marked change for the better has also taken place in his attitude toward his father. During the period when the death fear was being analyzed, a strong, conscious hostility

toward his father was present. Altercations, which had often taken place before, were more frequent then and violent. Gradually, however, he has re-lented very much and realizes that his hate was augmented by the fact that unconsciously he and his father were rivals for the love of the same woman. He sees his father's faults as clearly as ever, but he sees them in their true light, and the blasting influence of that terrible hate brought into life by an unconscious repressed love, is slowly going. His hope of a cure grows as the analysis goes on. The possibility of a cure has been present for the past few months and has slowly developed into more or less of a certainty. In the past month no time has been present when the patient had no hope of cure; on the contrary, for many days at a stretch, there has been a certainty that a cure will result. Much improvement has taken place, but the patient, in my opinion, is still far from well. We shall see what takes place in the course of the next six months.

120 WEST EIGHTY-SIXTH STREET.

ABDOMINAL INCISIONS.*

Illustrations showing the effect of intraabdominal pressure, produced on the cadaver.

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In selecting an incision in an abdominal operation, one should be guided by the condition necessitating the operation, the condition of the patient, and the anatomical relations which might exist after recovery. In this paper I shall confine myself to incisions below the umbilicus, with special reference to the region of the appendix. It would be ludicrous to try to name the different incisions, for I believe each one is claimed by at least twenty different surgeons, even some of our recent graduates averring originality or a modification of the time honored "McBurney."

The abdominal parietes, from the umbilicus to the pubic symphysis, covers a space in the average patient of forty to fifty square inches, and is composed of skin, superficial and deep fascia, muscles, nerves, bloodvessels, preperitoneal fat, and peritoneum, each of which should be tenderly dealt with, in an effort to maintain their normal functions and relations. To accomplish this end, one should be thoroughly familiar with the anatomy of each structure, and be capable of recognizing any abnormality.

In the skin and superficial fascia, we find terminal nerve filaments from the lower intercostals, the ileohypogastrics and the ileoinguinals. The deep fascia is a network, the function of which is to protect and transmit the superficial structures; in some parts it is adherent to the muscular coats. The muscles that form the abdominal wall are the rectus abdominis, pyramidalis, transversalis, external and internal oblique. The origin, insertion, blood and nerve supply of the rectus is as follows: The rectus arises

by two tendons, the external or large head, from the crest of the os pubis, the internal head interlacing with the opposite recti and from the ligaments from the front of the symphysis pubis. It is inserted



FIG. 1.—Tenth nerve entering rectus sheath half inch above umbilicus; eleventh $3\frac{3}{4}$ inches below umbilicus.

into the cartilages of the fifth, sixth, and seventh ribs

The nerve supply is mainly from the lower intercostals, the ileoinguinal and ileohypogastrics mentioned in some textbooks, playing but a minor part. The sixth and seventh dorsal or intercostal nerves enter the rectus on a level with the sixth and seventh interspaces just below the insertion of the muscle to the sixth and seventh ribs. The eighth nerve enters



FIG. 2.—Eighth nerve entering sheaths of rectus half inch above umbilicus; eleventh $3\frac{3}{4}$ inches below.

the muscle at the upper margin of the middle transverse line. The ninth nerve enters midway between the middle transverse line and the umbilicus. The tenth enters the muscle usually one half inch above, occasionally on a level with the umbilicus. The eleventh nerve enters about three inches below the umbilicus, the space varying from two and seven eighths to four and one quarter inches in about forty subjects measured at Fordham University. The



FIG. 3.—Incision right aponeurosis dissected with fingers; eighty pounds pressure; no damage to incision.

twelfth dorsal or lower intercostal, as it emerges below the last rib, travels downward, forward, and inward, to enter the sheath of the rectus about two inches above the origin of the muscle, and gives off a branch to supply the pyramidalis. In its course it

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gives branches to the internal and external obliques and cutaneous branches to the integument.

The blood supply of the rectus comes from the superior epigastrics, deep epigastrics, and occasion-



FIG. 4.—Small hernia at lower end of five inch incision right rectus; twenty pounds pressure; applied through the rectum.

ally from branches of the lower intercostals. The superior epigastric enters the sheath of the rectus at its costosternal attachment in the inner and posterior wall, and continues downward about the inner one third of the muscle, occasionally perforating it, to anastomose with the deep epigastric. This anastomosis takes place usually about one inch above the umbilicus.

The deep epigastric ascends obliquely along the inner margin of the internal abdominal ring, lying between the transversalis fascia and the peritoneum, until it reaches a level with the semilunar fold of Douglas, where it enters the sheath of the muscle, continuing upward and inward about the inner one third of the muscle, where it anastomoses with the superior epigastric above the umbilicus. Occasionally a few small branches may anastomose with branches from the lower intercostals. Two veins usually accompany this artery, but may unite to form one before emptying into the femoral vein.

The fifth and sixth dorsal nerves enter the external oblique muscle at the fifth and sixth ribs, passing downward, inward, and forward, nearly as far as the margin of the rectus. The lower intercostal supplies the external oblique as far down as



FIG. 5.—Transverse incision, separation of recti muscles, rupture; sixty pounds pressure.

a level with the crest of the ilium. As the ileohypogastric nerve crosses the quadratus lumborum to the crest of the ilium, it perforates the transversalis and divides into two branches, the iliac

and hypogastric. This takes place between the internal oblique and transversalis. The iliac branch pierces the internal and external oblique, helping to supply both muscles, and passes backward to the gluteal region. The hypogastric branch continues onward between the internal oblique and the transversalis, and becomes cutaneous by perforating the aponeurosis of the internal oblique, about one inch above the internal abdominal ring.

The ileoinguinal accompanies the spermatic cord through the external abdominal ring; before passing through the canal, it pierces the internal oblique, sending branches to it and to the external oblique. It occasionally joins the ileohypogastric. The origin of the internal oblique is from the lumbar fascia, crest of the ilium, and Poupart's ligament. It is inserted into the three lower ribs, crest of the pubis, and the pectineal line. The blood supply of the internal oblique is from the deep circumflex iliac. This artery ascends obliquely outward and upward behind Poupart's ligament, supported by a fibrous sheath formed by the junction of the trans-



FIG. 6.—Transverse incision, separation of recti muscles (male); no rupture; 120 pounds pressure.

versalis and iliac fascias, until it reaches the anterior superior spine of the ilium, where it gives off a branch to supply the internal oblique and transversalis muscles. It then runs along the inner surface of the crest of the ilium to about its middle, where it pierces the transversalis. Then it runs backward between the transversalis and the internal oblique, where it anastomoses with the lumbar, epigastric, ileolumbar, and gluteal arteries.

The superficial epigastric artery ascends from its origin just below Poupart's ligament, upward and inward, sometimes as high as the umbilicus, giving off branches in the fascia covering the external oblique muscle. The transversalis arises from Poupart's ligament, crest of the ilium, six lower ribs and lumbar vertebræ, and is inserted into the linea alba, pubic crest, and pectineal line. The blood supply is from the deep circumflex iliac, the transversalis being pierced by that vessel about on a level with the middle of the crest of the ilium, also by a few muscular branches from the lumbar arteries. The nerve supply is from the lower inter-

costal, ileohypogastric, and ileoinguinal, as described previously.

With the foregoing picture one will note the surgical importance attached to incisions in the different muscles, and how easily one may injure, or



FIG. 7.—Rupture with twenty pounds pressure; incision through the muscles over McBurney's point.

avoid injuring, these muscles, their blood or nerve supply. To my mind, injury to the nerve is the most important thing to avoid, as any injury may be followed by atony or atrophy of that particular portion of the muscle supplied, with a possibility of a hernia forcing its way through the weakened parts, either by intraabdominal pressure, or some external influence. Injury to the bloodvessels may be more readily avoided, and should this accident occur, prompt ligation will cause but temporary embarrassment to the surgeon or patient, as a collateral circulation may be established within a short time after the operation. To avoid injury to either nerve or vessels, if the incision is made in the right rectus muscle at its outer or middle third, parallel with the umbilicus, we have a space of at least three inches to work in, and I believe that, if we must interfere with the nerve, a clean incision of that structure will have better results than tearing or



FIG. 8.—Median line incision above the umbilicus, 100 pounds pressure; no apparent damage to either incision.

separating the nerve from its normal bed. The vessels we are apt to encounter in that portion of the rectus, are mostly veins, and these should be ligated before any injury takes place.

In the incisions through the oblique and transversalis muscles we are more apt to cause injury to the nerve supply of these muscles than to that of the recti, as the normal course of the nerves is more varied than the course of the nerves of the recti, the former nerves being more numerous and from different sources. The complication of hernia would therefore be more apt to supervene, should injury occur to any of these nerves.

A few of the figures will show the effect of intra-abdominal pressure, more pronounced after incisions in that region than after incisions in the recti, with the exception of incisions in the median line low down. These incisions yield more readily to intraabdominal pressure on the cadaver. Therefore the assumption is, that the intraabdominal pressure is the same or even more marked in the living subject in the same region.

It may be interesting to note the amount of pressure produced on some of the cadavers without any marked effect shown upon the incision. To produce this pressure an ordinary automobile pump was used. The technic of the operations was as follows: In four cases the esophagus was ligated



FIG. 9.—Incision right rectus uninjured with forty pounds pressure; median line incision shows rupture of every second or third suture.

through an incision in the neck, after placing a glass tube in the stomach, making the tube as secure and airtight as possible with the ligature. An incision was made parallel to the umbilicus through the right rectus, and the rectum was ligated. The incision was closed in the ordinary manner, pressure being applied in all four cases to the full amount of the automobile gauge, viz., 120 pounds, and after the amount registered in one case, the pumping was continued until the abdomen looked to be twice the normal size. No hernia protruded in either case.

In two cases in which the incision was made in the right rectus, with the rectum ligated and the incision sutured, another incision was made in the median line from the sternum to the umbilicus, the tube was ligated within the stomach, and the incision was closed. In one case the pressure was 100 pounds and in the other 120 pounds. There was no apparent rupture.

There were six cases in which the incisions were made in the median line below the umbilicus, the pressure being introduced through the rectum in three, and through the stomach in the other three.



FIG. 10.—Kupture through median line incision; 110 pounds pressure; no apparent damage to right rectus incision.

All cases herniated either through the sutures in the aponeurosis, or by a separation of the muscular fibres with pressure of fifteen pounds in one case, twenty pounds in three cases, forty pounds in one case, and 110 in another. There were two cases in which transverse incision was made through the skin above the pubis, and the muscles were separated in the median line. One case with the tube in the esophagus, and the rectum ligated, withstood 120 pounds (male). The other case (female), the esophagus ligated with tube *in situ*, the rectum plugged with cotton, withstood but forty pounds, a large hernia showing in the picture at sixty pounds.

In two cases in which the incision was made over the right rectus, the aponeurosis being dissected with the finger, the wound closed in the ordinary way; one cadaver withstood eighty pounds, the intestines puncturing at the cecum with about ten pounds pressure in the other. The pressure was applied through the rectum in both cases, with the esophagus plugged with cotton. One case with an incision five and one half inches long in the outer border of the rectus showed a hernia at the lower border of the incision, with twenty pounds pressure. In this case the ligature was placed at the



FIG. 11.—Intestines showing through median line incision, over 120 pounds (probably 300).

duodenum, and pressure was applied through the rectum. In three cases with the incision over McBurney's point, with the muscles separated, the wounds closed; one case herniated with tearing of

the muscular fibres at twenty pounds. There was no hernia in either of the other two cases. Two cases with the same incision, the muscles also incised, withstood one hundred and twenty pounds, the pressure being applied through the esophagus. In three cases with the same incision as before, pressure applied through the rectum; one case herniated through the incision with fifteen pounds pressure, the other two cases went over 120 pounds without rupture. In three cases of esophageal end of the stomach ligation through an abdominal incision, pressure applied through the rectum, two showed over 120 pounds pressure, and in the other the gut was punctured with about ten pounds pressure.

In all of these cases the abdomen was left open, the intestines showing through the opening in the picture. In seventeen cases the intestines were taken out of the abdominal cavity; only one of the number could be blown higher than ten pounds. In all the other sixteen cases the air escaped almost as fast as it could be pumped in. This particular point shows the effect of low abdominal distention in some of the drainage cases.

SUMMARY.

In some of the abdominal incisions, especially those of the right rectus, there was no apparent injury to the incision with a pressure of 120 pounds. In the incisions of the median line above the umbilicus, no apparent damage was done by high intraabdominal pressure.

Median line incisions below the umbilicus gave way under pressure of twenty pounds in one case, forty pounds in another.

Incisions over McBurney's point yielded to less than twenty pounds pressure in some cases, especially those in which the air was introduced in the rectum.

The deduction is that intraabdominal pressure is not alone the cause of hernia following any abdominal operation, as some of the abdomens were more tense with sixty pounds pressure than any seen by the writer after any operation.

1858 SEVENTH AVENUE.

DIAGNOSTIC AIDS IN DISEASES OF THE BONES AND JOINTS.*

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The osseous system of the body and its hinges, the joints, play the most important part in the human economy, and following the general rule in life, the osseous system has until recently received the least attention. Every theory in the imagination of its propounder, whether based upon misinterpreted clinical facts, or the lack of them, has been accepted as gospel truth, which no man dared question.

Imagine for one moment the stupendous task which the bony skeleton and its joints have to per-

*Read before the Clinical Society of the New York Polyclinic Hospital, April 6, 1914.

form: First, locomotion; second, protection to important internal organs; third, maintaining the normal shape and relations of the component parts of the body. The marrow plays a very important part in the formation of blood constituents. The intimate relation of the bony system with the internal secretory glands, and its role of storehouse for the lime needed in the human economy, make one wonder why it should have received such scant attention from scientific men.

Recently, investigators have begun to throw off their shackles, and have tried to unravel the secret of the diseases of the osseous system, and, although they have as yet succeeded only in scratching the surface, there are already enough proofs forthcoming to make us realize, first, that the classification of diseases of bones and joints according to the mode of invasion, needs revision; and, secondly, that the clinical manifestations and the morbid appearance of the joint will not always give a clue to the real disease and its etiology. Thus, Cabot in a series of 3,000 autopsies at the Massachusetts General Hospital, found seventeen cases of Pott's disease, and only three of these were diagnosed during the life of the patient, although, according to the textbooks, Pott's disease is easily recognized. Commenting upon those findings Doctor Cabot says, that in ten of the thirteen misses there is no blame to be attached to the physicians in charge of the patients, because the diagnosis was not suggested by any of the facts at their disposal. Looking over my series of cases treated at the Roosevelt Hospital and at the Polyclinic, I find that about twenty-five per cent. of patients with Pott's disease are treated for other diseases by private physicians and only when the cyphos appears do they recommend them to our department for treatment.

Hastings, in his study of a series of twenty-four cases of arthritis deformans, found that twelve could be traced to either streptococcus or gonococcus infection by finding the germ in some local focus of infection and proved by complement fixation test of the blood to be the cause of the disease; all of these were typical cases of arthritis deformans of from two to fourteen years' duration, and all those traced to infection improved under specific vaccine treatment.

Rosenow, in his studies of lesions produced by the streptococcus, shows that it is possible to convert a hemolytic streptococcus that has a marked affinity for joints into a streptococcus viridans, which latter will have lost its affinity for the joints, and acquired a marked affinity for the heart valves, producing hemorrhages in the heart valves and endocarditis often without arthritis. He also succeeded in transforming this germ into one that has the property of attacking the flat muscles and tendinous portions of the long muscles. He was able also to isolate the same germs in rheumatic cases, from the blood in four cases out of seven, in two cases from the stools, and in one from the tonsils, and when these strains were injected into animals, they produced the exact picture of transient nonsuppurative arthritis, the exudate showing few or no organisms, and subendothelial nodular endocarditis, also pericarditis in some.

Milne, in his experimental study of chronic

arthritis, comes to the following conclusions: First, practically all cases of chronic arthritis are due to some infective agent, and that the great variety of types depends largely on the severity of the infective agent and the duration of time to which the joint is exposed to it; secondly, definite inflammatory lesions, either in the synovial membrane or in the marrow spaces under the cartilage, account for all the pathological changes in the joints in arthritis of all varieties. Some infective agents tend to produce synovitis with some effusion, while others cause a purulent exudate. This may be completely recovered from or the synovitis may become chronic. In such cases the joint cartilage may or may not be damaged.

In the more severe infections the cartilage is disintegrated in front of inflammatory changes in the underlying marrow spaces. The latter process may be very extensive, destroying the whole cartilage, or it may be localized. If the cartilage is rapidly disintegrated, fibrous adhesions between the two adjacent damaged joint surfaces are apt to be formed, and eventually these adhesions may become osseous, when complete bony ankylosis results. If, however, the damaging agent is not so virulent, and its action is continued for a long period of time, the joint surface becomes very irregular from hyperplasia of the surviving cartilage, and bony and cartilaginous metaplastic changes occur in the inflammatory tissue which has replaced the cartilage. If at any time the infective process should be discontinued, then, the pathological changes in the joints will no longer be progressive.

Krabbel examined the blood of eighteen patients with surgical tuberculosis and found tubercle bacilli in 66.6 per cent., also in twenty per cent. of five with tuberculous lymphnodes and in twenty-five per cent. of four with mucosa, skin, or tendon sheath tuberculous process. He also remarks that the findings of tubercle bacilli in the blood are of great diagnostic significance in dubious cases, especially when there is no lung infection.

The writer of this paper has recently examined the urine and feces in three cases of surgical tuberculosis, one of hip disease, another knee tuberculosis, and a third Pott's disease of the lumbar region, and found an abundance of tubercle bacilli in the urine and in the feces of the patient suffering from Pott's disease; pulmonary involvement had been excluded by physical examination.

The sum total of the foregoing, is that in order to make a proper diagnosis in disease of bones and joints, it is necessary to ransack every accessible part of the body in order to locate the cause of the infection; tonsils, teeth, and gums should be thoroughly inspected, the urine and feces should be analyzed carefully, and the organs of generation should be thoroughly examined. After we have found germs which look suspicious, we should do our utmost to ascertain by scientific means whether or not this germ is the sole cause of the trouble or a contributing factor only.

The diagnostic means at our command: Radiography.—Radiography is at once the best means at our disposal of verifying clinical findings, provided the surgeon bears in mind the following facts: 1. If the x ray is negative and the clinical signs are defin-

ite, depend upon clinical signs; 2, if the clinical signs are indefinite while the x ray findings are definite, and it shows disease, bear its findings in mind, but make sure that the plate has been taken by an expert on x ray pictures, that the part has received the



FIG. 1.—Fracture through body of ilium of right side, the fissure running right into acetabulum and diagnosed as sprain of hip on account of paucity of signs or symptoms of fracture.

proper exposure, and that the plate has been properly developed (Fig. 1); 3, no surgeon should depend solely upon the radiologist for the interpretation of findings in the plate; 4, it is always advisable to take anteroposterior and lateral views in diseases or injuries of bones and joints, in order to bring out all the features of the disease; 5, in order to recognize an injury or a disease around the joint, especially in young individuals, it is necessary to remember the time of development and ossification of the epiphyses (Fig. 2); 6, the plaster of Paris is permeable to the rays, while zinc oxide plaster usually mars the clearness of the shadow, and should never be applied to the part to be x rayed; 7, it is always necessary to take a picture of the joint on the opposite side in order to be able to detect the slightest deviations from the normal; 8, there are times when cracks are seen and are interpreted by some as fractures, but they are no more than defects in the plate due to some unexplainable cause. Thus, one picture shows apparently a comminuted fracture of the lower part of the humerus, yet upon inspection of the joint after exposure in order to remove the loose fragment in the olecranon fossa, the bone was found to be in normal condition (Fig. 3).

The x rays that I present here show these interesting facts: 1. It is possible to have an extensive

fracture of the spine without producing alarming symptoms (Fig. 4); 2, a good many injuries around the tarsus which are treated for sprains, are in reality fractures of the os calcis, astragalus, or both, and unless those injuries are diagnosed in time and treated accordingly, the patient remains crippled permanently (Fig. 5). The other plates have some bearing upon my previous remarks.

BLOOD EXAMINATION.

1. Complement deviation or fixation tests.—

(a) Syphilis. By mixing the patient's serum with syphilitic antigen, and adding to this complement, lysis takes place if the patient is suffering from lues.

(b) The same principle is used in diagnosing other diseases in the blood but with a different antigen. In streptococcus and staphylococcus infections the disease has also been diagnosed in the blood by the same process. Butler has used the complement fixation test for tuberculosis with success. I have tabulated cases of arthritis seen recently at the Roosevelt Hospital and tested for the presence of syphilitic virus by the complement fixation or Wassermann test.

Number of cases, 33 (male 20, female 13), youngest thirteen years of age, oldest sixty-two.

Cases found positive 19, negative 14.

Cases with positive syphilis and negative Wassermann, 3.

Cases with positive findings treated for other diseases, 10, viz.: 1. Tuberculosis of the spine, 2 (eight and six months); 2, tuberculosis of the right elbow, 1 (one year); 3, tuberculosis of the left knee, 1 (one year); 4, tuberculous osteomyelitis of both tibia, 1 (three years); 5, chronic rheumatism, 1 (two years); 6, tuberculous dactylitis, 2 (twelve years); 7, Neisserian infection of feet, 1 (twenty-three years); 8, osteoarthritis of knee, 1 (seven years). It is worth while mentioning that most of these patients denied venereal infection.

RECORD OF GONORRHEAL JOINTS; ARTHRITIS.

Number of cases, 50 (male 41, female 9).

Time of appearance of arthritis in relation to acute gonorrhea, shortest, ten days, longest, twenty years.

Gonorrheal complement fixation test was done on 25 patients; positive findings, 12, negative, 13. Earliest positive complement fixation finding was five weeks after infection.

Number of cases which had a Wassermann and gonorrheal complement fixation tests together, 10.

Findings of positive Wassermann and positive gonorrheal complement fixation, 1.

Cases of Wassermann plus gonorrhea complement fixation negative, 1. Finding of Wassermann negative, and gonorrhea complement fixation positive, 1.

Wassermann and gonorrhea complement fixation negative, 5.

Patients denying venereal disease, 6; finding Wassermann plus, 1, while gonorrheal complement fixation was negative in the same person.

It is interesting to note that about 30 of those 50 cases cited had involvement of the ankles, most of them also involvement of the tarsal joints, always, however, accompanied by pains around the heel. Most of the feet were stiff and everted, and effort had to be made to adduct them, and in a good many it was impossible to do it without an anesthetic.

The reason why the other twenty-five cases did not have gonorrheal complement fixation done, was either because it was too early in the disease, and according to the investigations of Schwartz and McNeil, at least four weeks should elapse from the time of the onset of the urethritis before we can expect a positive finding in the blood; or the relation of the arthritis to the urethral involvement was so manifest, that no confirmatory test was necessary, and some of the cases have had a few

injections of vaccine administered before they were referred to our department, and in that case a positive finding could always be predicted without any significance being attached to it.

COAGULATION TIME OF THE BLOOD.

Knowing as we do that there is an intimate connection between the calcium in the blood and the coagulation, and also that the bony substance is the chief storehouse of the lime in the body, I have recently started a coagulation time test of the blood in every case of bone and joint disease, and although the number of patients whose blood has been tested is small, some of the findings are important enough, in my estimation, to deserve mention.

1. In tuberculous disease of bone the coagulation time of the blood is usually prolonged (between six and seven minutes), also in those cases of arthritis in which coagulation time of the blood was below three minutes, the injection of pituitrin hypodermically seemed to have a beneficial effect.

The apparatus used for the purpose was the Boggs coagulometer modified by Russell and Brodie.

USE OF THE COAGULOMETER

The coagulometer, as modified by Russel and Brodie, consists of a glass cone inverted in a moist

into the moist chamber. The air is then injected at intervals of a few seconds and the motion of the corpuscles is watched, best with the low power of the microscope. Coagulation is complete when motion ceases, or when cells spring back to original position when current of air ceases.

Number of coagulation time tests, 25; male, 13, female, 12, youngest, eighteen months, oldest seventy-two years. Shortest coagulation time, 2 minutes, 10 seconds; longest 6 minutes, 40 seconds.

Diseases in which coagulation time test was tried, arthralgia of left shoulder, 1; neurasthenia with vague pains around joints, 1; rheumatic pains in joints, 3; senile arthritis of left knee and hands, 1; specific arthritis of right foot, 1; tuberculosis of joints, 6; gonorrheal arthritis, 2; infective arthritis, 4; osteoarthritis of knee, 2; rickets, 2; endarteritis obliterans, 1; sciatica and painful feet, 1.

ILLUSTRATIVE CASES:

Name.	Age.	Sex.	Clinical diagnosis.	Coagulation time of blood.
B. K.	22	F.	Tuberculosis of left sacroiliac joint and psoas abscess.	6 min. 20 sec.
T. H. O.	9	M.	Tuberculosis of left hip joint still active.	6 min. 15 sec.
M. R.	48	F.	Painful and stiff right foot (improved by administration of pituitrin).	2 min. 10 sec.
Ch. B.	9	M.	Tuberculosis of left hip in process of healing, 2 yrs. duration.	4 min.

ALLERGIC TESTS.

Whenever the system is invaded by disease such as syphilis or tuberculosis, the skin becomes very sensitive to the introduction of that poison, and whenever a little is injected into the skin, there is a marked reaction within twenty-four to forty-eight hours.

Von Pirquet has utilized that principle in diagnosing tuberculous conditions, while Noguchi has devised something on the same principle for the diagnosis of syphilis. Although the von Pirquet findings are positive, it simply shows that there is a tuberculous infection in the system, but it does not point to the particular part infected, therefore it is useless in tuberculous arthritis as a diagnostic measure. Tuberculin injections for diagnostic purposes are mentioned here to be condemned; the focal reaction following injection of tuberculin is such as to be contraindicated in joint diseases. Römer called attention recently to the peculiar and characteristic inflammatory reaction in the skin which occurs, when a tuberculous animal, especially a guineapig, is injected with a small amount of tuberculin. Hageman has found that his reaction in the skin occurs regularly when an effusion or other organic fluid from a human being infected with tuberculosis is injected into the skin of a tuberculous guineapig.

About 0.1 c. c. of the suspected fluid is injected into the skin of the animal, and the diagnostic reaction is evident in from eighteen to twenty-four hours. He applied this 170 times, with material from forty-eight patients, thirty-three with certain tuberculosis, three with dubious tuberculosis, and twelve certainly free from any tuberculous lesion. In none of the non-tuberculous cases could a positive response be elicited, while the findings were constantly positive in the tuberculous cases, with two exceptions traced to faulty technic. In four cases the characteristic reaction was obtained when all other diagnostic measures failed to elicit a response. The findings were constantly positive with the serous effusion from a tuberculous joint effusion, and served as a diagnostic test to differentiate from rheumatic, traumatic,

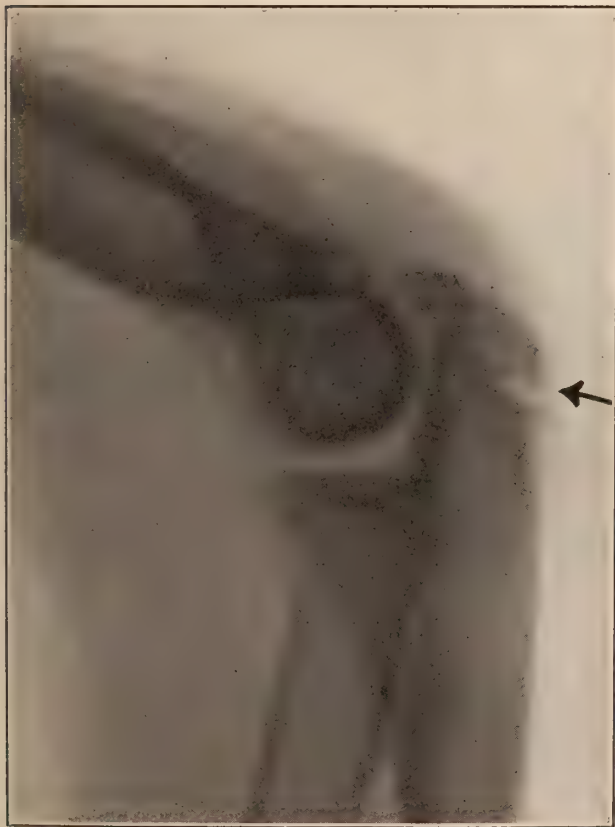


FIG. 2.—The normal appearance of epiphysis of olecranon at age of fifteen years.

chamber, with an air inlet through which air is blown at intervals by means of a rubber bulb. A small opening in the top permits the air to escape from the moist chamber.

Technic. A drop of blood is placed upon the tip of the glass cone, which is then quickly inverted

chronic inflammatory, syphilitic and neuropathic effusions.

RÖMER'S METHOD.

He injects 0.2 c. c. tuberculin in 0.1 saline for a test; he then infects the animal by an intraperitoneal injection of 0.1 or 0.2 milligrams of tubercle bacilli.



FIG. 3.—*a*, A seemingly comminuted fracture of outer condyle of humerus due to defect in plate. *b*, Loose cartilaginous fragment in the olecranon fossa of right side.

The animals are ready for the test in from four to six weeks.

The typical reaction to the intracutaneous injection of the suspected fluid is a swelling, developing in eighteen to twenty-four hours, and about the size of a silver dollar. In the centre is a purplish discoloration surrounded by a china white ring, and this in turn by an area of inflammation. With a less pronounced reaction there may be no central discoloration, or there may be a typical mild response which leaves a nodule in the skin perceptible for ten days. The inflammation which follows the injection of pus cocci differs so completely that it cannot be confounded with the typical response to the injection of tuberculous material.

The writer of this paper recently utilized the findings of Römer and Hageman in a novel way:

Using the von Pirquet test on a patient with knee trouble in order to determine whether the patient had tuberculosis in his system, when the response was positive, I had withdrawn some of the synovial fluid from the diseased knee, and injected part of it into the patient's arm endodermically; and although the reaction was not marked enough to make me determine that it was positive, I feel encouraged to use that method for further observation.

LUETIN TEST.

According to Noguchi, equal quantities of the luetin and saline solution are mixed, and from this mixture 0.07 c. c. is injected endodermically, and the reaction appears within from twenty-four to forty-eight hours. It may not show any positive indications, however, till five or even ten days. A. Brown has recently investigated its value in hereditary syphilis, and found that it is as valuable as the Wassermann test; it can be found in almost 100 per cent. of cases.

MY OWN FINDINGS WITH LUETIN.

Number of cases tested, 24 (male 14, female 10); youngest eighteen months, oldest seventy-two years. Those having a luetin and Wassermann test taken, 9; luetin alone, 15.

Cases having luetin and Wassermann positive, 4; cases of Wassermann positive and luetin negative, 2; cases having luetin positive and Wassermann negative, 0.

NATURE OF DISEASES IN WHICH LUETIN WAS TRIED.

Endarteritis obliterans of both feet, 1; tuberculosis of the spine, 2; tuberculosis of the hip, 1; tuberculosis of the left knee, 1; tuberculosis of the left elbow, 1; chronic synovitis of the left knee, 1; stiff and painful spine, 1; chronic rheumatism, 2; arthritis deformans, 1; osteoarthritis of the knee, 2; gonorrheal arthritis, 3; rickets, 2; hereditary syphilis, 2 (boy and mother); deforming osteochondritis of the right hip, 1, and specific osteomyelitis of tibia, 1; stiff feet, 1; arthralgia, 1. The positive findings were chronic synovitis of the knee, 1, stiff spine, 1, chronic rheumatism, 1, and hereditary syphilis, 1. It is worth noting that while the boy with hereditary syphilis had a positive luetin, the mother, whom I tested at the same time, gave a negative response.

SKIN REACTION OF LUETIN AND VON PIRQUET IN COLORED PEOPLE.

In mild cases it is necessary to look at the skin, through a magnifying glass. Compared with the surrounding skin, the ridges around the place of reaction are a little flatter and less marked than those further away, and thus mild reactions can very well be interpreted.

ABSORPTION TESTS OF JOINTS.

Some weeks ago, I began to investigate the power of absorption in joints in a healthy state, and to compare their absorptive power with other parts of the body, also with diseased joints. Injecting one c. c. of phenolsulphonaphthalein into the normal joint, and noting the time of its appearance in the urine by the addition of sodium hydrate solution, and then a day later giving an intramuscular injection of the same drug, and also noting the time of

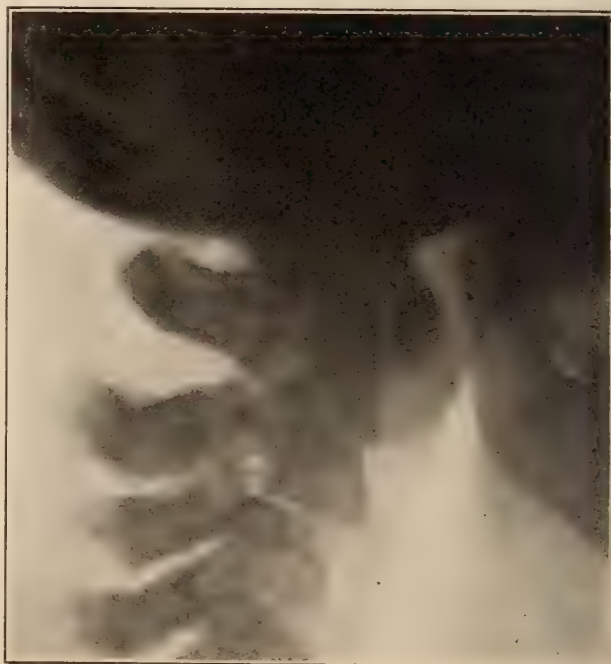


FIG. 4.—Traumatic fracture and dislocation of third cervical vertebra in a boy of nine years and on account of lack of classical symptoms diagnosed as a contusion of the muscles of the back of the neck and treated with ichthyol applications by a surgeon of this city.

appearance of the drug in the urine, I could compare the absorptive power of the normal joint with the systemic absorption. Now, by injecting the same drug, one c. c., into the diseased joint and not-

ing the time of the appearance of the phenolsulphonophthalein in the urine after injecting the drug into the diseased joint and into the healthy one, we can tell the difference of the absorptive function of the two joints.

In conclusion I wish to thank Doctor Kilbane,



FIG. 5.—Fracture of the os calcis and astragalus with separation of fragments of latter bone treated for a sprain of ankle and traumatic flat foot, and as a result of this oversight the patient is permanently crippled.

Doctor Foote, and Doctor Warren, of Roosevelt Hospital, the resident staff of the New York Polyclinic Hospital, and Dr. A. J. Moravék, of the New York Diagnostic Laboratory, for their courtesy and valuable cooperation.

DEDUCTIONS.

Number of injections, 22 (male 19, female 3). Joints tested, knee joints, 11; normal joints, 6; diseased, 6; elbow joints, 2; normal, 1; diseased, 1; shoulder joint, normal, 1. Into muscles, 7; gluteal region, 6; lumbar region, 1.

The experiments showed: 1. That the normal joints have the same absorption time as the muscular region; 2, that in long standing synovial disease, the absorption time may be prolonged even up to double the normal time; 3, that in early cases of disease of the joint, we may find that the absorption time in the diseased joint is hastened compared to the normal one.

ILLUSTRATIVE CASES.

CASE I. J. P., aged thirty-eight years, male, syphilitic synovitis of left knee; chronic, with a good deal of effusion.

February 19, 1914, injected phenolsulphonophthalein, one c. c., into left knee; urine tested for presence of drug



FIG. 6.—Bogg's coagulometer. a, The air chamber exposed. b, The coagulometer ready for use.

every two minutes by addition of ten per cent. solution of sodium hydrate. After twenty minutes urine showed presence of drug by turning pink.

February 25, 1914, injected one c. c. of phenolsulphonophthalein into normal knee joint; urine was tested for the drug every two minutes. After ten minutes marked reaction in urine to addition of few drops of ten per cent. sodium hydrate solution.

February 27, 1914, injected one c. c. of phenolsulphonophthalein into lumbar muscles; urine turned pink after eleven minutes by the addition of sodium hydrate solution.

CASE II. H. S., aged thirty-six years, male, tuberculosis of left knee (early case).

April 1, 1914, injected one c. c. of phenolsulphonophthalein into left knee; urine tested for presence of drug every two minutes; at six minutes urine turned red by addition of a few drops of sodium hydrate solution.

April 2, 1914, injected one c. c. of phenolsulphonophthalein into the right knee, and tested the urine every two

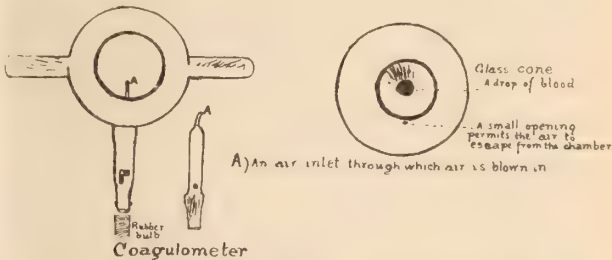


FIG. 7.—A diagrammatic sketch of the component parts of the coagulometer.

minutes for presence of drug; positive reaction did not appear until eleven minutes elapsed from the time of the injection.

CASE III. M. S., aged twenty-four years, male, normal joints.

February 26, 1914, injected one c. c. of phenolsulphonophthalein into left knee; urine tested for drug every two minutes; presence of drug detected after eight minutes.

March 8, 1914, one c. c. of phenolsulphonophthalein was injected into gluteal region, and urine tested for presence of drug by addition of few drops of sodium hydrate solution every two minutes; time of appearance of drug in urine about the same as above.

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207 WEST 110TH STREET.

A NEW INSTRUMENT FOR INTRAVENOUS INJECTIONS

Of salvarsan, as well as saline solutions, without the need of dissecting the vein.

BY JULIUS FRANKEL, M. D.,

New York,

Adjunct Surgeon and Chief of Surgical Clinic, Har Moriah Hospital.

The golden rule in surgery has always been to avoid, as much as possible, undue injury to the tissues. After having noticed many failures to enter the lumen of the vein with the ordinary salvarsan needle, by even skillful surgeons; the clogging and the displacement of the needle when already within the vein through the injury inflicted to the vessel because of the needle's point injuring the innermost coat; the very great pain produced by re-

peated stabs to enter the lumen of the vein; and the subsequent severe and very painful swelling produced by the spilling of some of the salvarsan solution within the wall of the vein or into the subcutaneous tissue, set my thinking power in motion and this simple device resulted.

Very often an intravenous injection of a saline solution is wanted in such a hurry that the saving of time may result in the saving of a life. For this very purpose and for the reasons given above, I have invented a very simple device in the form of a perforated needle within which fits very snugly a cannula through which the fluid is injected.

This instrument saves the time required for dissecting out a vein, and avoids undue cutting of tissue as well as skin scars which may brand the patient as a syphilitic, especially if the scar is situated at the antecubital space.

The instrument consists of three parts, a screw which is not an absolute necessity, and a

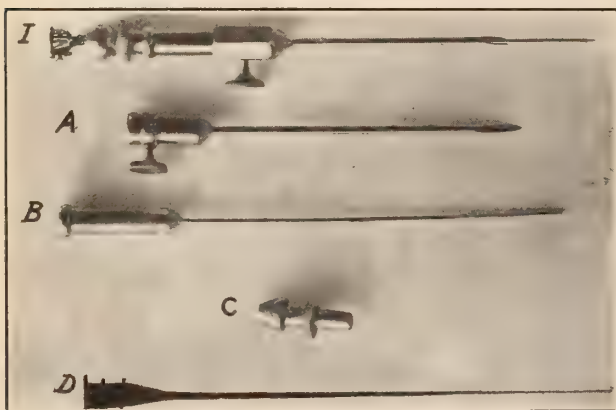


FIG.—Frankel's instrument for intravenous injections; for description, see text.

stylet to keep the parts clean and unobstructed, which can be used together with the cannula like a trocar: *A*. A perforated needle with a sharp cutting edge and point, about two to three inches long and about one eighth of an inch in diameter; the upper edge carries a crownlike arrangement within which fit a screw and cap to tighten the needle to the inner cannula. *B*. A cannula one inch longer than the needle, with a dull and rounded lower edge (so as easily to enter the lumen of the vein and be pushed within the vessel at least one half to one inch away from the point of injury, thereby preventing clotting, dislodgements, and spilling of the fluid within the tissues). This cannula fits snugly within the needle so as to be airtight and still is very easily shifted in and out of the needle. The upper end of the cannula carries a crown like the needle, within which fits the third part, called the end piece for rubber tubing attachment from the solution. *C*. A perforated piece of metal whose upper part easily fits a piece of ordinary rubber tubing, while the lower end fits the upper part of the cannula. *D*. An ordinary piece of steel with sharp point called a stylet which keeps all parts together, clean and unobstructed, and can be used together with the cannula like a trocar for similar purposes.

To use the instrument, put the cannula within the needle until about near the cutting edge, remove the stylet from cannula, attach the metal end piece to the rubber tubing from the solution container. It is needless to mention the necessity of sterilizing your hands, the instrument, as well as the area of operation; prepare your fluid for injection, put a tourniquet above the chosen field of operation; choose your vein, and stab it by holding the instrument in the direction of the chosen vessel, the upper end of the needle to be held about 10° above the horizontal level. The skin and vein being pierced, you then grasp the head of your cannula, shift it forward with a rotary motion until you notice blood escaping through its lumen, which indicates the cannula to be within the vein. Attach your metal tube ending from your prepared solution to the cannula, remove the tourniquet and allow your solution to run. Should your patient have a fair sized and superficially situated vein, you can use the cannula with the stylet only, its action being like that of a trocar. You simply pierce your vein, shift the cannula forward into its lumen, and remove the stylet. When you notice blood escaping through the cannula, you attach your metal end piece from solution as described above.

This cannula cannot become dislodged if within the vein, it cannot become occluded unless the solution contains solids of some kind. No clotting nor injury to the intima of the vessel is possible, for the lower edge of the cannula is dull and rounded, and rests about one quarter to one half inch away from the pierced point, and above all the entire operation lasts but a few seconds.

In conclusion, I feel that if I have added something of value to instrumentation in surgery, I have surely diminished the anxiety of the surgeon, and I have avoided a scar which might subsequently brand the patient as a syphilitic.

218 EAST FIFTEENTH STREET.

AUTOLACTOTHERAPY.

A New System of Therapeutics.

BY CHARLES H. DUNCAN, M. D.,
New York.

The mortality among nursing infants during the summer months is generally considered from two aspects, namely, preventive and therapeutic. An incomparably better method of treatment than those previously employed, is the unmodified antitoxin treatment previously advocated by me.

In the present paper I will take up this new method of combating infectious disease with unmodified antitoxins or with substances antidotal to the action of all of the toxins pathogenically active in the patient's body. This method I call *autolactotherapy*, or unmodified antitoxin therapy.

That innumerable pathogenic microorganisms enter the body daily is well known. Myriads enter with the inspired air. They are taken into the system in massive doses, at every meal and in other

ways. Many of these are constantly being destroyed by the protective agencies or fluids of the body. During their destruction their toxins go into solution by autolysis. In response to the action of these toxins the healthy tissues produce protective agents—the antitoxins. These are found in the various fluids of the body, as the milk, blood, etc. The process of producing antitoxins in the body is continually going on, as the supply of microorganisms is continuous and varied. For the same reason the lower animals also produce antitoxins in their blood, milk, etc. Beside the antitoxins continually produced in our bodies in response to the microorganisms entering it, we take into the body the antitoxins produced in the animal, by eating the meat and drinking the milk of the animals. It is probable that many of the antitoxins in the meat are destroyed by heat. As the result of many tests made by me in autotherapy, I hold that the mouth is the natural channel through which live microorganisms pass into the healthy tissues and there safely establish immunity. The opsonic index is quickly raised when many varieties of live pathogenic microorganisms are taken into the comparatively healthy tissues through the mouth, i. e., the staphylococcus, streptococcus, colon bacillus, etc. This has been abundantly proved daily in the clinic by many thousands of tests by myself and hundreds of other physicians. I was the first successfully to employ the live pathogenic microorganism as a therapeutic agent.

By taking into the mouth the unmodified antitoxins produced by the animal, we acquire passive immunity. This in the past has been done in a haphazard manner during the regular process of taking nutrition. It is the object of this paper to show how this haphazard process may be controlled in a measure, i. e., placed on a scientific basis and utilized in a very simple manner both in prophylaxis and in the cure of disease.

Experimentally it has been shown by MacClintock and others, that a guineapig will absorb *in an empty stomach, in one hour, sufficient antitoxins to protect it against five lethal doses of the corresponding toxin*. It is well known that the antitoxin of the toxin of a given pathogenic microorganism will cure more cases of the corresponding disease than a toxin or vaccine of that microorganism will cure. That is to say, the antitoxin does not have to be so individualized to act therapeutically as does the toxin. The antitoxin tends to be curative in practically every patient having the corresponding disease. It is more general in its application as a therapeutic agent than the toxin or vaccine. To be most curative, the toxin or vaccine must be taken from the individual patient's body. The range of cure of the toxin, therefore, is narrowed down to the individual from whom it was taken, unless it cures by accident.

Milk is the food that has ever been held in the highest esteem by all civilized people in all ages for the convalescent, the invalid, and the very young. For these it stands alone, the food supreme. It is seldom contraindicated and is usually borne well, by even a weakened stomach. It is the natural food the mother supplies to her offspring. But as Nature seldom does things by halves, we find that it has another important function that may be utilized,

that of transmitting the immunity of the mother to the child. Understanding in a measure how this is done, as the result of many clinical tests on human subjects, I take advantage of the principle that underlies the immunization of the young through milk, and employ it in immunizing both the mature and young (*American Practitioner*, October 1, 1913).

It has been beautifully designed by provident Nature, that the psychic affection and love manifested by the mother in nursing her baby, physically transmits through her milk to the child, substances that protect it against bacterial invasion. The human mother does not always as effectually protect her offspring against bacterial infection by the antibodies contained in her milk as do the mothers of the lower animals. The reasons for this will be pointed out later. It is then clearly the duty of the physician to enter on the scene of the life struggles of the infant and make up the deficiency, where possible, by adding those protective agencies, *the unmodified antitoxins*, to the human mother's milk in which it is deficient. One method of doing this is illustrated in the following test.

CASE I. Patient, female, nursing baby aged ten months, was presented for treatment, suffering with a severe bronchitis. There seemed also to be present an associated rhinitis, for mucus flowed quite freely from the nose. The condition had persisted for about ten days. As to treatment, the mother was instructed to collect during the morning upon small plegets of cotton as much as possible of the mucous flow from the nose and to place these in a bottle and bring them to the office. There were about twenty pieces in an ounce bottle. The bottle was filled with water and allowed to stand for twenty-four hours with occasional agitation, after which time the contents were expressed and passed through a Berkefeld filter. Two c. c. of the bacteria-free filtrate was then injected subcutaneously into the mother and a dram was given to her by mouth. The mother said she had a slight headache the next day, and was somewhat feverish. The cutaneous reaction was about the size of the palm of the hand. Forty-eight hours after the injection, however, the baby was distinctly better and progressively recovered without any other medication. This test has been repeated successfully several times.

The baby received the unmodified antitoxins to its own toxins developed in the mother and passed to the child through the mother's milk. It is well known that the very young can present but little resistance to an invasion of pathogenic microorganisms. Nature designed that the mother should acquire resistance to infections for it. In the light of autotherapy, this cure is plain when we recall a common everyday occurrence, and perceive it in the light of scientific reasoning. In the lower animal families, as in the cat and dog species, the mother constantly licks any and all of the discharges that adhere to the orifices of her young. She seems constantly to be employed in this loving, watchful care, and in the colitides, bronchitides, sore eyes, etc., that often appear in the very young, she, by this practice, quickly elaborates in her body antitoxins to the toxins of the microorganisms pathogenically active in her offspring. These antitoxins transmitted, not only cure the one infected, but immunize all of the rest against the bacterial infection in question. Following out this line of thought, we are forced to conclude that since the antitoxins of commerce are developed in animals in response to the injection of filtered toxins, if a cow, she goat, or other female lactating animal, is injected with filtered toxins from which a given patient suffers, (e. g., bronchitis,

enterocolitis, purulent infections, etc.) the injected animal should acquire antitoxins to all of the toxins present in the patient. The patient drinking the milk of such an immunized animal, would thus receive substances antidotal to all of the toxins active in his body, and this, too, without extra tax upon his strength or danger of calling forth anaphylaxis. The patient is thus cured in the quickest and easiest manner possible, for there would be no systemic disturbances, such as rise in temperature, chill, headache, fever, etc. Every one may have an animal to withstand the strain incident to the development of substances directly antagonistic to the disease or antidotal to the toxins in a given case. In fact, several of my patients have lactating goats for this purpose. They are as conscientious almost in looking after the goat's interests, in buying a daily supply of beets, cabbage, etc., as for one of the family.

All that is necessary to do, is to filter the exudate from the patient's body and inject the bacteria-free filtrate subcutaneously into the animal. In many instances we may simply give the exudate to the animal by mouth. After developing active immunity in the animal, the animal's milk is given to the patient to drink when nourishment is required. In this way the patient takes the unmodified antibodies into the empty stomach where, as previously stated, it has been found that they are readily taken up by the tissues, thus rendering the patient able to resist the action of the toxins active in his body. A healthy lactating woman would be ideal for this purpose, for then we should have the ideal substance for combating disease—the human antitoxins. But the danger of infection from a woman, who previously may have contracted some disease, might be a factor that would militate against the general adoption of this agency. Also the blood of the animal bearing the burden of the disease may be used to convey the antitoxins from the animal to the patient.

It is but a very short step from the animal mother in the care of her young, to the human mother in the care of her young. The remarkable feature is that there are few mothers who would not as a last resort cure their babies, no matter what the cost might be to preconceived ideas. One said she would gladly do it if necessary, that there was nothing about her baby that was abhorrent or revolting to her. It was part of her body; it came from her body, she nourished it with her body, why should she not save its life in the same way? The mother will rarely be called upon to lick the moist gangrene from the umbilical stump, or the palatal ulcerations of the newborn, or taste the pathogenic discharge from the colon, or the mucus from the nose, or pus from the eyes, for the physician is usually at hand to administer the more elegant preparation in the manner suggested. The life of an heir means much at times, both to the present generation and to posterity; it always means much to the mother. In such cases, no power within the scope of human endeavor would be overlooked to save the life of the offspring; anything that would do this would be frantically welcomed. To be sure, other means often cure these conditions, but the method here presented appears to be a very certain cure in many maladies, if the treatment is not too long withheld.

Enough has been said to indicate that no mother

would hesitate to take the discharges if she was convinced that it would save the life of her baby. Would the physician hesitate to give effective medication simply because it was not esthetic or palatable? The case may be urgent and time an all important factor. The physician may not have the Duncan autotherapeutic apparatus and it would take too long to obtain one. From a therapeutic point of view the method of licking the discharge is the natural method bequeathed by old Dame Nature for the protection of the life of the young by its own mother, its natural protector, its life giver, now its life saver. Oh! the beauty and completeness of Nature and her ways.

The next case was in a very poor family:

CASE II. Patient, male, nursing baby two weeks old. The delivery was normal, and every thing progressed apparently satisfactorily. The writer was called. He found an extensive excoriation of the gluteal region around the anus. Both folds were inflamed, very red, with much induration. He prescribed the usual remedies for this condition and left word to be called if there was no improvement. Two weeks later, he was again called. At this time he found the inflammation had apparently extended over the whole body in the form of small pustules. There were many on the head, back, and body. On the following day the mother had a large boil on the mons veneris, showing she, too, had a lowered index to the infecting pyogenic microorganisms. On the following day the boil was opened and a dram of pus liberated. Microscopically, this was diagnosed to be streptococcus, short chains, pneumococcus moderate, occasional bacilli.

She was given five drops of this, mixed with an ounce of water by mouth, in three divided doses, an hour apart. Within twenty-four hours a distinct change came over both mother and child. The mother had no pain and was comfortable. In forty-eight hours, the pus had dried up, leaving only some redness to mark the site of the furuncle. The baby went quickly on to recovery. Its temperature became normal, the pustules dried up, it stopped crying. Four days afterward, the child was apparently well, with smooth soft, healthy baby skin.

The unmodified antitoxins developed in the mother passing to the child through the mother's milk are the main factor upon which the resistance of the child to bacterial infection depends. This, then, is one of the reasons why a bottle fed infant is more prone to bacterial infections than a breast fed infant. The bottle fed infant acquires immunity to the microorganisms to which the healthy cow is exposed. It is possible that the cow under normal conditions does not take the microorganisms to which the infant is commonly exposed, in sufficiently large amounts from her food, as grass, hay, etc., as to cause a very great amount of acquired immunity in the human patient drinking her milk. If the cow is systematically immunized with the unmodified toxins of the pathogenic microorganisms that infect a given patient in sufficient amounts, she will produce a relatively large amount of antibodies to the injected toxins respectively, an amount sufficient to give passive immunity to the corresponding microorganisms to the human being drinking her milk. For it must be remembered that the nursing infant or invalid would take the antitoxins in the milk, on an empty stomach, in comparatively large amounts and that continuously. This method of treating patients appears to be far reaching, and its importance is hard to estimate at the present time.

For many years the writer has never given a

nursing baby a cathartic or laxative. He gives it to the mother, and the results are positive and apparently better than when given to the child. Calomel given to the mother is especially effective in moving the baby's bowels. In view of this fact, I ask myself the question: "Is it not possible that some of the intestinal disturbances in bottle fed babies are due to intestinal disturbances of the cow manifested by her loose stools, caused by the food she eats, some particular kind of plant or grass or weed, that acts on her bowels as a cathartic?" If intestinal disturbances of the bottle fed infant are due to infecting microorganisms, or to dysentery in the cow, what becomes of the highly complex formulas or percentages for infant feeding worked out for these cases? It appears that percentages of infant feeding in these specific cases should be employed simply as adjuvants. It seems that if more attention was given to the feeding of cows there would be less intestinal disturbance during the summer in bottle fed infants. It appears also that if the cows were immunized to the microorganisms that commonly infect the bottle fed infant, there would be even fewer disturbances of this kind.

It is well known that strong mental impressions of the mother often affect the nursing infant seriously, through the toxins so generated in her body, being transmitted to the child through her milk. Carpenter's *Physiology* mentions several cases where death occurred in the nursing infant by the transmission of toxic substances that were generated in the mother by a strong mental impression, to the child through the mother's milk.

CASE III. During the early spring of 1914, Professor William H. Dieffenbach, of New York, was severely poisoned with poison ivy while working on his farm. His ears swelled to three times their natural size. His face and arms were covered with blisters. He became so acutely sensitive to the poison that he would have another attack by even riding through the country in his automobile. He has had six distinct attacks during the spring and summer. In fact he could not go into the country without having an attack. He tried over thirty different remedies without effecting a cure. Having read a paper by me on the subject of unmodified antitoxin therapy or autolactotherapy, he decided to test it on himself as a patient. Accordingly he had his hired man give one of his cows the leaves of the poison ivy for several days. He then drank about a quart of this cow's milk. In a few hours, the stinging, biting sensation became less, and the painful itching gradually subsided. He improved and made an uneventful recovery. He has been up to the farm several times since with no sign of recurrence. The cow apparently thrived on the leaves.

In view of the extreme sensitiveness or low resistance Professor Dieffenbach manifested to the toxic principal of poison ivy, and the quick response he made to the antisubstances in the milk, I ask myself the question: Would several patients whom I have formerly treated with the filtered toxins from their own infecting microorganisms, and who had extremely low resistance to them, have been benefited by the antitoxins of these toxins that were generated in an animal and transmitted to the patient through the milk? The affirmative answer, it appears, we are bound to give, opens up therapeutic possibilities that are endless. The writer has never seen any appreciable systemic disturbance following the use of unmodified antitoxins.

CASE IV. Patient, female, aged thirty-nine years, had been suffering with a cough for five years, following pneu-

monia. Eighteen months ago it was diagnosed as pulmonary tuberculosis. When first seen by the writer during the early part of July, 1914, she was in a rapidly advancing stage of the disease. The upper lobe of both lungs and the lower lobe of the right lung were involved. She coughed the greater part of the night and raised much mucus. She had night sweats and lost considerable weight, her present weight being eighty-three pounds. Evening temperature 100° F. plus, with morning remissions. It was decided to treat the patient by autolactotherapy. Accordingly on Wednesday, June 29, 1914, a healthy lactating goat was injected with one c. c. of the filtrate of her sputum prepared in the usual manner, and the following day she began to take the animal's morning milk. On the following Sunday night, to use her own expression, "I slept like a baby the whole night through. I did not cough once during the night and had no night sweats." This patient is improving in every way. It is too early to offer a favorable prognosis, but it is certain that here is a case of advanced pulmonary tuberculosis that is apparently improving by a new method of treatment.

It seems as if large firms making a business of supplying milk for infant feeding, could add immunizing qualities to the milk without in any way interfering with the percentages of the composition of the milk. They could possibly supply the antitoxins in the milk that would tend to combat or antidote the pathogenic microorganisms or the etiological factors of some forms of dysenteries, diarrheas, bronchitides, etc. They could place a certain number of cows aside to produce milk that would combat infections caused by the staphylococcus, streptococcus, colon bacillus, etc., and use this milk for infant feeding, both as a prophylactic and therapeutic agent. At my suggestion, one large milk laboratory is making tests along this line this summer.

Let us assume for the sake of discussion that an epidemic of typhoid fever breaks out in a community. If this treatment is effective in typhoid fever, the authorities will see that the community is immediately supplied with antityphoid fever milk, or milk from cows that have been immunized with the toxins of typhoid fever. The patient will purchase, or be supplied by the department of health with antityphoid fever milk. Thus the whole community will be quickly and safely immunized to typhoid fever by employing the most common necessary article of food, and that without any danger. Carrying this conception still farther, we might possibly anticipate or antedate an outbreak of an epidemic by supplying antidotal milk before the time statistics indicate that it is liable to occur. We now largely control the conditions under which the supply of milk is obtained and its passage to the consumer.

It would take a somewhat more rigorous regulation of milk, to be sure, but this is not a problem that could not be worked out scientifically and comparatively economically. This is the age of preventive medicine.

The physician, knowing that a woman who is about to be confined will be exposed to infection, could, after taking the usual aseptic precautions, place her on antipyrogenic and antitetanic milk, both before and after parturition. By so doing he could be reasonably certain that infection would not take place, even though his aseptic surgical technic was faulty. He would be even more certain that infection would not take place if he employed autolactotherapy of labor at the same time (Autotherapy in

Gynecology and Obstetrics, *Medical Times*, May, 1914).

The following case illustrates my combined unmodified toxin and unmodified antitoxin method of treatment as a prophylactic to purulent infection. Let us assume, for the sake of bringing out the various phases of the discussion clearly, that an important man of the nation sustains a compound fracture of both bones of the leg with extensive lacerations. His leg and life must be saved if possible.

The writer believes that the following treatment would prevent infection almost every time. Either one of these alone would probably be effective, if the treatment is properly carried out: Beginning on the day of the accident, the patient is instructed to lick the wound thoroughly once daily or oftener. When this is done, the wound will heal without the evidences of infection. However, the patient may not be able to get the wound to his mouth, or he may object to this method of treatment on the ground that it is not appetizing or esthetic. Then in treating the patient autotherapeutically, the physician has the choice of two other methods of treatment. He may then either give the patient one half of the discharge from the wound daily by mouth without his knowledge, at both morning and evening dressings, or the discharge from the wound may be passed through a Berkefeld filter and the bacteria free filtrate injected hypodermically in proper doses daily, according to the technic given in my previous papers on the subject (*Practitioner*, April, 1914).

One half of the discharge is employed to immunize a goat or other lactating animal. On the day following the injection of the animal, the patient is given the goat's milk to drink when nourishment is required. By employing the discharge from both morning and evening dressings, we should be certain of obtaining the microorganisms as early as possible. The patient treated by this method would be acquiring active immunity to his infecting microorganisms or autoimmunity, while the animal would be acquiring immunity to the microorganisms pathogenically active in the patient at the same time. The patient would thus receive nourishment, and at the same time be taking antitoxins specific to all of his infecting microorganisms.

If the wound is clean, this treatment will do no harm.

The regular preparation of a patient for an operation usually includes a diet of milk, both before and after the operation. There appears to be no reason why this milk should not be antipyrogenic milk, or milk containing substances antidotal to pus formation, or antagonistic to pyogenic infection that at times follow an operation.

We may be able to abort some operations by having the patient drink antipyrogenic milk, or milk from cows that have been immunized to the common pus producing microorganisms. This is an exceedingly quick method of immunization. It lends itself readily to many conditions. In a few hours we may be immune to one of many infections. It is the least harmful method of immunization. In fact the patient need not know that he is taking a remedy

or is being immunized. It taxes the system less than any other method, making it a boon to the very weak and enfeebled and the very young. It interferes with no established method of treatment, but offers an additional element of safety when the treatment is properly carried out; there is no anaphylaxis, no serum sickness, no tax on the heart. The advantages of my unmodified antitoxin method of treatment are many and will readily suggest themselves to the reader familiar with the subject of immunity.

It is well known that the very young have little power of reaction to toxins of pathogenic microorganisms, and for this reason we should not attempt to produce active immunity by giving children medication that depends on reaction for a cure, but we should immunize the mother, if possible, when it becomes necessary to immunize the nursing baby, for she is usually stronger and better able to withstand the strain incident to the development of antibodies that are the result of the reaction. When we immunize the mother to the microorganisms pathogenically active in the child, there are developed in the mother *antibodies specific to all of the microorganisms that infect the child, both causative and complicating*, hence the cure is quicker and more complete than it would be, had the mother or child been immunized in any other way. A diagnosis is often unnecessary as far as a cure is concerned when this method of treatment is employed. It is a simple office or bedside procedure.

The mother who does not nurse her baby robs it of the protective agencies against infection that belong to it by inheritance, that are bequeathed to it by Nature. Heretofore we have been immunizing against the more or less rare infections and have practically overlooked or neglected to immunize as a prophylactic against the most common pathogenic microorganisms with which we have to deal, i. e., the staphylococcus and streptococcus. There appears to be no good reason why we should not immunize against these as well, and many good sound reasons why we should immunize our patients against these at stated intervals. These cocci are the etiological factors or predisposing cause of more diseases than all of the other pathogenic microorganisms put together. The advantages of immunizing against these microorganisms are apparent when we understand that "they are found," as Mittman says, "in seventy cutaneous diseases." They also cause or complicate nearly every form of respiratory infection, as bronchitis, tonsillitis, sinus involvement, rhinitis, pharyngitis, laryngitis, pneumonia, pulmonary tuberculosis, also boils, abscesses, furuncles, rheumatism, appendicitis, cholecystitis, endometritis, salpingitis, etc., and there are many other diseases caused by them. There are many other diseases in which these microorganisms act as complicating factors. Being immune to these cocci, it is probable that these infections would not be as severe as they would be had the patient not been immunized. If we include a very few other pathogenic microorganisms, against which we would periodically immunize our patients by giving them the unmodified antitoxins contained in milk from an animal immunized to these microorganisms, we should probably be able to abort or keep our patients

free from a vast number of the most common infections to which human flesh is heir and prolong human life. Some physicians may prefer actively to immunize their patients to these cocci. It then remains a matter of choice, but the writer prefers the passive immunization in the manner suggested.

During the summer months when colitides, dysenteries, etc., are common in nursing infants, if we immunized the mother as a prophylactic to infections common in the nursing infant, as the staphylococcic, streptococcic, colon bacillary, etc., it is probable that a great many summer complaints common in the young would not occur and the mother herself would be immune to many of the diseases mentioned above, and therefore would give a better quality and quantity of milk. The question arises: What is the distinctive field of medicine autolactotherapy and autotherapy are destined to occupy?

In all infectious diseases the improved condition of the body depends on the antitoxins. The antitoxin is developed in the living animal tissues in response to the action of a toxin on these tissues. The antitoxin is the result of the reaction of the tissues to these actions of the toxin. Not every person suffering with a toxic disease dies. The antitoxin is the substance the tissues produce to neutralize or antidote the action of toxins, and hence to cure the disease. The antitoxin that is developed in an animal immunized to the toxin that is pathogenically active in a given patient's body, is effective, if given to that patient. If there is more than one active toxin in a patient at the same time, immunity acquired by its use is of shorter duration.

The antitoxin that is previously produced in an animal, is quicker in its action than the antitoxin the patient would be compelled to produce by the action of his toxins on his body tissues. But the immunity acquired by the use of the heterogenous antitoxin is of shorter duration.

There is little or no systemic disturbance in the patient after taking the antitoxins contained in the milk of an immune animal. There is always a local reaction after giving my unmodified toxin complex hypodermically, and if the dose is sufficiently large, a systemic reaction also follows its use. The range of effective doses of the unmodified toxin complex is so very great, however, that if it is given with a skilled appreciation of the nature of the infection and the response of the individual, the dose can usually be fairly accurately gauged and readily modified by experiment, so that there will be no appreciable systemic disturbance of any kind. There must always be some reaction, else no antitoxins will be developed. This reaction, however slight, might be a factor that would militate against its use in patients of very low vitality or reactive power. The antitoxin, therefore, may be given in preference to the toxin to those patients who have little power of reaction, namely, the very young and the very old, and to patients with little vitality, or slight reactive forces. This latter class of patients are often found among those suffering with chronic diseases. By this it is not to be inferred that the unmodified antitoxin therapy is not applicable to acute infectious diseases, for it appears that it is. The acute onset of some infectious diseases is so rapid, however, that we may not always be able to employ

autolactotherapy as soon as desired, unless a lactating animal is always at hand ready for use. For this reason I believe it will be used more frequently in chronic diseases.

On the other hand, autotherapy is especially applicable in all acute localized infectious diseases, curing them or aborting them quickly, often within twenty-four hours, if given sufficiently early. It is often equally effective in chronic diseases. If acute diseases are aborted or cured, there will be no chronic diseases for autolactotherapy to cure. I believe that a judicious combination of both autotherapy and autolactotherapy constitutes the most rational treatment of localized and possibly non-localized infectious diseases.

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233 LEXINGTON AVENUE.

THE TONSIL FROM A SURGICAL POINT OF VIEW.*

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The study of the tonsil from a surgical point of view, and analysis of the surgical *modus operandi* as applied at the present day, should inspire both pity and sympathy. There are quite a number of reasons.

The tonsils, as we know, are as old as the human race; still, up to the present day, authorities differ as to their function. Some authorities hold upon scientific data that the tonsil has an internal secretion which is necessary to human welfare; also, by being a lymphoid tissue, it has no doubt the same function in the body as other lymphoid structures; therefore, they assert that a tonsil necessitating a surgical procedure ought to be treated conservatively, i. e., with a tonsillotomy instead of with a tonsillectomy; except in cases where there are special indications for its complete extirpation. At the same time, there are other authorities who hold from actual experience that no bad effects ever followed a complete removal of the tonsils. According to their view, the tonsils ought to be treated radically. It is evident, therefore, that until this variance of opinions can be settled upon a scientific basis and such settlement universally accepted, the tonsils will continue to be mistreated, for every sur-

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geon at present operates according to his own view of the subject, and the chances are that he may not always be right.

The anatomical site of the tonsil, which is quite easy of access, tends to its being mistreated; for it tempts every practitioner to undertake the responsibility of operating. It looks like an easy procedure. The physician looks into the mouth of the little patient and notices two hypertrophied lymphoid structures protruding into the middle line and giving almost enough indications for its removal; then he looks at the instrument, which has a rounded cutting edge and which seems to fit the tonsil exactly in its embrace; all he needs to do is to ask the little patient to open his mouth, apply the instrument, and presto! the tonsil is on the table ready for inspection, a testimony to the successful work accomplished. On the other hand, a simple catarrhal appendix operation, which carries much less responsibility and involves less danger (if done under aseptic precautions), would not be undertaken at random; simply because such operation would require separation of a few muscular layers in order to open the abdominal cavity; and when the abdominal cavity is opened, search would have to be made for the appendix; and the possibility of not finding it as expected, keeps the appendix operation the property of the surgeon only. Secondly, the tonsils are, I might say, the sole organs in the human body to lend themselves to so many diversified ways, methods, and devices for their removal. They are also quite unique in the field of operative surgery, because, in spite of the fact that the tonsil is but a small lymph gland, no prescribed rules or regulations are laid down for its removal, but, on the other hand, it is subjected to almost any method the surgeon may think of. Beginning with an ordinary scalpel to dissect it out, with a scissors to cut it out, with a punch forceps to punch it out, with a cautery to burn it out, with a tonsillotome to decapitate it, with the finger to excavate it, and with the snare to enucleate it, the first few of which are not only unscientific, but actually endanger the life of the patient, E. A. Crockett reported in the *Boston Medical and Surgical Journal* for March 23, 1911, that "ligature of the common carotid was required after a scissors enucleation, and two deaths in two minutes followed a sharp dissection with the scalpel," truly an astounding calamity, absolutely inexcusable.

I may say that the surgeon using the knife or the scissors handles it possibly with artistic precision and surgical deftness. One fact, however, is evident, that as long as we have so many methods each of them more or less imperfect, we may conclude that tonsil surgery is yet in the experimental stage.

In selecting a place for a tonsil operation, the physician is usually indifferent; but the selection depends greatly upon the intelligence and the environment of the patient. If the patient is intelligent and at the same time able to pay for the operating room as demanded by the institution, he will insist upon having the operation performed in a hospital; if the patient is intelligent, but cannot meet the payment, the dispensary is chosen; and where the patient is able to pay, but the intelligence is lacking, and that happens sometimes, he will insist on having the operation done at home; but one

who knows the dangers involved in such an operation would no doubt insist upon having the operation in the hospital only; for outside of the dangerous effects that may occur from the anesthesia, from the unsanitary conditions of the room, from the poor light, and the difficulty of sterilizing the instruments and wipes, the danger incurred by hemorrhage is vital enough, I think, to upset our heroism and make us abide by the hospital equipment; for the tonsil is quite rich in its blood supply, as it receives three large arteries, the tonsillar, a branch of the external maxillary, the ascending pharyngeal, a branch of the external carotid and the descending palatine, a branch of the internal maxillary, and a few smaller branches, as the dorsalis linguæ from the lingual, and the tonsillar from the facial.

Hospitals having an outdoor department in ear, nose, and throat work, do a great deal surgically upon the tonsils. The method they mostly employ is known as the Sluder operation; the imitation, however, is so poor, that with the reader's kind permission and by a slight rearrangement of the spelling it would appropriately read the slaughter operation. See how the child is trembling as soon as the verdict, to operate, is pronounced; then on bringing him to the executioner's chair, how the trembling child is forcibly held by a nurse if she is strong enough, or by an orderly if her strength should fail; the little patient trembles no longer, but tries his utmost to obey the law of self preservation, but is conquered by the law of the survival of the fittest, or call it strongest. The instrument is applied, the tonsil is chopped off; the strength of the law is applied to the other tonsil with much more vigor, until a complete victory is gained. The other tonsil lies on the table, much smaller in size, owing to the stronger resistance of the frightened child, who is dismissed with anger because he dared to resist. Another patient takes his place and the performance continues. Such methods of removing tonsils are cruel and inhuman and ought to be abandoned at once.

It will be of interest to give you the results obtained from such surgical methods. I will not take advantage of the reader's kind indulgence to review the literature on the subject, but I will mention a recent article by Dr. Gerhard Hutchinson Cocks in the *NEW YORK MEDICAL JOURNAL* for January 17th. Doctor Cocks was asked by the New York City Visiting Committee of the State Charities Association to examine a number of public school children whose tonsils were operated upon during the past year. The children examined by him were treated or operated on in one or another of about thirty of the local hospitals and dispensaries, and here is his summary:

Of 107 children examined, eighteen, or sixteen per cent., failed to have the operation performed.

Of eighty-nine cases operated in, nine, or approximately ten per cent., received mutilations of the soft parts adjoining the tonsils.

Of twenty-one cases operated in without general anesthesia, nineteen, or over ninety per cent., were badly done.

Of fifty-two cases operated in with general anesthesia, twelve, or twenty-five per cent., were badly done.

In connection with what was said above, I think it would be in place to call your attention to another

aspect of a tonsil operation. A successful operation on a tonsil does not consist merely in the removal of the tonsil together with the capsule; but the real success depends on the condition in which the neighboring structures were left. It might be of importance, therefore, to review a little the anatomy of those parts that come in close contact with the tonsil.

The tonsil is imbedded in a tonsillar recess between the anterior and posterior pillars, which are muscular structures and have therefore a muscular function to perform. The anterior pillar is the palatoglossus, the action of which is to draw downward the sides of the soft palate, to draw upward and downward the sides of the tongue, the combination of these actions steadying the soft palate in talking and swallowing. The posterior pillar is formed mostly by the palatopharyngeus, of which the greater part is inserted into the posterior border of the thyroid cartilage near the base of the superior cornu, while the remaining fibres pass to the fibrous layer of the pharynx. Its action is to localize properly the larynx in singing. It also depresses the soft palate, elevates the pharynx, and approximates the posterior pillars of the fauces, thereby facilitating enunciation of speech. The soft palate is a movable organ, composed largely of muscles which have their attachment in other movable organs of voice and speech, particularly the larynx and tongue. The function of the palate is valvular, to close the air passage from the pharynx to the nostrils during certain of the explosive sounds of speech.

Let us turn our attention for a minute to the mechanism of speech, which is due "to the modification produced in the fundamental laryngeal notes by the resonating cavities above the vocal cords. By modifying the size and shape of the pharynx, mouth, and nose we get the vowel sounds; the consonants are produced by interruptions, more or less complete, of the outflowing air in different situations. The soft palate is raised at each word. When the larynx is passive, and the resonating cavities alone come into play, then we get whispering."

Considering the neighboring structures found around the tonsil and seeing the role they play in the mechanism of speech, it can be seen clearly that a successful operation on the tonsil consists not only in enucleating the tonsil, but also in leaving the other structures in their natural position.

To illustrate the importance of not injuring these structures in a tonsil operation, I will quote from a paper read by Dr. Bryant De Forest Sheedy, before the Medical Association of the Greater City of New York on February 17, 1913. He states: "In a series of fifty patients, ages fourteen to forty years, examined two to three months after operation in which some forms of surgical procedure were employed, deformed throats in more than eighty per cent. were found and not more than twenty per cent. of the patients had throats approaching the normal. In ten patients with normal appearing throats, the speaking and singing voice was perfectly natural from date of removal, and they had no trouble of any kind following the operation. Of forty remaining patients, seventeen complained of speech and voice defects two months after operation, two

practically lost the singing voice, while thirteen said they could speak better and the throats felt better after operation than before. About five per cent. complained of difficulty in using certain words and had nasal intonation." He continues: "The deformities after enucleation seem to follow one of two or three varieties. In the first variety the pillars on both sides seem to have disappeared, leaving a flattened surface where the tonsil formerly was, and a much narrowed opening into the nasopharynx. In the second variety the pillars on both sides seem to have grown together, leaving but one pillar where there were formerly two, with the uvula pulled to one side or the other. In the third variety the anterior pillar has wholly disappeared, and a large amount of cicatricial tissue is deposited on the surface of the posterior pillar, altering its shape and function. In some of these cases the soft palate and uvula were pulled down to a very much lower position than normal, thus accounting for the nasal intonation complained of by some of the patients. In all the patients whose singing voice was affected, the posterior pillar was very much out of the normal through the contraction of cicatricial tissue."

From what was said above we may conclude that the tonsil has not much participated in the progress of surgery during the twentieth century. Whether it is a disease carrier and is sacrificed to human welfare, or whether it is a functioning organ and is enucleated as a martyr to our ignorance, certain it is that our handling of the tonsils is reckless, unscientific, and inhuman. Upon examining the many evil effects which result from our operations at present, we are tempted to ask ourselves if the game is really worth the candle. True, the tonsil does occupy an open position, easy of access, true the operation is still further simplified by the instruments now at our command, but does all that justify our crude and inhuman attitude toward our patients, even to the extent of sparing an anesthetic? It is time, therefore, for the medical profession to include the tonsil operation in the field of major surgery; by doing so we may hope that the tonsil operation will be considered more seriously, and invite all due caution; and, in its turn, this may eventually lead to universal agreement as to the function of the tonsil and may also bring us to some excellent *modus operandi*.

78 EAST FOURTH STREET.

CONGENITAL ABSENCE OF UTERUS AND ANNEXA.

By B. K. CHOWDRY, L. M. S. (CALCUTTA),
Bulandshair, U. P., India.

CASE. A patient named Dhapo, Hindu woman, Jat by caste, was admitted to Lady Porter's Hospital for treatment of amenorrhea since puberty, and of sterility. She was married at the age of twelve years, eleven years previously.

Family history. Parents not living; she had one brother (dead), two sisters, both married; one had children, the other none, although married for twenty years. **Personal history.** The patient had a peculiar expression, as if something was wanting in her appearance. She had not a feminine face, but rather masculine features, although there was no down on chin or lip. Hair short; voice deep; breasts of middle size with small areolæ. Her measure-

ments were as follows: Height 62 inches; weight, 104 pounds; measurements of shoulders, 35 inches; bust, 29 inches; waist, 26 inches; hips, 32 inches. There was a defect in the bony structure of her spinal column, viz., scoliosis at the sacral region, deviating toward the right, giving rise to a cyphotic pelvis; right hip higher than the left.

The woman stated that her chief reasons for coming to the hospital were that she had never menstruated since puberty and had borne no children; that there was excessive secretion during coitus; and that her genital canal seemed very short, for which she needed some operation done. Internal examination, both per vaginam and rectum was then made and to our astonishment the following very interesting pathological conditions were found to exist: External genitals, properly developed; vagina very short, vaginal canal much shorter than in the ordinary case of married women. The average measurements of the vaginal canal were anteriorly about two and one half inches and posteriorly about three and one half inches, but in the present instance it hardly admitted the tip of the index finger, and with much effort an inch of the index finger was admitted.

On carrying the finger upward, one could feel a gap between the bladder anteriorly and the rectum posteriorly, also reflections of the pelvic peritoneum, the vesicovaginal in front and that of the broad ligaments behind.

No cervix or fundus uteri could be felt, nor Fallopian tubes, nor ovaries. A small rudimentary body could be seen protruding at the entrance of the vaginal orifice, resembling in shape a parrot's beak the size of the tip of the nose, with a dent below the tip. Through the rectum no uterus could be felt, nor ovaries, nor tubes.

In my experience, though I have examined nearly 25,000 women, I have never come across any woman with such a malformation; other fellow professional workers may have been more fortunate in their longer experience. But I venture to say that it is a case of extremely rare occurrence.

There are, as we know, generally two processes in the progression of an organ to its mature form, viz., development and growth. There are, therefore, two causes which together operate in producing malformations, arrested development and arrested growth. In the present instance, the abnormalities are likely due to, 1, faulty development in the fetal stage during the differentiation of the sexes; and to, 2, faulty growth after birth. The rudimentary body, which was seen at the entrance of the vaginal orifice, is, very likely, the remainder of the Müllerian duct. To the practical medical man, malformations seem of little value, because he has no power of modifying the result. To a scientific man, they are of the greatest interest, furnishing him with permanent impressions of the transitional stages of development. They are developments caught in the act and fixed permanently for after-investigation. In this case the uterus is wanting and with it its appendages, the Fallopian tubes, and the ovaries.

The patient is now under experimental treatment, i. e., by thyroid, thymus, and ovarian extracts, and daily dilatations and plugging. Although no generative organs can be substituted nor their absence compensated for, still I should be much obliged to any reader of this article, or any more fortunate practitioner, who would come forward and suggest something better in the way of making improvement in this patient, if he has experienced better results in cases similar to the present one. As stated, the patient is experimentally under thyroid, thymus, and ovarian extracts, as this is the best chance to test the intrinsic qualities of these drugs, as they are said to possess the power

of developing and improving the arrested growth of defective and malformed bodies, and I cannot imagine a better case in which to test their efficacy.

LADY PORTER'S HOSPITAL.

A SECOND INFECTION WITH SPIROCHÆTA PALLIDA.

By B. C. CORBUS, M. D.,

Chicago,

Instructor in Genitourinary Diseases, Rush Medical College.

The following case history is submitted for a double purpose: 1. As a proof of the curability of syphilis brought about as a result of combined intensive treatment (salvarsan and mercury); 2, from a scientific standpoint, it shows that once the disease is cured, it can be contracted again.

CASE. Man, aged twenty-five years, referred by Dr. William E. Quine, was infected sometime in the fall of 1910; had secondaries December 15, 1910. Presented himself for examination and treatment January 12, 1911. Had been taking tablets, protoiodide of mercury, exact dose not known.

Well developed muscular individual, general adenopathy, multiple mucous patches in mouth, slight loss in weight.

Salvarsan injections.

- | | | |
|---|-------------------|------------------------------|
| 1 | January 17, 1911 | 0.6 gm. intramuscularly |
| 2 | February 15, 1911 | 9.6 gm. intramuscularly |
| 3 | July 1, 1911 | 0.6 gm. intravenously |
| 4 | November 17, 1911 | 0.6 gm. intravenously |

Wassermann examinations.

- | | | |
|---|-------------------|------------------------|
| 1 | January 13, 1911 | positive |
| 2 | May 22, 1911 | slightly positive |
| 3 | November 6, 1911 | negative |
| 4 | February 8, 1912 | negative |
| 5 | February 4, 1913 | negative |
| 6 | December 30, 1913 | negative |

Between injections, patient used continuous, vigorous mercury rubbings.

It will be seen that the last negative Wassermann was one year and eleven months from the last injection of salvarsan, the patient having maintained a negative blood test for one and one half years.

SECOND INFECTION.

Exposed February 15, 1914; sore appeared in about one month; physician in neighboring city prescribed wash and dusting powder; six or seven weeks later, plaques appeared on lip, which were the cause of patient returning to my office. He believed he had a recurrence; a faint macular rash was visible and the inguinal glands were slightly enlarged. Wassermann examination, May 22, 1914, was positive.

Spinal fluid examination, made three weeks after treatment was begun for second infection, showed a negative Wassermann, negative Nonne, lymphocytes 2 per mm. If the infection was latent here, three weeks' treatment would not have dislodged the organisms.

32 NORTH STATE STREET.

Public Health Work as a Career.—Dr. J. A. Ferrell, of Washington, D. C. (*Journal A. M. A.*, August 22, 1914), points out the advantages of public health work as a career for the young physician. There are certain important questions to be answered. First, what are the immediate chances of employment? It may be stated with assurance that there are already more paid positions for health officers than can be satisfactorily filled and the demand is increasing. It comes from Federal, State, and city departments; from the schools and more recently from the rural districts.

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXLIX.—How do you treat the opium habit, viewed as a neurosis? (Closed.)

CL.—What is your experience with belladonna or atropine in the treatment of alcoholism? (Answers due not later than September 15th.)

CLI.—How do you treat whooping cough? (Answers due not later than October 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best essay submitted in answer to Question CXLVIII was awarded to Dr. Harold S. Gloser, of Wheeling, W. Va., whose article appears below.

PRIZE QUESTION NO. CXLVIII.

THE TREATMENT OF SUNSTROKE AND HEAT EXHAUSTION.

By HAROLD S. GLOSTER, M. D.,
Wheeling, W. Va.

It is customary to divide the cases of illness due to excessive exposure to high temperature into two classes: One is distinguished as sunstroke or thermic or heat fever, and the other as heat exhaustion.

Prophylaxis is of the utmost importance in hot, sultry weather during which persons must work in the sun or in poorly ventilated and highly heated closed places. Workmen especially should be warned to take extra precautions during hot weather, to work and sleep in as well ventilated rooms as possible and, if necessary, to secure artificial ventilation. Alcohol and heavy eating should be avoided, light weight clothing and underwear should be worn. The direct rays of the sun should be avoided as much as possible, and the skin should be watched and kept in such a condition that sweating will take place freely. Shelter should be sought at once if sweating ceases. Cool wet cloths or green leaves should be worn inside the hat and, if necessary, the hours of labor should be shortened.

If the patient is in the sun, in cases of sunstroke, he must be removed at once to a shady place and, as soon as possible, to a cool and well ventilated room. His clothing should be removed and his temperature taken and he should then be placed in a tub of water at 80° F., to which ice may be added gradually, and at the same time ice should be applied to the head. While the patient is in the bath, he should be rubbed vigorously in order to stimulate

the peripheral circulation and bring the hot blood to the surface to be cooled. The rectal temperature should be taken every twenty minutes, and as soon as it has fallen to 101.6° F., the patient should be removed from the bath, for if it is continued the temperature may fall to subnormal and the patient pass into a state of collapse. Should the temperature become elevated after an hour or two, the bath may again be resumed. If there is any evidence of the internal viscera becoming congested and embarrassing the heart, venesection may be performed and a pint of blood removed. If it is thought advisable, the loss of blood may be restored by the subcutaneous injection of physiological salt solution. If a tendency to edema and congestion of the lungs occurs, a hypodermic injection of atropine sulphate, grain 1/100, should be given, not to be repeated unless very urgent symptoms call for it. If after the temperature begins to fall, the pulse shows signs of weakening, four drams of whiskey may be given by mouth. If the bath is impracticable, the patient should be placed on a bed and wrapped in sheets wrung out of cold water and rubbed with ice. Under no conditions give antipyretics, as the system is already weak and the fagged out cardiac system may collapse.

After apparent recovery, keep the patient in bed and quiet until the temperature and pulse have been normal for at least forty-eight hours. He should be given light liquid diet and at first hot. After recovery he should be given some good tonic and instructed in the laws of prophylaxis. To children and elderly people, give a cold sponge bath and stimulation in the form of whiskey.

To combat the convulsions which sometimes occur after sunstroke, we can use morphine sulphate, grain one quarter, with atropine, grain 1/100, but probably the best is a rectal enema of sodium bromide, grains thirty, chloral hydrate, grains ten, repeated in two hours if necessary.

As regards heat exhaustion, the treatment of this condition embraces avoidance of the excessive heated environment of the patient and removal to a cool place. He should be placed in bed in a well ventilated, cool room. The clothing should be removed in order not to interfere with the circulation or respiration. If the patient is unconscious, inhalations of ammonia or amyl nitrite should be given. Cold applications should be made to the head and mustard plasters to the nape of the neck and spine. If the respiration is very much impaired give atropine, grain 1/100. If the pulse is weak give strychnine nitrate, grain one thirtieth.

As soon as the patient is able to swallow, he should be given four drams of whiskey, unless he was already under the influence of it when the attack came on. Stimulating enemata may be given to move the lower bowels. The condition of the bladder should be investigated, and if the urine is scanty, large draughts of water should be given. If the circulation improves and the body becomes warm, consciousness is regained, and nourishment in liquid form should be given, preferably hot. Strychnine and digitalis should be given for a day or two to combat the nerve and muscle weakness.

(To be continued.)

Therapeutic Notes.

Mercuriopotassic Iodide in the Treatment of Atrophic Rhinitis.—Douglas Macfarlan, in the *Journal of Ophthalmology, Otology, and Laryngology* for October, 1913, reports good results in atrophic rhinitis from the use of a spray of the double iodide of potassium and mercury:

℞ Hydrargyri iodidi rubri, ...gr. xv (1 gram);
Potassii iodidi, ...gr. xxxiii (2.2 grams);
Aque destillatæ, ...3xxvi (100 c. c.).
M. Sig.: Poison. Use only in spray. Do not swallow.

This solution acts both as a germicide—the double salt being even twice as effective in this respect as the red iodide alone—and as a decided stimulant to the mucous membrane. Applied with a swab the solution causes profuse rhinorrhea and lacrymation, lasting often an hour or two, together with a moderate degree of burning and tingling. Though antiseptic even in one in 80,000 dilution, the double salt in the strength used by the author is neither escharotic nor extremely toxic. If more than five to seven drops of the solution is taken internally, emesis is produced, eliminating the poison. As regards atrophic rhinitis, the author found that whereas it previously took two or three months to control an old case of this disease, results were obtained in one half the time, and were more satisfactory, when the spray of double iodide was used. A number of cases were relieved in a month's time, after treatment two or three times a week. The ozena cleared up, and the pus and crusts disappeared. Continued care and cleanliness on the part of the patient are still necessary if recurrence is to be obviated. More or less tolerance to the irritant property of the solution develops during the treatment; yet it is seldom necessary to increase the strength of the solution. A weaker solution than that referred to proves effective as a germicide in cases with mucous membranes less insensible than they are in atrophies.

Treatment of Vincent's Angina with Salvarsan.—C. Achard and E. Feuillie, in *Bulletins et mémoires de la société médicale des hôpitaux de Paris*, for July 24, 1913, report a case of Vincent's angina in a young man, in which salvarsan was applied locally on the same day that the condition was first noted, the early symptoms being dysphagia, glandular enlargement beneath the angle of the jaw, and thirst. Examination of the grayish exudate discovered in an ulcer on the left tonsil, revealed numerous spirilla and fusiform bacilli, and a few large diplococci. Salvarsan was applied by means of tampons impregnated with glycerin and dipped in the powdered drug. Only a few hours later deglutition could be effected without discomfort. Next day the lymphatics were no longer tender. A second application of the drug was made, after which the patient failed to return, considering himself cured. Six weeks later, however, recurrence took place. A single application of salvarsan was made, and the patient did not return for a week. At this time, although no more grayish exudate was to be seen, examination of mucus from the tonsillar surface still showed fusiform bacilli and fine spirilla in small numbers. Complete recovery, from the patient's standpoint, neverthe-

less followed. The case illustrates, 1, the remarkable rapidity of action of the drug in cases taken early, and, 2, the fact that even in recovered cases the microorganisms may be "carried" for an indeterminate period. The local applications of salvarsan should consequently be continued for a time after apparent cure, in order to complete the destruction of the germs and prevent recurrence or infection of other persons. Netter, in the discussion, stated that applications of one in 30 solution of salvarsan in glycerin had appeared to him preferable to the use of the powdered drug.

Treatment of Acute Mercurial Poisoning.—Castaigne, in *Quinzaine thérapeutique* for August 10, 1913, refers to a case of hepatic cirrhosis with ascites in which, anuria supervening after the ingestion of four grams of corrosive sublimate (followed by vomiting), an attempt was made to procure elimination of the poison by evacuating the ascitic fluid. This was effected daily for eighteen successive days, the fluid withdrawn being each time replaced by an equal quantity of normal saline solution. On the nineteenth day, anuria having persisted all this time, the urinary flow became re-established, and the patient soon recovered. Two other patients poisoned with bichloride were subjected to nephrotomy and renal decapsulation. One recovered, after three days of anuria, but in the other the anuria persisted, causing death. While no conclusion can be reached from these cases, recent work has suggested that operation will frequently prove useless because it does not relieve organs other than the kidneys that are impaired by the poison. If operation is rejected, detoxication can be secured, or at least attempted, by repeated bloodletting to the amount of 100 to 150 grams (3 to 5 ounces), followed by intravenous injections of normal glucose solution, which will tend to stimulate the hepatic and renal functions. Renal organotherapy, in the form of injections of goat's blood serum obtained from the renal veins, also affords a possibility of favorably influencing elimination by the kidneys.

Treatment of Urticaria.—W. T. Coughlin, in the *Interstate Medical Journal* for September, 1913, states that to relieve the itching in urticaria, both lotions and powders may be used, either singly or together. The best lotion is either a solution of phenol in hot water to which glycerin has been added:

℞ Phenolis, ...gr. xxiii (1.5 gram);
Glycerini, ...3i (30 grams);
Aque ferventis, ...3iv (120 grams).
M. et ft. lotio.

or one of hot water containing thirty-three per cent. of vinegar. These are to be mopped on, and while they are drying the surface is powdered either with fresh starch, bismuth subnitrate, or zinc oxide containing two per cent. of menthol or camphor. Internally valerian may be given. Bromides and chloral hydrate may make matters worse, their use often giving rise to urticaria. Digestive disturbances are often the cause of the condition; if this is the case in the patient under observation, a dose of castor oil followed by a bland diet will prove beneficial.

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THE STATUS OF ABDERHALDEN'S REACTION.

When Abderhalden first published his experimental observations which led him later to the formulation of a comprehensive doctrine on the existence, mode of development, and role of the protective ferments, his statements were received with much acclaim. Although the original experiments upon which Abderhalden based his doctrine, when closely analyzed, were none too conclusive, and not so numerous as to compel acceptance, the fame of their sponsor was such that few had the temerity to express doubt as to the correctness of their interpretation. But in the course of time the hesitancy on the part of others to criticise adversely the statements of one of the greatest of modern biological chemists was slowly overcome, and in the last year scarcely a fortnight has passed without the publication of careful observations which tend to throw more or less doubt on the correctness and value of the protective ferment theory, particularly as an aid to diagnosis.

The first clinical application of the dialysis method for the demonstration of specific protective ferments was among the simplest—the test for the determination of pregnancy. The conditions pres-

ent in pregnancy are such as might be expected to give the most favorable field for the working of the test, as the amount of foreign material for the production of the protective ferment—the placenta—is certainly abundant. But even under these presumably ideal conditions, the test has been proved grossly inadequate. In the first place, many have reported negative results in numbers of cases of proved pregnancy, an occurrence which detracts materially from the positive value of the test as a diagnostic procedure. When the test is regarded as a means of demonstrating the absence of pregnancy, its value is even less, for the serums of many non-pregnant women have repeatedly yielded positive reactions, and some competent observers have found that positive tests for protective ferments against placental tissue may be obtained with serums from men, to the extent of from twenty-five to fifty per cent. of all the individuals tested. Such observations as these, springing from many different sources, negative well nigh completely the diagnostic worth of the reaction along these lines.

In the face of these observations under simple conditions, it is not surprising to read the numerous reports of the extreme variability of the results obtained when it was sought to employ the reaction for the demonstration of more complicated conditions, such as the destruction of tissue of the central nervous system in certain forms of insanity, the diagnosis of cancer, etc.

It is not only the more or less unknown conditions which prevail in the actual use of the test that have served to cast doubt upon its value, but even some of the simplest of the factors which enter into its application are found to be sources of unexpected and almost unsurmountable elements of error. Thus, the variation in permeability of the dialyzing membranes toward the substances which give the ninhydrin reaction is almost without limit; the same membrane may vary greatly on successive days, or even in successive tests on the same day. Efforts are being made to produce membranes free from these objections, and it is possible that such perfect sacs will ultimately be elaborated. Even then, not all of the obstacles will have been removed, for certain normal serums contain substances which give the ninhydrin reaction after dialysis in the absence of any organ tissue. The mode of preparation of the tissues themselves for the test is not yet free from sources of error, since it is almost impossible to remove completely all of the red cells from the fragments of tissue, and their presence may give rise to dialyzable substances reacting positively to ninhydrin.

Not content with limiting his doctrine to the elaboration of ferments protective against such for-

eign or homologous proteins as might occur in cancer, pregnancy, etc., Abderhalden has sought to extend the scope of the protective ferments to include certain of the immune bodies produced by bacteria and in anaphylaxis. Such a step seems to have been unwise, for there are several well founded facts in immunology which cannot be brought into harmony with Abderhalden's theory. For example, an increase in the immunity of an animal toward a given protein is not necessarily paralleled by an increase in the amount of the protective ferment for the same protein in the animal's serum.

Only the more striking defects in Abderhalden's doctrine and its applications have been mentioned, and only those which have been established by more than a single observer. It is most unfortunate that such a fertile field as Abderhalden's discovery promised to open should have proved so barren of valuable fruit, but it is none the less obvious that in the present state of our knowledge little reliance can be placed upon a reaction so beset with uncertainty and error.

MEDICAL OPINIONS OF TWILIGHT SLEEP.

Scopolamine-morphine anesthesia, when practised by obstetrical specialists, is now an orthodox form of treatment for the pains of labor (Lawrence, *Edinburgh Medical Journal*, v, 467, 1910; Morcum, *Lancet*, I, 825, 1913; Soli, *Rassegna d'ostetricia e ginecologia*, XXI, 593, 1913; Labadie-Lagarde and Leguer, *Traité médico-chirurgical de gynécologie*, 99, 1914; Matveiff, XII Congress of Russian Obstetricians, December, 1907; Smith, *Surgery, Gynecology and Obstetrics*, VII, 416, 1908; Nicholson, *Journal A. M. A.*, LII, 1096, 1909). Without overestimating the value of the method, these writers describe its effects fairly; they write with the combined confidence and caution of experts. Nicholson sums up the case as follows: "I have injected scopolamine grain 1/100, morphine grain one quarter, three quarters of an hour before administration of ether as a preliminary to general anesthesia in 650 cases. In six per cent. of cases there has followed practically no result, but in the remaining ninety-four per cent. I have noted a quiet state of the nervous system previous to operation, that there has rarely been an instance in which the patient became excited or struggled during the administration of the anesthetic, the absence of mucus in the patient's throat, a lessening of fifty per cent. of the ether used, the existence of quiet for some hours following operation, and the absence of postoperative vomiting." It is, of course, necessary to distinguish between surgical anesthesia and twilight

sleep. The distinction is clear in principle and practice. Nicholson says that, in the fatal cases which he collected, "there is no single instance in which death can be attributed to scopolamine."

Scopolamine was isolated by Schmidt in 1890 (*Archiv der Pharmazie*, CCXXVIII, 139). As far as we can conjecture from existing evidence, it is probable that scopolamine and hyoscine are identical (Hesse, *Ibidem*, CCCXXII, 207). Its effects on the eye were first determined by Rachlmann. On account of this identity of form, various attempts have been made to find physiological differences. According to Kobert, scopolamine is more active than hyoscine (Ueber reines und unreines Skopolamin, *Zeitschrift für Krankenpflege*, XXVII, 41, 1905). Schmidt distinguishes the active from the inactive form by the behavior of their solutions to polarized light; active scopolamine is laevorotary. In anesthesia, the hydrobromide of scopolamine is used.

Of great importance in twilight sleep is the dose. "Our object," writes Gauss, "is not to produce a deep narcosis. We must avoid it carefully, to leave the muscles capable, not only of involuntary, but of voluntary motion." He uses two solutions: A 0.03 per cent. solution of crystallized hydrobromide of scopolamine and a one per cent. solution of hydrochloride of morphine. The first dose is 0.00045 gram of scopolamine and 0.01 gram of morphine. Siegel, the assistant of Gauss, emphasizes the ill success of large doses. The principal rule in twilight sleep is to produce the effect with the smallest possible doses (*Münchener medizinische Wochenschrift*, 2284, 1913). Berutti, reporting 600 cases from the clinic of Gauss, says: "We never give at the first injection more than 0.00045 gram of scopolamine and 0.01 gram of morphine." The solutions should be fresh, but Straub has lately made stable ones by adding a ten per cent. solution of the polyvalent alcohol, mannit.

It is objected to this method that it prolongs labor and produces torpor in the child. Hewitt tells us that these occurrences "are at least doubtful if small doses have been given." He adds that these are "small items to put in the scale against the pains of labor" (*Anæsthetics*, 271, 1912). Salzberger records a complete list of cases up to 1910. The proportion of stillborn children was 1.1 per cent. and this small figure leads him to praise the method (*Inaugural-Dissertation*, 1910). The torpor of the child, it is explained by Lawrence, is not an effect of scopolamine, but of morphine. Siegel, who writes with due caution and reserve, thinks it may be an intoxication (*Rauschstadium*), from which the child easily recovers. This is, of course, a perfectly accurate, if not very pleasing description of an ef-

fect of twilight sleep. It cannot really be held, however, to apply to the successful cases, some eighty per cent., according to Lawrence. "About one out of four did fairly well under scopolamine-morphine anesthesia," writes Professor J. C. Applegate, who tried it in his service in Philadelphia, six years ago, "while the other three did not do so well. Some of them slept peacefully between the pains, but required three or four persons to hold them in bed in their unconsciousness or semiconscious state during the pains. Moreover, some of the infants did not get rid of the transmitted effect of the drugs before thirty-six hours. The contractions were unlike those of normal labor in many instances and spasmodic in others." Scopolamine-morphine anesthesia is, therefore, no longer used in Professor Applegate's obstetric service in the average case, the exceptions being operative cases. Even then, scopolamine-morphine is given only before the administration of some other anesthetic. In a well known popular journal for September, reports, mostly unfavorable, appear over the signatures of Dr. Charles M. Greene, professor of obstetrics and gynecology in Harvard University; Dr. J. Whitridge Williams, professor of obstetrics, Johns Hopkins Medical School; Dr. Barton Cooke Hirst, professor of obstetrics, University of Pennsylvania; and Dr. Joseph B. DeLee, professor of obstetrics, Northwestern University Medical School.

To whom will this method appeal? To mothers principally. In Europe there is a numerous class of physicians who recommend it. (See the *Theses* of Kollitsch and Ribière.) In this country the tide of medical opinion has hitherto set strongly against the use of twilight sleep. We are, indeed, not quite satisfied with this addition to the ordinary forms of anesthesia; it is apparent that a careful study of all the phases of its action is necessary to ascertain its actual merits. The profession should bear its possible untoward effects in mind when giving it a trial.

THE CONTROL OF MALARIA.

The splendid triumph of practical sanitation which made possible the building of the Panama Canal was largely due to the successful measures directed against endemic, tropical malaria. In other countries there has been waged a similar, if less conspicuously winning fight, notably in Italy, where there has been a decrease in the mortality from 21,033 in 1887 to 3,619 in 1910, or for each million of population a fall from 690 to 100 deaths. In Rome there has been a significant diminution in the number of pernicious cases, both absolute and relative to the total

number of cases of malaria. In the hospitals of Rome there were treated in 1877, 390 cases of pernicious malarial fever, 2.82 per cent. of all the malarial cases. In 1911, there were but eighteen cases, which showed an incidence of only 0.82 per cent. of the entire number. In spite of the reduction in case incidence, the high mortality of the estivoautumnal and pernicious forms has practically remained the same, showing that there has been no change in the virulence of the parasite. For the past ten years from fifty to sixty per cent. of the pernicious cases have been fatal. Happily, however, the number of cases of the old Roman fever so dreaded by the tourist, and from which Henry James's fair heroine, Daisy Miller, died in the early seventies of the last century, are rapidly growing less, and Rome itself has become one of the healthiest capitals in Europe.

Celli does not consider that the drainage of the Pontine marshes or the numerous and costly efforts made to improve sanitary conditions in the Roman Campagna in historical times, have had much effect. The afforestation of malarious districts actually provides favorable conditions for the life of *Anopheles*, and the planting of eucalyptus trees from which so much benefit has been erroneously claimed, has been absolutely without result in Italy. There are spontaneous, alternating periods, showing milder and severer types of infection. The real progress has been due to state provision for the free administration of quinine and to the protection of individuals exposed to mosquito infection, and better food and clothing and improved housing conditions are important influences.

Studies in epidemiology show that slight altitude, a certain degree of moisture in the soil, and a warm climate are conditions necessary for the activity and growth of the plasmodium in the mosquito. In Norway and Sweden, in the British Isles, northern and central Asia, the Sahara Desert, the whole of Australia and New Zealand, and in the greater part of Canada, malaria is unknown. Districts in Holland, Germany, and Austria-Hungary, which were formerly centres of infection, have in recent years become practically free. There has been a corresponding decrease in the incidence of malaria in many parts of the United States where it was formerly prevalent, notably in the south and middle west, in New Jersey, and on Staten Island. From all the New England States, where it was fairly common sixty years ago, malaria has practically disappeared. In spite of the great reduction effected in the incidence and mortality of malaria in Italy, where the disease has been so carefully studied, there are still more than 3,000 deaths from it annually, and it is a serious source of economic loss. More than 600,000 hec-

tares of arable land are uncultivated on account of the prevalence of malaria, and much of the loss of population by emigration is due to this cause. The bulk of the emigration from the country is from the southern districts, notably Calabria and Sicily, where malaria is most prevalent. Beside the direct losses due to death and emigration, there is in Italy, as elsewhere, an enormous amount of preventable, chronic invalidism and impairment of efficiency caused by the malarial parasite.

SIBERIA AND THE EUGENISTS.

Siberia's unique population should possess considerable interest for the eugenists. From 1658 until 1900, from 2,000 to 20,000 Russians were exiled annually to Siberia, mainly for voicing ideas and opinions which favored democracy and other modern theories; in other words, the inhabitants of the territory seem always to have been men and women of original habits of thought, of mental qualifications which would have made them prominent and distinguished under a form of government more like our own. As we understand it, these exiles have lived an outdoor life, rigorous, perhaps, but of the most healthful kind. Consequently we find in Siberia a most unusual combination of intellectual equipment of high quality with physical surroundings adapted to furnish bodily vigor and excellent health, a union produced by accident, of the exact kind that eugenists are striving to effect by design. The colonization of Siberia by the method above referred to practically ceased fourteen years ago; there should be now, even in the absence of first rate schools, a population with most exceptional gifts, veritable supermen if the theories of the eugenists are soundly based.

RESPONSIBILITY OF PHYSICIANS IN PRESCRIBING NARCOTIC DRUGS.

Dr. James Burnett, of Edinburgh, writing in the *Lancet* for August 22, 1914, concerning the proposed introduction into Great Britain of regulations regarding the prescription of narcotic drugs, maintains that no drug should be dispensed save on production of a prescription written and signed by a medical man. He has found people using without medical advice such drugs as phenacetin, digitalis, nux vomica, compound powder of ipecac, calomel, thyroid substance, aspirin, sodium salicylate, the bromides and iodides, compound tincture of chloroform and morphine, laudanum, preparations of squills (to be given to infants), sulphonal, veronal, chloral hydrate, and tincture of belladonna. *Confrères* have scoffed at his "unnecessary carefulness," but he cautions his students to follow his practice of writing across any prescription that should not be repeated, the necessary words to that effect. Too great care cannot be taken to safeguard the public, and the profession, Doctor Burnett states, needs to be roused from its lethargy regarding the need for caution in writing prescriptions.

News Items.

Changes of Address.—Dr. A. C. Cordes, to 950 Bushwick avenue, Brooklyn.

Dr. Melville A. Sanderson, to the Parmenter Building, Waltham, Mass.

A Radium Treatment Department at Jefferson Hospital.—It is reported that a radium department is to be opened at Jefferson Hospital, Philadelphia, in the near future. Twenty-five hundred dollars' worth of radium has been purchased and as soon as the tubes arrive, treatments with radium will be given. The radium was purchased with money from the Lucy Henderson fund of \$5,000 recently presented to the hospital for the establishment of a department for radium treatment.

A Confusion of Portraits.—By a regrettable transfer of legends in our issue for August 29th, our ambassador to St. James was made to figure as Sir Frederick Eve, and vice versa.

Canadian Public Health Association.—Owing to the unsettled conditions due to the European war, it has been regretfully decided to cancel the meeting of the Canadian Public Health Association, which was to have been held in Fort William and Port Arthur, Ontario, September 10 to 13, 1914.

Microscopic Examinations of Tissue in Cancer Diagnosis.—The Department of Health of the City of New York calls attention to the fact that tissues which are to be examined microscopically for cancer should be sent to the State Cancer Institute in Buffalo and not to the laboratories of the health department in New York.

International Medical Congresses Postponed.—The International Ophthalmological Congress, which was to have been held in Petrograd, in August, has been postponed on account of the European war, and it is probable that the same action will be taken with numerous other international congresses which were to have been held in Europe this year.

Typhoid Fever in Pennsylvania.—It is reported that an outbreak of typhoid fever has occurred in Warren, Pa., twenty-three cases having been reported to the health authorities a few days prior to August 28th. Dr. Samuel Dixon, State Commissioner of Health of Pennsylvania, has sent two of the department's typhoid fever experts to the infected district to combat the disease. The cause of the outbreak is said to be impure milk and an inspection of all dairies has been made.

Mortality in Philadelphia.—Although there was a marked decrease in the number of deaths of infants in Philadelphia last week, the total number from all causes shows a decrease of only nine. There were 134 deaths of children under two years of age, compared with 167 during the preceding week. Eighty-six children succumbed to diarrhea, a decrease of ten. Deaths from all causes reached a total of 468, an increase of forty-three over the number reported in the corresponding week last year.

The American Hospital of Paris in Need of Funds.—An appeal for aid in the equipment of this hospital has been made. The American Hospital has undertaken to provide at least one thousand beds to care for wounded soldiers, and the French government has placed the new building of the Lycée Pasteur at the disposal of the hospital for that purpose. This annex, known as the Ambulance Hospital, will be equipped and supported by Americans, and the staff of the hospital will be composed of American physicians and nurses. American men and women in Paris have volunteered to assist them and are already serving. They are in immediate need of funds and wish to raise \$250,000 to carry on the work of the hospital.

Civil Service Examinations in Philadelphia.—Among the positions for which the Philadelphia Civil Service Commission announces examinations, are the following in the medical service: On Monday, September 21st, at 9:30 a. m.: Resident physician (promotion), salary \$720 a year; resident physician, \$1,200 to \$1,500 a year; resident physician, \$600 to \$900 a year; head nurse, \$600 a year. On Tuesday, September 22d, at 9:30 a. m.: Chief resident physician at the Philadelphia General Hospital (residence waived), salary \$4,000 a year; assistant bacteriologist, \$1,400 to \$1,500 a year. Detailed information concerning the requirements for these examinations may be obtained from the Commission, Room 875, City Hall, Philadelphia.

Abolishing Rabies.—Some weeks ago, owing to the prevalence of rabies in certain sections of New York, and recognizing the inadequacy of existing municipal ordinances bearing on the subject, the Committee on Infectious Diseases of the Advisory Council of the Department of Health, recommended the adoption of an amendment to the sanitary code, requiring that all dogs which appear on public highways and in public parks or places, should be muzzled. The proposed ordinance was adopted at a meeting of the board of health, held on July 28, 1914. In view of the drastic character of the new law, the department decided, in fairness to dog owners, to give them ample time to adjust themselves to its requirements. Through the public press announcement was made that individuals would not be prosecuted for failure to comply with the muzzling ordinance until September 15th. Since the adoption of the muzzling ordinance, the department has been flooded with letters from interested citizens, an overwhelming majority of whom have commended the action of the department. Extracts from the letters received, showing the divergent views of citizens, will be published in the *Weekly Bulletin* of the department. It will be noticed that the Ostrich Party, whose platform declares that there is no such thing as rabies, still has a few scattering supporters.

Personal.—Dr. J. F. Saphir, of New York, returned home from Europe on Saturday, August 22, on the *St. Louis*, via Liverpool.

Dr. Austin E. Greenwood, of Brooklyn, returned home a few days ago from an automobile trip through Eastern Canada and the White Mountains.

Dr. H. W. Dew, of Lynchburg, and Dr. V. S. Stephenson, of Toano, Va., have started on a tour of inspection of hospitals and insane asylums, with a view to studying modern management of these institutions. They will visit institutions in New York, New Jersey, Pennsylvania, Indiana, Illinois, and Ohio.

Dr. William T. Power, of New York, has been appointed lecturer on diseases and disorders of the eye in the State Department of Health.

Dr. Charles J. Hatfield, of Philadelphia, was elected executive secretary of the National Association for the Study and Prevention of Tuberculosis, at the recent annual meeting of the organization. Doctor Hatfield succeeds Dr. Livingston Farrand, of New York, who has resigned to accept the presidency of the University of Colorado.

Dr. Lewis A. Sexton, resident physician at the Willard Parker Hospital, New York, has been appointed superintendent of the Johns Hopkins University Hospital, Baltimore.

Examination of Candidates for Appointment as Assistant Surgeons in the Public Health Service.—Boards of commissioned medical officers will be convened at the Bureau of Public Health Service, Washington, D. C., and at the Marine Hospitals of Boston, Stapleton, N. Y., Chicago, St. Louis, New Orleans, and San Francisco, on Monday, October 19, 1914, for the purpose of examining candidates for admission to the grade of assistant surgeon in the United States Public Health Service, when applications for examination at these stations are received in the bureau. Candidates must be between twenty-three and thirty-two years of age, must have graduated from a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work. The examination will be physical, oral, written, and clinical. In addition to passing the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and that they will serve wherever assigned to duty. Assistant surgeons in the Public Health Service receive \$2,000 a year, and after four years' service are entitled to examination for promotion to the grade of passed assistant surgeon; the salary of passed assistant surgeons is \$2,400. For further information regarding the scope of the examination or for invitation to appear before the board of examiners, address the Surgeon General of the United States Public Health Service, Washington, D. C.

New York City's Death Rate.—The mortality for the past week from all causes was considerably lower than that of the previous week, owing undoubtedly to the more favorable meteorological conditions that prevailed, every age grouping showing a considerably decreased rate, with the exception of infants under one year of age, the number of deaths reported of these latter being approximately the same as that of the preceding week, although one hundred fewer deaths from all causes were reported. The mortality compared with that of the corresponding week of 1913 was one third of a point less, a decrease in the mortality of forty deaths, notwithstanding the fact that the deaths from diarrheal diseases under five years of age were more numerous by forty. It is noteworthy that the mortality of infants under one year of age from diarrheal diseases during the month of August, has increased considerably over that of 1913 in the same period, notwithstanding the efforts made by official and social workers toward a continuance of the decreased mortality at this age that prevailed during the month of July. During the first four weeks of August, 1913, the mortality of infants under one year of age averaged sixty out of every 1,000 children born during that period. During the four weeks of August just elapsed this figure increased to 67. The death rate since January 1, 1914, up to and including August 29, 1914, was 14.16 in 1,000 of the population, which is 0.3 of a point lower than the mortality for the corresponding period of 1913.

American Red Cross Ships.—The *Hamburg* has been chartered by the American Red Cross Society to transport American doctors and nurses going to the war zone. Renamed the *Red Cross*, she will sail from Brooklyn today, September 5th, manned entirely by Americans and flying the American flag, the substitution of the American flag for the German being made by special authorization of Congress. All the officers will be retired officers of the United States Navy, and every member of the medical staff, numbering 30 physicians and nearly 100 nurses, will be an American born citizen of the United States.

Ambassador Jusserand of France, and Sir Cecil Spring-Rice, the British Ambassador, notified the Red Cross that their Governments would gladly recognize the neutrality of the ship, although the owners were German.

The cargo, it is said, will be sufficient to fill the holds, and when the liner sails she will be the most completely equipped Red Cross ship that ever sailed on a mission of mercy to any part of the world.

Miss Mabel Boardman, Chairman of the National Committee of the Red Cross, will assist in the fitting out of the expedition. Robert W. De Forest, vice-president of the National Red Cross, also will aid in the work, as will also Jacob H. Schiff, treasurer, and other members of the New York branch of the society.

Following are the American surgeons who will sail on the *Red Cross*:

Directors of the ten units, Dr. Reynold M. Kirby-Smith, of Sewanee, Tenn.; Dr. Roades Fayerweather, of Baltimore; Dr. William S. Magill, of New York; Dr. Robert W. Hinds, of Buffalo; Dr. Edward H. Egbert, of Washington; Dr. Charles H. Sanders, of Washington; Dr. Cary A. Snoddy, of Knoxville, Tenn.; Dr. John D. Bartlett, of Chicago; Dr. Howard W. Beal, of Worcester, Mass., and Dr. Bial F. Bradbury, of Norway, Me.

Assistants (two assigned to each unit): Dr. John A. C. Colston and Dr. M. H. Todd, of Baltimore; Dr. Louis C. Spencer and Dr. H. R. Slack, of Baltimore; Dr. Philip Newton and Dr. Paul H. Zinkhan, of Washington; Dr. Fred W. Eastman, of New York, and Dr. Henry M. Shaw, of Baltimore; Dr. Brown S. McClintic, of Peru, and Dr. Arthur M. Zinkhan, of Washington; Dr. J. F. Spearman, of Baltimore, and Dr. Grover A. C. Stem, of Washington; Dr. Fred G. Benton, of New York, and Dr. Walcott Denison, of St. Louis; Dr. Russell A. Jewitt, of Cleveland, and Dr. John C. Miller, of Shenandoah, Pa.; Dr. V. N. Leonard, of Baltimore, and Dr. William T. Fitzsimons, of New York; Dr. R. H. Newman, of Knoxville, Tenn., and Dr. John Lancer, of New York.

The Red Cross unit which has been assigned to duty with the Servian forces will sail from New York on the Greek liner *Ioannina* on September 8th. This unit will be composed of Dr. Edward Ryan, Dr. William P. Donovan, and Dr. William P. Ahern, all of New York. At Salonika they will be met by Mme. Grouitch, the wife of the Servian Under Secretary for Foreign Affairs.

Pith of Progressive Literature.

CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE.

July 18, 1914.

Atrophy of the Prostate.—Achilles Mueller states that bladder troubles, associated with atrophy of the prostate, are more common than is usually supposed. They are very difficult to differentiate from the insufficiency of the bladder caused by organic nervous diseases, such as tabes. Trouble with evacuation of the urine may be produced by slightly prominent adenomata, which are miniature hypertrophies, or by atrophy of the sphincter internus associated with that of the prostate. Treatment is usually catheterization for retention of urine, but in refractory cases benefit may be obtained from operative measure, such as prostatectomy for small adenomata, or stretching, section, or resection of the atrophic sphincter. The best chances are afforded by the high operation, as the best view can thus be obtained.

DERMATOLOGISCHE WOCHENSCHRIFT.

July 25, 1914.

New Treatment for Acute Eczema.—Fr. Samberger treats acute weeping eczema with compresses as hot as can be borne, wet either with Burow's solution, when the inflammatory symptoms are very severe, or with a one per cent. aqueous solution of resorcin and a 0.5 to one per cent. solution of silver nitrate, when the inflammation is less marked; covered with gauze and bandaged on. This is changed every three or four hours. As soon as the weeping ceases, the diseased parts are dusted with powder for a day or two. Then, if they remain dry, they are covered with an indifferent protecting paste as thick as the back of a knife, over which is dusted a powder. He says that the results are excellent.

WIENER KLINISCHE WOCHENSCHRIFT.

July 23, 1914.

Cholera Vaccination.—Savas vaccinated a large number of soldiers in the late war between Greece and Turkey, and found that in soldiers vaccinated twice, prophylaxis was established in over ninety-nine per cent. In view of these figures, vaccination is to be regarded as one of the most important prophylactic measures in our possession in the treatment of cholera. This precaution does not have to be taken in countries in which the hygienic conditions are favorable and in which a well organized sanitary service exists. But in time of war when large bodies of men are mobilized, and in countries where the sanitary conditions are not favorable, prophylactic vaccination against cholera is very necessary. In war camps it is particularly adaptable as the soldiers can be vaccinated without much trouble, and it in no way hinders them in their fighting ability.

Cerebrospinal Fluid after Injections of Neosalvarsan.—Biach, Kerl and Kahler examined the cerebrospinal fluid before and after neosalvarsan injections, and found that the reducing power of the fluid was greater after the injection of neosalvarsan than before in a great number of cases. This is not due to any change caused by syphilis. The in-

crease in the temperature following neosalvarsan injections does not influence the reducing power of the fluid nor does the latter bear any relation to any special symptoms, such as headache, vertigo, and vomiting. The increase in the reducing power seems to be proportionate to the amount of neosalvarsan injected. It was not observed in all cases receiving neosalvarsan injections, and it is possible that the causes of this phenomenon are present in the individual receiving the injection, and patients of this class are more apt to show a reaction characterized by marked nervous symptoms than others.

Diastolic Blood Pressure in Aortic Diseases.—Schwartzmann considers the estimation of the diastolic blood pressure of great value in the diagnosis of those cases of aortic insufficiency which are not accompanied by the typical diastolic murmur. These cases are very rare, but several have been reported. He examined a large number of cases of aortic insufficiency and found that the diastolic blood pressure, which normally amounted to ninety to 100 c. c. water, was greatly reduced and at times amounted only to thirty to forty c. c. water. After examination of a large number of these cases he directed his attention to those cases which showed no diastolic murmur and in which the diagnosis was doubtful. When a low blood pressure was observed in cases of this kind a diagnosis of aortic insufficiency was made and the subsequent course of the disease always bore out the early diagnosis. Aortic insufficiency probably occurs more often than it is diagnosed, and the early recognition of the condition by means of the estimation of the diastolic blood pressure is of importance as the symptoms seen in the beginning of the disease—headache, dizziness, disturbed sleep, etc.—often lead to a faulty diagnosis of neurasthenia. The decrease in the blood pressure is in proportion to the amount of insufficiency present and helps to differentiate aortic insufficiency from cases of mitral stenosis and insufficiency of the pulmonary artery, which are also accompanied by a diastolic murmur. The systolic murmur accompanying aortic stenosis is at times difficult to differentiate from the systolic murmur of mitral regurgitation accompanying infectious diseases, atheromatous changes in the aorta, anemia, and exophthalmic goitre. Here the estimation of the diastolic blood pressure is again of value as in cases of aortic stenosis it is found to be 120 to 130 c. c. of water compared to a normal of ninety to 100 c. c. of water, whereas in the other conditions this increase is not noted; in fact, a decrease may be present. Certain cases of nephritis give an increased diastolic blood pressure with a systolic murmur in the aortic area. This is due to atheromatous changes in the aorta and not to a stenosis, as in these cases both the diastolic and systolic blood pressures are high, whereas in aortic stenosis, while the diastolic blood pressure is high, the systolic blood pressure is either normal or decreased.

Influence of the Kidney on Child Bearing.—Cecikas reports a series of twenty-eight women affected with nephritis. Of these only eight bore healthy children; five were sterile, and in the remainder thirty-six abortions occurred. The abortions occurred mostly in primiparæ and in the early

months of pregnancy. An exacerbation of a chronic condition was observed in three cases. The arterial tension was relatively increased in one of five cases examined; hypotension was present in the remainder. Of the etiological factors giving rise to the condition, exposure to cold was the cause in one case. Most often it was due to an infectious agency, malaria being the most prominent. In only one case did it begin during the course of the pregnancy. The influence of nephritis on the generative ability of men seems to be about the same. Of twenty-one nephritics above forty years of age, two were without children. Of four patients under thirty years of age, there were also two without children. The difference is probably due to the fact that the chronic interstitial form of nephritis which is seen more often in men over forty years of age does not affect the generative ability very much. In view of this investigation, it is of importance to make an early diagnosis and to institute proper treatment.

PRESSE MÉDICALE.

July 20, 1914.

Acute Osteomyelitis of the Superior Maxilla in the Newborn.—A. Broca says the disorder is relatively frequent in infancy, eleven cases having come under his care. Swelling is first seen over the bone itself, in the canine fossa, or in the infra-orbital region. The swelling may be most marked below the external or internal angle of the eye, and may involve the lower lid and conjunctiva, or even cause chemosis. A day or two later the eye may be entirely closed through edema of the upper lid, or exophthalmos from intraorbital edema may exist. Simultaneously, redness and swelling descend to the cheek. Blood stained pus issues from the nostril, and the hard palate on the same side becomes likewise inflamed. As a rule, small collections of pus rapidly form in all these areas, and open soon after, usually at the vestibule or alveolar border. Pressure on the face causes pus to issue from the nostril. In the differential diagnosis ophthalmia, erysipelas, dacryocystitis, and orbital phlegmon are the conditions to be excluded. Study of the author's cases showed that the condition is actually an osteomyelitis of the entire bone, not merely an antral empyema. The cause appears to be a dental folliculitis, nearly always in the rudimentary molar deciduous teeth. This, in turn, is probably hematogenous, the infection having started from the umbilicus or subcutaneous abscesses, or, again, following infectious diseases such as measles or varicella. The prognosis is grave, almost one half the patients succumbing. The treatment should consist in early incision of the abscesses, and curettage of the posterior portion of the maxilla, with removal of the included rudimentary teeth. If there is an infraorbital incision and sinus, the curettage can be completed by this route. The cavity should be packed from the alveolar opening with gauze for twenty-four hours, and interruption of direct breast feeding for a few days is required.

Estimation of Urinary Albumin by the Methods of Aufrecht and Tsuchiya.—V. P. Sémionov, comparing the Esbach, Tsuchiya, and Aufrecht procedures, found the results of the last distinctly

more accurate and unvarying than those of the other two, and advises its exclusive employment. The reagent used consists of picric acid, 1.5 gram; citric acid, three grams, and distilled water, 100 c. c. The procedure is best carried out by centrifugation, the graduated tube used being preferably that of Aufrecht. Four c. c. of filtered urine are placed in the tube, then three c. c. of the reagent; the tube is stoppered and inverted a few times, then centrifugated for two minutes at 5,000 revolutions to the minute, two and a half minutes at 3,000, or three minutes at 2,000. The level of the albumin precipitate then read off shows the percentage of albumin in the urine. Variations in the readings from a given specimen of urine average but 2.19 per cent., i. e., but little more than by Scherer's more time consuming method of direct weighing of the dried precipitate. Where the urine contains more than 5.055 grams of albumin in a litre, it should first be diluted. Differences in neither the specific gravity of the urine nor in the temperature of the surrounding air have any effect on the albumin readings by this method. Aufrecht's original reagent must be used—not that specified in the directions furnished with each albuminimetre.

BRITISH MEDICAL JOURNAL.

August 15, 1914.

Medical Sociology from the Dental Point of View.—J. Sims Wallace says that the financial loss to the community from dental diseases amounts to fabulous sums. The wealthy alone now pay from ten to fifteen million dollars annually for the care of their teeth. "It is beginning to be recognized that the mouth is not only the chief entrance portal of disease, but also that, in order to restore health, attention must primarily be directed to the eradication of the diseased conditions which are so generally present in the mouth." In a single county in England 1,200 children annually have ten or more decayed teeth at the age of five years, and about 1,800 have from five to ten decayed teeth at this age. Dental diseases are more prevalent than is any other disease reported. It would be nearly impossible to attempt to cure the cases of dental disease already existing in children, as it would require too vast a sum of money and too much time, during which the new crop of children with bad teeth would be continually adding its numbers to those already existing. The only feasible method of approach lies in the prevention of the occurrence of dental disease. But prophylaxis cannot be successfully instituted until the physician is better acquainted with the physiology of the teeth, and a course in oral hygiene ought to be made a compulsory portion of the education of every medical student.

Serum Diagnosis of Pregnancy and of Cancer.—Archibald Leitch concludes his paper begun in a previous number (July 25, 1914), giving the details of 100 cases examined to test the method in the diagnosis of cancer. He employed a large number of different substrates, obtained only from good cellular tumors removed at operation. These included several epitheliomata, carcinomata, placentas, a rodent ulcer, etc. All

of the substrates, with special exceptions, were most carefully prepared and washed most thoroughly. Of the hundred cases tested to prove the value of the method of serum diagnosis in cancer, fifty-one were cancer cases, the remaining non-malignant. In the cancer cases there were positive results in twenty-eight, or fifty-five per cent., and in the nonmalignant cases there were eighteen positive results, or thirty-seven per cent. "The method, therefore, is without diagnostic value." By way of comment Leitch says: "It is necessary, in view of the adverse results here obtained, that contrast so strikingly with those of the brilliant and deservedly honored originator of the theory and with those of his numerous disciples in all parts of Europe and America, to search out the factors that led to the amazingly mistaken claims, as I consider them to be, and to show as well as I can, that my own results are not due to errors of technic or to biased misunderstanding. It seems to me that the theory originated from the readings of some preliminary experiments. It may be that those readings unconsciously exaggerated the facts; the fundamental observations were not made sufficiently indubitable for a great structure to be reared upon them; and the observer, having satisfied himself that a certain result was to be expected, and knowing exactly what he had to deal with when identical experiments were repeated, could not avoid obtaining readings similar to the original. If the repetition of the experiments was intrusted to a disciple, as it probably was in a busy laboratory, there should be the greater chance of the original views being substantiated. Whether or not that be an ungenerous supposition, the fact remains that the fundamental experiments do not cover a sufficiently wide field, and it is obvious that a great jump was made from serum reactions to substances quite foreign to the animal body, to serum reactions to substances natural to the body." In the first place it is impossible to wash the organ substrate to a snow white, as each organ has its definite color, usually cream color, after the most thorough washing. If the water in which the organs were boiled is tested with one c. c. of ten per cent. ninhydrin solution and fails to give a reaction, it will often be found that it will react to five c. c. of the solution. The reverse is also often true, that a faint reaction may be obtained with one c. c. and none at all with larger amounts, thus ninhydrin may fail to detect the presence of protein products because it is too strong as well as because it is too weak. Once the tissue yields a colorless water, if it is allowed to stand, color reactions may again be obtained after a few hours or longer. Some tissues are much more unstable in this respect than others. The fallacy supposed to be introduced by the presence of blood in the tissues does not exist, for even pure blood clot prepared as a substrate reacted negatively. When pieces of sterilized sponge, kaolin, or glass wool were used as substrate seven positive results were obtained in thirty-nine serums tested. The mere presence of hemoglobin in the serum does not, as usually stated, give rise to positive ninhydrin reactions. Blood drawn close to a meal also does not show a greater tendency to yield positive results than blood taken in the fasting

state. The serum itself is unstable and splits up with the liberation of substances reacting to ninhydrin as shown by the removal of such substances by dialysis and their reappearance on standing but a brief time. The decomposition may be so rapid that it is impossible to remove these substances from serum completely. The dialysing membranes are remarkably variable in their permeability; the only way to obtain reasonably reliable results from these is to manifold the experiments. A further remarkable fact is that if the substrate and serum are each put into a separate dialyser and dialysed separately, the dialysate will probably be negative in both instances, but if they are dialysed in separate sacs but in the same water, the reaction may be positive. "The conclusions to which I have come after a careful investigation of Abderhalden's dialyzation method are that the real fallacies of the technic are beyond control, and that the hypothetical fallacies which Abderhalden invoked to account for false reactions have no basis. Positive results are quite well accounted for by the facts that the substrate alone, and the serums alone, give diffusible substances reacting with ninhydrin; that the dialysers vary enormously in the quantities of such substances which they allow to pass in a given time; that serums, influenced by the distilled water and by the presence of a tissue acting in virtue of its physical state, are progressively cleaved; and that it is not the substrate which is split by the serum so much as the serum which is split by the substrate. These very real fallacies quite destroy the value of the method, and they cast grave doubts on the whole theory."

LANCET.

August 15, 1914.

Heredity.—William Bateson discusses the present day theories of heredity at considerable length, going into many of the observations which tend to discredit or to support one or another of the views as to the development of species and races. He concludes with the remarks: "As the evidence stands at present, all that can be safely added in amplification of the evolutionary creed may be summed up in the statement that variation occurs as a definite event often producing a sensibly discontinuous result; that the succession of varieties comes to pass by the elevation and establishment of sporadic groups of individuals owing their origin to such isolated events; and that the change which we see as a nascent variation is often, perhaps always, one of loss. Modern research lends not the smallest encouragement or sanction to the view that gradual evolution occurs by the transformation of masses of individuals, though that fancy has fixed itself on popular imagination. The isolated events to which variation is due are evidently changes in the germinal tissues, probably in the manner in which they divide. It is likely that the occurrence of these variations is wholly irregular, and as to their causation we are absolutely without surmise or even plausible speculation. Distinct types once arisen, no doubt a profusion of the forms called species have been derived from them by simple crossing and subsequent recombination. New species may be now in course of creation by this means, but the lim-

its of the process are obviously narrow. On the other hand, we see no changes in progress around us in the contemporary world which we can imagine likely to culminate in the evolution of forms distinct in the larger sense. By intercrossing dogs, jackals, and wolves new forms of these types can be made, some of which may be species, but I see no reason to think that from such material a fox could be bred in indefinite time, or that dogs could be bred from foxes. Whether science will hereafter discover that certain groups can by peculiarities in their genetic physiology be declared to have a prerogative quality justifying their recognition as species in the old sense, and that the differences of others are of such a subordinate degree that they may in contrast be termed varieties, further genetic research alone can show. I myself anticipate that such a discovery will be made, but I cannot defend the opinion with positive conviction."

Congenital Atresia of the Postnasal Orifice.—Charles W. Richardson believes that this condition is far commoner than is usually stated, and that it is simply not recognized by the obstetrician or general practitioner. If complete and bilateral, it gives rise to signs of asphyxia and it is probable that many deaths from this cause are due to this obstruction. The diagnosis should be simple; there are the signs of asphyxia, which, however, are often in cycles broken by aeration through forced mouth breathing, the nose contains a thick albuminous mucus, and if a probe is passed into the anterior nares it will meet with obstruction to its passage into the nasopharynx. The condition is always congenital and is due to the formation of a plate of bone or of bone and membrane closing the posterior choana more or less completely. It is a developmental defect and its precise origin is still in dispute. When it is found in a child at birth one is faced by the necessity of deciding what course is to be pursued, for its presence interferes with suckling, and mouth breathing is a habit that must be acquired, as it is not normal. If the child is well nourished, it can be taught mouth breathing, and if the parents can afford to give it proper attention, it is best to wait until it is at least nine months old before operating. In other circumstances immediate operation is probably better. Adults occasionally have this condition, which shows that it is possible to rear such infants successfully. Operation consists in the removal of the obstructing plate, and in the maintenance of a free airway during healing to prevent the formation of adhesions.

JOURNAL OF TROPICAL MEDICINE AND HYGIENE.

July 1, 1914.

Treatment of Yaws with Salvarsan.—E. C. Girling asserts that salvarsan can be unquestionably looked upon as a specific remedy for yaws. He has treated about fifty patients in various stages of the disease, rapid and complete recovery following in each. Usually an intravenous injection of 0.01 gram of salvarsan for each kilogram of body weight was given, but of late success was had with a smaller dose, 0.0075 gram. In small children, the drug was injected in the gluteal muscles. One injection always proved sufficient. The patients experienced relief from pain and discomfort within

forty-eight hours, and the eruption was dry within a week, and had disappeared by the end of fifteen days. In four obstinate cases of crab yaws, permanent recovery followed a single injection, though after a longer period than in the others.

Amebic Dermatitis.—L. B. Keng describes this condition as beginning in the form of minute papules, red and hard, discrete, and very suggestive of variola, but unaccompanied by fever. Vesicles which may attain the size of a small pea appear in one or two days. The discharge forms a crust like that of vaccinia. Each papule ultimately breaks down, and may then heal up or leave a depressed ulcer. Rarely the parasites spread widely and cause a diffuse spreading erythema, with pus in the subcutaneous tissues. In fresh papules only small amebas with fine granules are visible; but in the thick pus from larger cavities large amebas with conspicuous granules, vacuoles, and ameboid movement, and apparently indistinguishable from *Entamoeba histolytica* are to be seen. The disease causes itching. It tends to heal of itself. Amebas are generally found in the stools. Patients may or may not have had dysentery. Usually the disease first appeared near the anus. It may exist anywhere, but is mainly seen on the buttocks, spreading thence to the back, limbs, face, and trunk. Septicemia, abscesses, cachexia, and renal complications may result from its extension. Hypodermic injections of emetine hydrochloride are indicated in the treatment of extensive invasions in the skin and subcutaneous tissues. Superficial ulcers are best treated with ointments of ammoniated mercury or of sulphur.

Canine Babesia.—I. Gonzalez Martinez announces from Porto Rico the discovery of canine babesiasis (piroplasmosis) in the course of routine examinations of dogs for epizootic diseases and rabies. In two instances the clinical diagnosis was confirmed microscopically by staining red corpuscles with Leishman's stain.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

August 15, 1914.

The Present Status of Pyelography, by F. E. Keene and H. K. Pancoast. This paper was abstracted in our issue for July 4th, page 45.

The Treatment of Syphilis of the Nervous System, by J. A. Fordyce.—This paper was abstracted in our issue for July 4th, page 52.

The Intravenous Administration of Mercury in Syphilis, by J. Kingsbury and P. E. Bechet.—This paper was abstracted in our issue for July 4th, page 52.

The Etiology of Phlyctenular Ophthalmia, by S. Theobald.—This paper was abstracted in our issue for July 4th, page 55.

Unilateral Exclusions of the Pyloric Region.—Willard Bartlett says: Our knowledge of ulcer is so meagre that we are not prepared to do more than temporarily relieve the anatomical condition which is the expression rather than the origin of this disease. In the duodenum, infolding (temporary obstruction) and gastroenterostomy accomplish this object. Closure of the pylorus itself cannot protect a gastric ulcer, even after gastroenterostomy. The author's experience with unilateral exclusion of

the affected area in such cases has been most satisfactory. It takes the place of excision of gastric ulcer, or pylorotomy where the latter presents extreme technical difficulties. A large ulcer perforating deeply into the structure of the pancreas, liver, or other organs is most simply treated by exclusion. It prevents the gastric contents from passing over an ulcer, stops pain, prevents hemorrhage, and puts the excluded portion at rest; allowing the ulcer to heal, and thus decreasing the likelihood of secondary cancer. Any form of exclusion of the pyloric antrum, which prevents food from passing over it, accomplishes as much as complete transverse division of the organ. The two methods he proposes are simpler, take less time, and encounter fewer bloodvessels than transverse division. Experimentally, they produced similar results, while clinically they seem to have been equally successful.

A Microcephalic Idiot with Malformation of Brain.—A. K. Petery reports this case, and states that the description is based on a comparison with the normal adult brain. He mentions that E. A. Spitzka found this brain as small and elementary in cortical development as he had ever seen in a human brain; the cortical development being much below that of the higher apes. He believes that the brain has no distinct occipital lobe, and agrees that it is in callosal.

Chief Factors in Failure of Operations for Retrodisplacement of the Uterus.—F. C. Holden concludes: The gynecologist must be strong in the grace of discriminating; he must receive as elementary the proposition that the cervix must be placed upward and backward in the hollow of the sacrum. In the author's opinion, the six procedures to which he refers, with the addition of the Reynolds operation in short anterior invagination of the cervix, present a sufficient number of points of departure for every case. It remains only for the operator to apply that procedure which, with its individual modifications, is called for by the case before him. In short, success in this particular operative field is to be achieved by an unqualified adherence to fundamental anatomical facts.

Functional Heart Block in Pneumonia.—S. Neuhof describes two cases, one of which terminated fatally. In the patient who died the pathological examination showed no cause for the block. Both cases, he says, are probably produced by pneumonic toxins which acted on the medullary centres. The injection of atropine sulphate in the fatal case had no effect on the block.

August 22, 1914.

The Pathological Physiology of Uterine Bleeding, by E. Novak.—This paper was abstracted in our issue for July 4th, page 45.

Radium in the Treatment of Uterine Hemorrhage and Fibroid Tumors.—Howard A. Kelly and C. F. Burnam affirm, as the result of experience, that radium is an effective means for controlling uterine hemorrhage. It is suited to the treatment of fibroid tumors. Radium in its action is not more severe than simple uterine curettage. In brilliancy of results it is fully equal to surgery, while it offers the advantages of freedom from danger, pain, suffering, and the various postoperative effects.

When radium fails, there is still the operation, without one's having lost in the waiting. Compared with the Röntgen ray, radium is of simpler application, more rapid in effect, and it acts on the uterus with more intensity than on the ovaries. In the fibroid cases, radium offers the possibility of doing away with the tumor without destruction of the ovaries. The authors also insist that the fibroid itself should receive the major radiation, whether with Röntgen ray or with radium. The radium can cause a complete amenorrhea at any age. The intrauterine application, instead of the vaginal or cervical, is insisted on.

Röntgenotherapy in Uterine Hemorrhage.—G. E. Pfahler gives the disadvantages and advantages of this treatment as follows: The prolonged course usually necessary; this can be somewhat shortened by giving enormous doses through a large number of fields. The danger to the overlying tissues if the rays are not properly applied; by careful attention to technic, and exact measurements of the skin dose, this danger can be avoided. It is said to be more expensive than operation, and in a sense this is true; but if one considers that with this treatment board and hospital expense can be saved, that patients can go about their usual duties, the conclusion must be drawn that it is not more expensive. It is painless. It avoids the shock of an operation. It preserves to a certain extent the internal secretion which is lost in a complete oophorectomy. It does not interrupt the usual habits. Confinement in a hospital is avoided. In the hands of a skillful operator it is without risk. The menopause is brought on gradually. The amount of treatment can be fitted to the needs of the patient.

Bromoderma of the Leg.—Ludwig Weiss reports: 1. Drug eruptions may simulate almost any known skin affection. 2. A skin eruption starting suddenly, without any prodromal symptoms, is almost sure to be a medicinal eruption. 3. The violence of development, the preponderance of the local over the systemic disturbances, is characteristic of drug eruptions. 4. The brevity of the acute stage and the quickness of defervescence constitute a notable asset in diagnosis. 5. The usual four stages of the acute contagious exanthems—the prodromal, the eruptive, the fully developed and retrogressive, and the desquamative—are wanting. 6. The temperature never rises to the point shown by the acute exanthems, and the affection of the mucous membrane is never so severe.

Favus and Ringworm of the Nails.—M. H. Foster says that both diseases present practically the same symptoms. The affected nail is thickened, brittle, and sometimes even caseous; its natural color and transparency are lost, and it becomes opaque or yellow or dirty white in appearance. The process is essentially chronic, and if untreated continues indefinitely. Various other conditions resemble favus and ringworm. The fungi of the two diseases when obtained from the nails resemble each other so closely when examined microscopically, that a differential diagnosis on such findings alone is generally impracticable. If neither favus nor ringworm is present elsewhere, if there is no evidence of old favus, it is customary to make a diagnosis of ring-

worm, as ringworm of the scalp often disappears spontaneously at puberty, leaving no scars, and it is likely that the disease was transferred to the nails when it was active in the scalp. Any form of treatment must be preceded by curetting and scraping away the diseased part of the nail, so that the antiseptic remedy may be applied to the denuded surface.

MEDICAL RECORD.

August 22, 1914.

The Low Table Position and Other Aids to Suprapubic Prostatectomy.—C. L. Gibson, instead of the Trendelenburg position, has the patient in the horizontal position; he uses a special table from twenty-four to twenty-six inches high. Gas oxygen he believes to be the best anesthetic. In most cases, by omitting one or two catheterizations the bladder is sufficiently distended. Any necessary distention must be done by injecting water, as air distention is unquestionably fatal at times. Before making the midline incision the skin is painted with one coat of fresh tincture of iodine. The enucleation is easily accomplished by following Squier's procedure. Care must be taken that no pedunculated bits of prostatic tissue or strips of mucous membrane are left to fall into the vesical outlet, to act as a ball valve obstruction. A rubber tube about eight inches long, interior calibre one inch, is inserted just clear of the floor of the bladder. The original traction sutures are now tied, and they will sufficiently close the opening around the tube to make more suturing generally unnecessary. While the abdominal wall is being closed the sucker has been introduced into the bladder through the short drainage tube; not to be discontinued till the patient is removed from the operating table.

Coccygodynia.—F. C. Yeomans purposes the injection of 70 or 80 per cent. alcohol into the sensory nerves, as suggested by Schlösser in 1907. All his cases were of the type of neuralgia or neuritis of the coccygeal nerves to which this method is peculiarly applicable, though he thinks it should be tried in all cases of coccygodynia, whatever their nature, as its application is simple and harmless. The technic is easily carried out at the office, under strict aseptic precautions. The patient, with rectum empty, assumes the left lateral, Sim's position on a firm table, with the thighs well flexed on the abdomen, and the region of the coccyx is painted with tincture of iodine. An all glass Luer or similar sterile syringe of two c. c. capacity is filled with eighty per cent. alcohol and armed with a two inch needle of fine gauge. The right index finger is now inserted into the rectum, and the point of maximum tenderness determined by counter pressure with thumb outside. The needle is then introduced through the midline directly to the painful spot, and the injection, of from ten to twenty minims, is made. The pain from the injected alcohol lasts only a few minutes, but may be followed by a dull ache for a day or two. A single injection may possibly prove curative in effect, but as a rule three injections, or, at the most, five, are required.

State Prevention and Pulmonary Consumption.—T. J. Mays states that from facts now available,

it is quite apparent that the death rate of consumption has probably diminished in most civilized parts of the world, a reduction independent of any special legislative regulation; but where official legislation on health matters exists the death rate of the disease has actually increased. This rise is hardly credible in view of the tremendous efforts put forth and the millions spent during the last ten or twelve years; yet facts clearly sustain this statement. The stubborn fact remains that if well tried measures had been employed for the prevention of consumption, such as proved so successful in the American occupation of Santiago de Cuba, in place of importing the plagiarized Italian method (shown to have been absolutely worthless for preventive purposes), no one would have to perform the duty of pointing out the melancholy fact that, for the first time in a hundred years, this country was compelled to apply a procedure not only powerless to hold the mortality of this disease to the point of the preceding periods, but incapable of preventing a decided rise in the mortality.

LANCET-CLINIC

August 22, 1914.

Spasms.—Hoppe describes a spasm as a reflex muscular contraction caused by an irritation somewhere along the reflex arc. Spasms are characterized by extreme abruptness; lack of purpose; are not modified by the will, attention, etc.; and may be attended with pain. There is no change in the mental state; spasms may persist during sleep. There is a neuropathic condition of the general nervous system in a large number of cases. Facial spasm may be caused by painful conditions of the cornea or conjunctiva, by carious teeth, diseased conditions of the nose and cranial sinuses, by irritation anywhere, even intracranial or intraocular. Symptoms of facial spasm are usually unilateral; the digastric and stylohyoid are usually not involved; the platysma myoides may be affected; spasms may be limited to a single muscle or two muscles; contractions are usually clonic in type. The contractions are quick, lightninglike, occurring in rapid succession; also in paroxysms followed by a period of rest. Attacks usually occur independently of external causes and are increased by emotional excitement. They are not caused by psychic conditions and cannot be controlled by suggestions as the convulsive tics. The course is chronic and the prognosis varies with the ability to find the underlying cause. As to treatment, finding the cause is necessary; there may be error of accommodation or lack of muscular balance of the eyes, frontal and maxillary sinus disease, enlarged turbinates, tonsils and adenoids or ulcerated teeth.

Hydroadipsia.—(Absence of water thirst. Abstract of article which appeared in the *Lancet and Observer*, May, 1876; reprinted upon request.) McElroy maintains that as water is so necessary to human life some pathological conditions are connected with or dependent upon an improper supply to parts of living human bodies. He cites several cases which showed improvement when a sufficient amount of water was taken. One of his patients noticed that he passed a small quantity of highly colored urine, at times with a certain amount of

uneasiness. He had consulted different physicians but his condition remained the same. He then began drinking water—at times hot, made palatable with salt; at other times cold, but in much larger quantities than he had formerly taken. In a very short time his condition improved and he remained well. In this particular case it may be definitely assumed that there were no organic lesions present or he would not have recovered under any plan of management. Another case, having the prodromata of continued fever—injecting eyes, rapid heart action, and increase of temperature—was also greatly benefited by taking large quantities of water. Food must be dissolved in water with the aid of acids, alkalies, and pepsin; otherwise nutrition does not take place. Effete matter, or feces kept more or less soft by water, is excreted more easily. Stone in the bladder is a condition of crystallization due to lack of water. The pathology of the so called bilious attacks is probably lack of water as these cases improve when under treatment at watering places where they take large quantities of water daily. The amount of water lost through the skin, lungs, and urine is considerable and it has to be replaced. If not supplied to the system by drinking, it has to be taken from any available material, as the body tissues. Patients suffering from deficient water supply are for the most part unconscious of the cause of their discomfort. The use of tea and coffee restricts the intake of water, especially in those who use water only in moderate amounts. For patients with hydroadipsia, who are well nourished, large quantities of weak saline solutions such as potassium bicarbonate, chloride of ammonium, citric acid, and at times lime water are given. If badly nourished, weak solutions of hydrochloric acid with small doses of calomel, one half grain three times daily, benefit; later, weak infusions of prickly ash, black poplar, or some other products having bitter principles. It is of advantage to saturate the system with water in a short time. This can be done by giving from one to three pints at a time. Salt may be added to make it more palatable. Many headaches are relieved by the taking of water at the highest temperature it can be swallowed, and a good many chronic conditions are improved by the establishment of a proper water supply for the individual.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF
WOMEN AND CHILDREN.

July, 1914.

Retrodisplacements of the Uterus Following Confinement.—Flint found that of 272 patients, retroversion was observed in fifty-eight, 21.3 per cent. These figures, he believes, represent very closely the actual proportion of retroversions that may be expected after confinement, unless special measures are taken to prevent its occurrence. If involution is not progressive and regular, if the uterus is large and flabby, the patient should be given ergot, or a combination of ergotin, quinine, and strychnine three times a day, in addition to the hot daily vaginal douche. The knee chest position is also of great value.

Complete Sterilization of the Skin by Iodine.—Bove reports a series of experiments to determine

whether bacterial growth was inhibited or destroyed by application of iodine. The skin was lightly painted twice with a three and a half per cent. alcoholic solution of iodine (the patient being anesthetized for operation), and a strip four inches long by one half of an inch wide was removed. The results showed that the skin was sterile in practically every case, the few instances of growths being reasonably attributable to contamination. In five instances a vigorous culture of *Bacillus subtilis* was rubbed into the skin thirteen to eighteen hours before its removal and the area covered with a sterile dressing until the first coat of iodine was applied. In only one case did this organism survive. Bove believes that the first coat of iodine should be thick, as the penetration will probably be better.

Pathology and Prophylaxis of Rickets.—Winters says the cause of rickets is a faulty assimilation of salts. In normal bone, sixty-three parts are inorganic, thirty-seven organic material, while in rachitic bone there are only twenty-one parts inorganic to seventy-nine organic. Whatever interferes with a proper amount of assimilation of salts will cause rickets. It does not depend upon poor hygiene in any way, but is entirely a matter of feeding, and the one way to avoid it is to have the baby nursed by the mother. The author very strongly condemns the use of evaporated, condensed, desiccated milk, or whey powder, believing that every powdered, dry preparation of milk is a cause of rickets.

AMERICAN JOURNAL OF OPHTHALMOLOGY.

July, 1914.

Sodium Chloride a Possible Cause of Some Obscure Diseases of the Choroid and Retina.—A. E. Ewing reports a number of cases in which vision was impaired by various diseases of the eye; in these patients habitual indulgence in a great deal of salt in the food seems to have been a factor in aggravating the disease.

AMERICAN MEDICINE

July, 1914.

Anesthesia by the Anoci Association Method.—Louis Frank states that it must not be inferred that he believes operative mortality can be lowered by the employment of the Crile method alone; but he insists that appreciation of all the risks of surgical operations must be considered with a thorough understanding of the principles of this method of anesthesia. Perfect asepsis, control of hemorrhage, the condition of the patient as an operative risk, must all be placed in the balance, and surgical judgment must not be lacking. In highly recommending the anoci association method, he states that this recommendation is based upon an extensive experience in all types of surgery, in all classes of patients, of all ages, during a period of almost two years. He is positive that the mortality has been materially reduced.

Is Antityphoid Vaccination Harmless?—E. Zueblin says that so far there have been no experiments carried out as to how tuberculous infection may be influenced by typhoid invasion, though such experiments are on the way in Baltimore. Further, it would be desirable to control the cases with regard

to existing pulmonary tuberculosis, or with a disposition to its manifestation, previous to, during, and after typhoid vaccination. Should it in time be possible to furnish more substantial proof of such a relation existing between these two diseases, an important question for the general welfare would be answered. It also would be advisable to admit incipient tuberculosis among the contraindications to typhoid vaccination. In making such a restriction, when we consider the extreme frequency of tuberculosis, if a careful physical examination is made, a great number of individuals would miss the advantages of the preventive typhoid immunization, provided that the same doses of vaccine as for healthy persons are given. In typhoid cases, particularly in protracted, relapsing forms of the disease, the feeding with more calories should be recommended, since experience has shown that with the proper selection of fluid food of a higher caloric value the patients may overcome the effects of the disease in a shorter time, without increase of the danger arising from complications. Later, should careful examination of the chest reveal a reactivated lesion, diet, exercise, and all hygienic rules must be observed and enforced. The purpose of the present paper is by no means to minimize the indubitable merits of a method which, properly carried out, has not only saved millions of expense, but has also to a great extent preserved the lives of our soldiers. Every new method which is enthusiastically recommended is not absolutely free from inconveniences, which will become more apparent in the course of time.

ANNALS OF SURGERY.

July, 1914.

Bronchiectasis.—Willy Meyer, summing up the surgical aspect of the subject, says: "If a patient comes to the surgeon today with a well developed diffuse bronchiectasis and asks for relief, he should be told that at the present moment we have two operative methods of treatment at our disposal. The one, entailing comparatively little risk, and to be done in stages, will change the anatomical structure of the lung and make it collapse, but in all probability will only improve the trouble to a greater or less extent, while the other one, consisting in extirpation of the diseased lobe or lobes of the lung, if successful, may cure, but is still a dangerous procedure. The patient or his guardian must decide which course should be followed. It is to be expected that the majority will select the first procedure. Pneumectomy, then, always remains as a last resort, should the less serious operations fail to bring sufficient relief."

Cystic Disease of the Breast.—R. B. Greenough and C. C. Simmons draw the following conclusions from a study of eighty-three cases: 1. Of eighty-three cases of partial operation for cystic disease of the breast, seventeen or twenty per cent. were unsuccessful. 2. In four cases carcinoma occurred in the breast tissue left by the partial operation—4.8 per cent. 3. In five cases the disease recurred only in the other breast—5.9 per cent. 4. In eight cases the disease returned in the breast tissue left by the first partial operation—9.6 per cent. 5. The occurrence of carcinoma in cases of cystic disease, esti-

imated at about ten per cent. of all cases, demands radical treatment in all but the mildest cases. 6. The operation of choice should remove all the gland tissue of the affected side, and, when the disease is bilateral, of both sides. 7. This can best be accomplished by subcutaneous amputation, leaving the areola and nipple, or by elliptical amputation. 8. Where grave doubt as to diagnosis is present, elliptical amputation is to be preferred. 9. Local excision of nodules in the breast, suspected of being malignant, should never be performed. 10. The operation of local excision or partial plastic resection should be restricted to the earliest and mildest types of cystic disease. In such cases plastic resection is the operation to be preferred. The writers state that the safest way of exploring a breast tumor of doubtful diagnosis is by the removal of the entire breast, with the pectoral fascia, by elliptical amputation. The breast is then sectioned, and frozen sections are made, if necessary. If carcinoma is found, the complete operation is performed. This procedure depends for its safety upon the fact that doubtful cases of cancer are early cases, and that in early cases extension beyond the confines of the breast itself may reasonably be expected not to have occurred.

Two Stage Operation in the Treatment of Cancer.—George W. Crile believes that the newer developments in surgical technic, by which much danger and most of the suffering of surgical operations have been eliminated, enable the surgeon fully to utilize the advantages of two stage operations for cases heavily handicapped by lowered vitality, while in cancer cases the danger of immediate reimplantation is minimized. Critical cases of acute infections of the pelvis, of the appendix, and of the gallbladder, may be more safely treated by a preliminary drainage, the operation being completed after the margin of safety has widened. Anoci association greatly expands the strategic possibilities of opportune surgery and lessens the mortality and morbidity attending critical operations upon heavily handicapped patients. The writer confidently expects to see the present mortality in stomach and intestinal resections reduced at least one half by the two stage operation under the technic of anoci association.

Surgical Aspects of Bronchiectasis.—James G. Mumford and S. Robinson propose the following conclusions: 1. Granted that bronchiectasis is commonly the result of bronchial obstruction by foreign body, tumor, or disease, the first indication in therapy should be the removal, if possible, of this obstruction. Bronchoscopy for the removal of a foreign body has not infrequently arrested bronchiectasis. 2. In the earlier stages of bronchiectasis, nitrogen gas injection producing artificial pneumothorax is indicated, and should always be tried. 3. Pleuropneumolysis, or extensive rib resection, is a dangerous procedure, with additional dangers in bronchiectasis. It should be employed only when adherent pleura prevents the introduction of nitrogen gas. Even then it is a dangerous procedure, and one of doubtful value. 4. In late cases of bronchiectasis, when the disease is obviously confined to one lobe, lung resection affords the sole hope of surgical cure. The attempt at lung resection in a

one stage operation has been attended with a high mortality. Occasional ill success does not prove that the one stage amputation will not become the method of choice. For the time being, at least, the general surgeon should first produce compression of the lung by artificial pneumothorax or pulmonary arterial ligature; much later, he should excise. Meanwhile, the writers hope that the student of thoracic surgery will improve the one stage excision.

ARCHIVES OF INTERNAL MEDICINE.

July, 1914.

An Acidfast Streptothrix.—D. J. Davis points out a fairly well defined group of pulmonary infections caused by weak acidfast branching mycelial growths which, in contrast to actinomyces, do not form raylike granules. These cases clinically are not ordinarily distinguished from pulmonary tuberculosis. For their treatment potassium iodide in large doses is indicated. The author reports an illustrative case in detail.

Blood Pressure in Pneumonia.—L. H. Newburgh and J. R. Minot assert that the blood pressure curve does not suggest failure of the vasomotor centre in this affection. Low systolic pressures in pneumonia are not invariably of evil omen. Systolic pressure in the fatal cases tends to be higher than in those that end favorably. Blood pressure measurements in pneumonia cannot be used as a basis for treatment. Prognostic inferences based on the relation of the systolic pressure curve to the pulse curve (Gibson's rule) were oftener wrong than right.

Color Index of Red Blood Corpuscles.—E. Meyer and E. E. Butterfield ascertained that the high color index in pernicious anemia is the result of an increase in the oxyhemoglobin content of the erythrocytes. No derivative of hemoglobin other than oxyhemoglobin, such as methemoglobin, is present in the blood in cases of pernicious anemia with a high color index. The color index of normal human blood varies within the narrow limits of 0.9 and 1.1. The average total hemoglobin concentration of normal defibrinated human blood is in the neighborhood of sixteen grams in 100 c. c.

Differentiation of Streptotrichosis from Tuberculosis.—E. J. Claypole describes the preparation of streptotrichins, or glycerinated bouillon cultures, concentrated, of nonacidfast mycelial and partly acidfast bacillary forms of pathogenic streptothrix. Application of these streptotrichins over artificial abrasions were of marked diagnostic value, definite skin reactions taking place in persons with frank streptothrix infections, but not in controls, including cases of recognized tuberculosis. Gland and bone infections with streptothrix may be demonstrated by these reactions as well as pulmonary infections. Streptotrichosis and tuberculosis may coexist in the same person, as shown by appearance of both organisms in the sputum and both skin reactions.

Leucocytic Extracts.—R. A. Archibald and G. Moore demonstrate that leucocytic substances possessing positive therapeutic value may be procured from leucocytes obtained directly from the

blood of normal animals, in quantities not only therapeutically practical but commercially possible—conditions that can hardly be claimed for leucocytic extracts prepared from inflammatory leucocytes. Parenteral injection of leucocytic substances causes a marked leucocytosis and marked changes in the individual leucocytes. Leucocytic extracts have not enough direct bactericidal power to account for the profound changes produced following their parenteral introduction into an animal suffering from an infectious disease, and the benefit obtained is probably due to the fact that the extracts furnish elements which stimulate the fatigued or exhausted leucocytes, enabling them to carry on their function of phagocytosis.

INTERSTATE MEDICAL JOURNAL

July, 1914.

Lymphatic Tuberculosis Simulating Hodgkin's Disease.—J. M. Patton reports this case, in a negress, terminating fatally. Microscopically, the picture was the same throughout—great increase in fibrous tissue, with extensive hyaline degeneration, foci of caseation, and numerous tuberculous giant cells. There was no proliferation of endothelium whatever, as one would expect to find in lymphatic tuberculosis of the Sternberg type. This particular type of tuberculosis, the author says, is sufficiently common in negroes to offer no pictures other than those met with clinically. The case is not one of the Sternberg type except in its clinical features. Examination of the character of the tumor in some cases is the only way of making a correct diagnosis; and if the recent investigations as to the definite pathology and infectious nature of Hodgkin's disease are sustained, an early diagnosis by such means becomes all the more important.

Classification and Treatment of Convulsions in Infancy.—C. G. Grulee states that in symptomatic convulsions, usually occurring at the onset of some acute febrile affection, little can be done to control the seizure, but to prevent recurrence, the use of sedatives, as chloral by the rectum, is advisable. In uremic convulsions every effort should be made to control the convulsion in a short time and, if possible, not to put any extra work upon the kidneys. Free catharsis is very desirable. In convulsions due to intracranial pathological conditions the treatment indicated is that for the underlying condition. As to epileptic convulsions, contrary to the opinion of most, it is now believed by those who have thoroughly studied the matter, that epilepsy originates more frequently in the first year of life than in any other. The sixth and last type, spasmodic, represents a majority of all convulsions occurring in infancy, and has several distinctive characteristics: 1. A tendency to rapid repetition. 2. The frequent occurrence of laryngospasm. 3. The presence of increased electrical irritability. 4. The fact that almost all cases occur in artificially fed infants suffering from some nutritional disorder. Of all the convulsions mentioned, this type is perhaps most amenable to treatment—by hygiene, diet, catharsis, if necessary, and sedatives during the seizure, chloroform, morphine hypodermically, or chloral by the rectum.

Proceedings of Societies.

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

Fifth Annual Meeting, Held in London, England, July 27 to August 1, 1914.

The President, Dr. JOHN B. MURPHY, of Chicago, in the Chair.

(Continued from page 438.)

Typhoid Perforation (Continued).—The symptom that he would place second because of its constancy and significance was change of expression. Sixty-five per cent. showed a very definite alteration, twenty-eight per cent. a gradual change, and seven per cent. no change. The change in appearance was manifested in a picture of suffering from pain, a sudden pallor, a change from a feeling of comfort to that of distress, a restlessness, cardiac failure, vomiting, painful defecation, loss of rallying power after hemorrhage, a chill, profuse sweat, general malaise, an unaccountable change in general condition for the worse, or sometimes a feeling on the part of those in attendance that something had happened that they could not account for. Tenderness was present in some degree in eighty-eight per cent. of the cases and absent in twelve per cent. In fifty per cent. it was generalized; in twenty per cent. limited to the lower abdomen; in sixteen per cent. to the right lower quadrant; in nine per cent. to the left lower quadrant; in two per cent. to the right upper quadrant; in one per cent. to the left upper quadrant; in one per cent. to the upper abdomen; and in one per cent. to the umbilical zone. As for rigidity, eighty-five per cent. of the cases showed distinct rigidity, and fifteen per cent. did not. In a very few instances, the term "resistance" would more correctly designate the condition present. Little or no value can be attached to the absence of liver dullness. If the area of liver dullness had been noted from day to day and then suddenly disappeared in association with abdominal pain, it was significant. It was valueless in a distended abdomen. It was obliterated in forty-five per cent., not changed in sixteen per cent., and not mentioned in thirty-nine per cent.

The fall in temperature so often spoken of rarely occurred. Occasionally there was a fall of one or two degrees in six or eight hours, but only in a few cases did any spectacular drop, such as from 103° F. to normal, take place. The pulse changes were always clear. In ninety-five per cent. of the cases the pulse quickened. Of the change in blood pressure he could not speak. Those who had seen many typhoid perforations would appreciate Fitz's statement, that perforation of the intestine in typhoid fever might take place without any suggestive symptoms, and that suggestive, even so called characteristic symptoms, might occur without any perforation having taken place.

What symptoms then called for immediate operation, or rather, what were the minimum signs that might demand surgical intervention? Persistent pain, definite change for the worse in the expression of the patient, tenderness, either abdominal or rec-

tal, rounding up of the abdomen, and increased resistance to pressure. If these symptoms were present, even if the temperature and pulse were not decidedly altered nor vomiting present, the likelihood of a perforation was very great. Local anesthesia had very materially altered our attitude toward early operations. The abdomen could be quite well opened under local anesthesia without causing the patient any pain whatever. The closing of a typhoid perforation was one of the simplest operations in surgery, one that could quite well be performed by any one capable of carrying out a perfect surgical technic. Doctor Armstrong described the technic followed by him and in conclusion noted that the percentage of recoveries was gradually increasing. In the Royal Victoria and Montreal General Hospitals 140 perforations had been closed and thirty-eight had recovered, or twenty-seven per cent. From January, 1909, to June, 1914, he closed twenty-two typhoid perforations and eleven cases proved favorably, or fifty per cent. An important point was to let the house staff feel that it was a reflection on their professional attainments to overlook a perforation. When once they really appreciated that fact, cases were sent to the operating room promptly.

Sir ANTHONY BOWLBY had received the greater part of his experience of typhoid fever and its surgical accidents during the South African war. He was of the opinion that most cases of supposed recovery after perforation without surgical treatment were not really cases of perforation; perforation was almost invariably fatal without operation. Diagnosis early enough for useful operation could be generally made, and prompt operation should be the routine treatment. The difficulty of diagnosis was in direct proportion to the severity of the illness. More than half of all the cases of perforation were not given a chance of operation. After having run through the symptoms of perforation Sir Anthony said that a blood count should be made two or three times a week as a part of the routine examination in typhoid fever. A sudden rise in white cell count suggested the onset of some inflammatory lesion. He agreed with Doctor Armstrong on the importance of observing the patient's expression, for even if the patient was unconscious, he showed a restlessness after perforation, contrasting strongly with his previous lethargy. A rigor after the second week should always excite suspicion. He especially directed attention to the fact that perforation might be multiple, therefore the surgeon should not be content with discovering and dealing with a single perforation.

Hyperthyroidism: Primary and Late Results of Operation.—Dr. C. H. MAYO, of Rochester, Minn., said that the term "hyperthyroidism" was so expressive of a group of symptoms, the symptom complex of which had been seen and described under various names in all countries, that it was chosen as the title of this study. Through one hundred and fifty years the condition had been a topic of discussion by Morgagni, Flajanni, Graves, and Basedow, and later under the term "exophthalmic goitre" by innumerable other observers. Practically all cases of clinically true exophthalmic goitre showed marked primary hypertrophy and hyperplasia of the parenchyma of the thyroid. Furthermore, the clin-

ical stage of the disease was paralleled by the stage of development of the pathological condition in sufficiently marked degree that one might estimate the clinical condition from the pathological examination with about eighty per cent. of accuracy. The degree of severity of the clinical condition was similarly paralleled by the pathological condition of the gland. The relationship between hypertrophy and hyperplasia of the thyroid and the clinical symptoms of true exophthalmic goitre was remarkably constant. While mild degrees of hypertrophy and hyperplasia within physiological limits might be present in the gland, particularly in the young and during pregnancy, yet the absence of this condition in the thyroid of adults coming to operation for toxic

chyma of the fetal type with an increase in each instance of secretory activity and absorption. The process was a chronic one, but sufficiently active to cause the patient to consult a surgeon earlier than did those in clinical group 1. 5. The nearer the cases of clinical group 2, toxic nonhyperplastic, approach, in age and symptoms, true exophthalmic goitre, the shorter the duration of the period of goitre before operation, and the smaller the average weight of the gland at the time of its removal. 6. The cases of toxic goitre of clinical group 1, that is, those in which the symptoms were of the cardiovascular variety, much more closely resembled cases of simple goitre in their pathology in all respects than did the cases of clinical group 2. A larger number



Charing Cross Hospital.

nonexophthalmic goitre and nontoxic goitre was most striking. Without making any allowance for either clinical or pathological errors of diagnosis, less than one per cent. of all cases coming to operation showed any considerable primary hypertrophy and hyperplasia of the parenchyma of the thyroid, except as associated with clinical symptoms of true exophthalmic goitre. 3. The pathology of atoxic simple goitre was marked essentially by atrophic parenchyma, decreased function, and decreased absorption. The process was a chronic one. 4. The pathology of toxic nonhyperplastic goitre of Plummer's clinical group 2, that is, those resembling exophthalmic goitre, was one of increased parenchyma through regenerative processes in atrophic paren-

of them were of the colloid goitre type; the enlargement of the thyroid had existed for a longer period before operation, and the portion of the gland removed was materially larger than in those cases of clinical group 2. 7. Finally, it might be stated that all the foregoing pathological evidence pointed to a constant relative association of increased secretion and increased absorption from the thyroid proportional to the degree of toxicity on the part of the patient. They had as yet no absolute proof that such secretion and absorption was the cause of the symptoms or coordinate with them, but the evidence pointed strongly to that conclusion.

What caused an overactivity of the thyroid? It was possible that the condition might arise from

extra demands made upon the gland in its capacity for nutrition or defense in toxic conditions. Possibly in its latent sex relationship such demands might be temporary or long continued. For a time the



View of St. George's Hospital from Grosvenor Place.

excess secretion might be neutralized. When shock was attributed as the cause of the sudden onset of hyperthyroidism, it was often only an evidence that the equilibrium of the nervous system had been upset in the presence of a latent hyperplastic thyroid, thus producing the sudden symptoms which had previously been controlled or neutralized.

Up to June 15, 1914, 6,868 operations had been performed for goitre in the clinic of St. Mary's Hospital, Rochester. Of these, 3,295 were performed upon patients with hyperthyroidism. The greater number of these patients had been seen clinically by Plummer, who reported his observations in the *American Journal of the Medical Sciences* for August 30, 1913. The various types of goitre should be treated both medically and surgically. Exophthalmic goitre was essentially a disease of a chronic character, presenting exacerbations and ameliorations of symptoms, extending over a period of months or several years. While this disease was amenable to surgical treatment by the removal of a large amount of the hypersecreting glands, it was by no means urgent surgery, and all patients, during periods of exacerbation, should be considered as medical cases. Lastly he would emphasize the fact that the great lowering of mortality following operation for exophthalmic goitre was due, less to trivial details of technic, than to the better judgment displayed in the preparation of patients, the selection of a time, type, and extent of operation and its division into stages, with varying intervals of rest. The high mortality of the past was no longer a determining factor against the surgical treatment. As many as 278 consecutive operations had been made on the thyroid between deaths occurring from the operation. The average operative mortality at present probably varied from one to three per cent. Relapse of some degree occurred in a small percentage of cases through the removal of too small an amount of thyroid. Such cases should be reoperated in. It might be well to note the effect of pregnancy during the progress of the disease or following the operation. A few of these patients were in much better health during pregnancy; however, in the majority the symptoms were worse. He believed that the

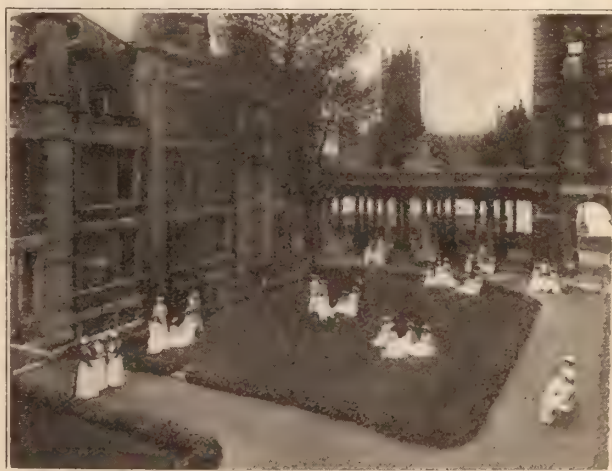
risk to life incident to pregnancy and labor was less than from abortion, which rarely should be produced, since most of those patients improved after childbirth.

Mr. JAMES BERRY, of London, intended to speak mainly from the clinical side of the matter. His experience had been only in hundreds and not in thousands like that of Doctor Mayo. The total number of operations for removal of goitre that he had performed was 966, or, adding operations for ligation of thyroid arteries, slightly over 1,000. At one time, while operating upon ordinary goitre, he had been opposed to operation in exophthalmic goitre, the procedure being too dangerous. However, experience and improvements in technic, especially local analgesia, had altered his view, though cases had to be chosen carefully. Doctor Mayo had insisted upon the need to avoid operations during mental irritability, muscular weakness, and acute cardiac dilatation. He divided cases of hyperthyroidism for practical purposes into: 1. Those with the classic symptoms, and, 2, ordinary goitres, on which any one or two of these symptoms might be grafted. The second class was not to be included in statistics of operation, for true exophthalmic goitre could be cured by operation with little risk. Since 1912, he had performed 215 operations for hyperthyroidism, his experience up to that time having been related in his Lettsomian lectures.

EVENING SESSION, THURSDAY, JULY 30.

Professor KRÖNIG, of Freiburg, Germany, was unable to attend the congress owing to the fact that he had been called upon for service in the German army.

Dr. C. JEFF MILLER, of New Orleans, filled the gap and recorded his impressions of Doctor Krönig's work in the nonoperative treatment of carcinoma, he having returned recently from a visit to Professor Krönig's clinic. According to Doctor Miller, operation for operable early uterine tumor had been given up entirely by Professor Krönig in favor of



Square between the blocks of St. Thomas's Hospital, with the Houses of Parliament in the distance.

radiation treatment. The results of x ray treatment were regarded as superior to those of hysterectomy for fibroids, treatment extending over three or four months and repeated at several sittings. Statistics

from the Freiburg clinic seemed to show that malignancy developed in only one per cent. of fibroids, and even when it did develop, radiation would cure it. Professors Krönig and Aschoff were not in agreement with Professor Bumm's statements that deep seated cancers could not be influenced by x rays. Professor Krönig was of the opinion that high doses of radium, strongly filtered, had great possibilities in the treatment of malignant disease in deep seated organs. He was a believer in powerful radiations carefully measured and properly controlled, administered over long periods. He employed large quantities of radium and thorium from a greater distance than many other workers; for instance, when treating carcinoma of the cervix, he did not apply radium through the vagina, but from outside the abdomen. He did not believe in the implantation of radium into the actual growths. Doctor Miller, although impressed by all he witnessed, was somewhat sceptical as to the soundness of Professor Krönig's views.

Treatment of Inoperable Cancer of the Uterus by Application of Heat.—Dr. I. F. PERCY, of Galesburg, Ill., said that at the present time the treatment of cancer might be easily differentiated into two classes. The first of these was the operable, which applied almost wholly to the early manifestations of the disease; and the second, the inoperable, which concerned us most at this time. He reviewed the various modes of treating inoperable cancer and said that, reduced to the simplest statement, the problem in inoperable cancer had always been twofold: First, to get rid of the gross mass; and, second, to destroy the progressive metastases. The second point usually lost much of the significance in the overshadowing presence of the primary great mass. If what Vidal and others told us was true, it was a rational procedure to attack these morbid masses with heat. But a method tending to raise the whole body above 40° C. (104° F.) was impracticable because dangerous. After pointing out in what respects the methods of using heat in the treatment of inoperable carcinoma of the uterus, as hot air, hot water, steam, electrocoagulation, fulguration or actual cautery failed, he explained a method suggested by himself which had none of the objections which could be urged against the other methods. He referred to the development of heat through a most efficient electric heating iron, which could be perfectly regulated by means of a rheostat when applied to the involved tissue. With the electric heating iron and his water cooled speculum and the vaginal dilator, a maximum penetration and dissemination of heat was obtained in the structures involved. More than this, the low degree of heat which his experiments showed to be more effective than the intense heat already mentioned, could be maintained accurately. This low degree of heat did not burn up the cancerous mass, but merely made it so hot that the hand of the surgeon encased in a medium weight rubber glove could not hold it. When this degree of heat was reached and maintained for from ten to twenty minutes, the cancer cells were absolutely killed, while the normal cells were not injured. The important thing was not to convert the growth into charcoal. The charcoal or carbon thus formed inhibited the further dissemination

of heat, not only through the cancer mass, but beyond. More than this, when the growth was converted into charcoal, drainage was prevented for a number of days. This permitted of the absorption of a larger quantity of broken down cancer cells than the average of these patients could tolerate, and many of them died as a result of this mistaken method of applying heat. Carbonization was produced in a few minutes by a cautery heated to a bright cherry red color. Carbon inhibited the dissemination of heat. To overcome this, still greater degrees of heat were required, which were extremely difficult to control, endangering the rectum, the bladder, and the ureters. The heating iron, then, when used through the water cooled speculum, should not be hot enough to scorch a pledget of white cotton lying on the heating iron for half an hour. His experimental work and the operation itself demonstrated that when the "cold iron" was applied to the affected tissues, not only was there much less destruction of normal cells, but a far greater penetration of heat, sufficient to kill carcinoma. The basic idea, therefore, of this treatment was not cauterization, but the production and dissemination of heat in the gross primary mass of cancer. He would leave the statistics of results in his treatment of inoperable cancer for a future paper. All that might be said at the time was that he believed that a large number of cases, if not practically hopeless when first presented for treatment, would give approximately fifty per cent. remaining free from recurrence over five years.

Results of Radical Operative Treatment of Cancer of the Uterus.—Dr. THOMAS WILSON, of Birmingham, England, after reviewing the history of the operative treatment of uterine cancer, observed that the difficulties of estimating justly the results of any curative method of treatment of cancer were very great by reason of the uncertain course and duration of the disease. Cancer did not grow with equal steps, but now halted, again receded, and anon made rapid and tumultuous progress. In different patients the earliest symptoms made their appearance at various stages of the disease. When cancer began in the uterus, one patient had recognizable symptoms at the very beginning, while another was conscious of nothing unusual until the disease was already far advanced. The duration of the disease was in the highest degree uncertain; of two women with the affection apparently in the same stage, one might die in a few weeks and the other live for several years. In the practice of the operating surgeon, groups of cases, successful as regards ultimate cure, alternated with other groups apparently similar, but all ending in rapid recurrence. All which things tended to show that the actual living virus of cancer, when at length it was discovered, would be found to pass through varying phases of growth and activity, now active and virulent, now stationary or sluggish. On the other hand, marked differences existed in individual hosts as well as in the various organs and tissues of the body. In some organs and persons cancer appeared to take root easily; it grew rapidly and soon became generalized. In some very early cases of uterine cancer, the regional glands were already invaded; while in patients dead

of the disease the glands were reported to be free in as many as fifty-four per cent. Relative immunity varying in degree, resided in some organs and tissues, and in certain individuals. Not every person, exposed to the causes of cancer, whatever these might be, manifested the disease. Many were called, but few were chosen. Here then were the two factors which went far to explain the impossibility of forming an opinion on the course of the disease and on the probable result of operation in any individual case. As for standards of comparison with regard to operability, in the large German clinics they found that the cases of cancer of the uterine cervix afforded a ratio of operability of forty-five to sixty per cent. and even higher, and absolute curability of twenty per cent. Wertheim's five year completed statistics of 450 cases showed an operable ratio of forty-six per cent., with a primary mortality of 19.5 per cent., and an absolute curability of nineteen per cent. In Great Britain, with rare exceptions, the operability was not greater than from thirty to forty per cent. and the total curability more than ten per cent. The low operable ratio was not due to any difference in the disease, but rather to the fact that the general public and the main body of the medical profession had not yet grasped the truth that uterine cancer was curable in a large proportion of those cases that applied early for treatment. The consequence of this ignorance was that women did not seek medical aid promptly, and that when they did, the necessary investigation was only too often delayed.

In Great Britain as, generally speaking, in America, gynecological work was spread over a large number of clinics of small or moderate size, and the opportunities afforded to the individual operator were comparatively limited. In testing and establishing a new operation, such as extended abdominal hysterectomy for uterine cancer, this arrangement had many disadvantages when compared with the large clinics and extensive opportunities that were found on the European Continent. To this more than to any one cause was probably due the fact that these operations had been practised extensively and successfully in Vienna and Germany far in advance of the work that had been done in Great Britain.

Doctor Wilson then examined his own work that had been done in the gynecological department of the Birmingham General Hospital. This department had fourteen beds and was a fairly typical one in Great Britain. His total five year results up to June 30, 1909, had been investigated and showed that, with an increased operable ratio and the adoption of the abdominal method of operation, the absolute curability of his cases had risen from 5.5 to 10.2 per cent. It followed, from his experience, that although the final results hitherto obtained in Great Britain were inferior to those of the best Continental clinics, they were steadily improving and might be confidently expected still further so to do. Hardly a year passed free from the joyous announcement of new and certain cures for cancer. Every new treatment was hailed with acclamation, tried with enthusiasm, held to be almost consciously selective in its action on the cancer cells, and then was dropped quietly into the ob-

livion of disappointing and forgotten things. Hitherto, surgical measures alone had stood the test of time and had justified their use, not only by progressively improving results, but also by affording opportunities for increasing our knowledge of the fell disease in the human race. The exact nature and the mode of origin of cancer were still veiled from our view, and the seer who should expound these was eagerly awaited. In the mean time it behooved us to continue to give to our patients the benefit of those methods which gave the greatest promise, being neither unduly lifted up by success nor cast down by many and grievous disappointments.

Dr. I. W. Eden, of London, pointed out that the three papers read exemplified the confusion that existed with regard to the treatment of cancer of the uterus. In these three papers three separate lines of treatment were advocated for the same disease. As a candid critic, he thought it his duty to warn against relying implicitly on any of the methods. An open mind should be preserved, although but for the consciousness of the necessity, he would have felt inclined at once to reject the views of Doctor Percy, and he could not help thinking that his belief that a large number of cases treated by his method would give approximately fifty per cent. remaining free from recurrence for over five years, was illusory. He recognized, however, if the latter could prove his beliefs by statistics, properly and independently controlled, that in years to come everyone would do him honor. With regard to the Freiburg treatment, Doctor Eden drew a distinction between radium and the x rays. X rays were admitted to be of value, but of radium he was much less certain. Professor Bumm had said only three weeks ago, that if an adequate effect was produced at a depth of three to four cm. by radium, that the superficial tissues were so extensively destroyed that death might result; the speaker laid stress on the wide discrepancy between this view and that held by Professor Krönig. However, as regards x rays, the position was different. Doctor Eden had no doubt that a very beneficial local effect could be obtained by this method, even though the disease at the same time might be advancing in the deeper tissues. Wertheim's operation was the best devised and it seemed unlikely that any better would be brought out, and yet Professor Wilson's curability rate of ten per cent. could not be regarded as satisfactory. The best hope of improvement lay in x rays combined with operation; one method alone should not be relied on, but combined methods should be adopted. It must also be borne in mind that when in advanced cases operation was out of the question, the use of x rays would free the patient from many of her troublesome symptoms, even though it would not cure the disease.

Mr. W. E. MILES, of London, had never treated cancer of the uterus with x rays or radium, and therefore would only discuss surgical treatment. In order to carry out a radical operation, it was necessary, not only to remove the organ in which the primary growth originated, but also the tissue through which spread had taken place, and the tissue through which spread would take place, if the disease was unchecked. Surgeons and pathologists

cooperated in mapping out these zones; and three such zones had been definitely determined in the case of cancer of the cervix. There was the downward spread into the vagina and the connective tissue on either side of it, and in all radical operations as much of the vagina as possible should be removed. The lateral zone of spread was into the parametrium and mesometrium, which must in all cases be completely removed. The upward zone of spread was along the lymphatic paths. Roger Williams's statistics, quoted by Professor Wilson, to the effect that in fifty-four per cent. of cases of fatal uterine cancer there was no involvement of the pelvic glands, conflicted with those of the Cancer Hospital at Brompton. In the Cancer Hospital the interiliac glands of patients dying from inoperable cancer were always affected and should always be removed in an operation. Moreover, if these glands at operation were found to be definitely infiltrated, then the common iliac glands should also be removed. The inner groups of the external iliac glands were also often involved and sometimes the inguinal glands secondary to these. The lateral sacral, however, were never involved.

Dr. JOSEPH C. BLOODGOOD, of Baltimore, said that surgeons had been so overwhelmed with the details of technic of these extensive operations that enough consideration had not been given to the beginnings of cancer. In nearly all cases, cancer practically gave warnings to those in whom it was developing, and therefore any campaign of education as to the early symptoms of cancer was justifiable, no matter how much it cost. In the early stage of cancer, treatment should give satisfactory results with practically no mortality in well trained hands. The early preventive treatment of cancer was all important, for cancer never began in a healthy spot.

(To be concluded.)

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Diseases of the Heart. By JOHN COWAN, D. Sc., M. D., F. R. F. P. S., Professor of Medicine, Anderson's College Medical School; Physician, Royal Infirmary; Lecturer in Clinical Medicine in the University, Glasgow; Examiner in Medicine, Royal Army Medical College. With Chapters on The Electro-Cardiograph, by W. T. RITCHIE, M. D., F. R. C. P., Physician, Deaconess Hospital; Assistant Physician, Royal Infirmary, Edinburgh, and The Ocular Manifestations in Arterio-Sclerosis, by ARTHUR J. BALLANTYNE, M. D., F. R. F. P. S., Surgeon Eye Infirmary, Glasgow. New York and Philadelphia: Lea & Febiger, 1914. Pp. xx-438. (Price, \$4.)

As a result of the large amount of experimental work that has been done, the general practitioner has, in the past few years, realized more and more the importance of correctly interpreting heart and arterial conditions. Complicated methods of investigation have been employed, first in the laboratory, but finally at the bedside, and much has been revealed. This present publication brings the whole subject up to date in a clear and concise way and should be of great help to physicians. The underlying pathology of the lesions is well explained and illustrative cases are freely employed. The author also shows that it is possible to carry on truly scientific work in the wards of a general hospital. For this reason the book is valuable, also, as a stimulus to those who feel that they are overcome with work.

The Surgery of the Stomach. A Handbook of Diagnosis and Treatment. By HERBERT J. PATERSON, M. A., M. C., M. B. (Cantab.), F. R. C. S., London. New and Revised Edition, With Plates. New York: William Wood & Co., 1914. Pp. xix-342. (Price, \$4.)

The appearance within thirteen months of a second edition of this work is sufficient evidence of the warm reception it has received. The time since the appearance of the first edition is so brief that extensive changes did not seem necessary. The chief additions are in the chapters devoted to gastroenterostomy—its technic, physiology, and end results—and to x ray diagnosis. The latter has made such remarkable progress within a year, on account of improvements in technic, that it has become imperative to complete these chapters by new plates and descriptions. In its present form, the volume represents the most up to date monograph on this extremely important subject. The author's wide experience, coupled with intimate knowledge of the work of others, notably our American pioneers in this field, makes the book of great value, not only to the abdominal surgeon, but also to the general practitioner desirous of familiarizing himself with this comparatively new subject and the wonderful results obtained by surgery in what were formerly considered purely medical conditions. It cannot but be gratifying to the American medical profession to have the author dedicate the volume to one of our leading abdominal surgeons, Dr. William J. Mayo, and to acknowledge so generously the great part which he and others in this country have played in the development of the gastric surgery of today.

Bacteriology for Nurses. By ISABEL McISAAC, R. N., Author of *Primary Nursing Technique*, *Hygiene for Nurses*, *Hygiene for the Use of Public Schools*. Second Edition Revised. New York: The Macmillan Company, 1914. Pp. xii-179. (Price, \$1.25.)

In 176 pages of large type, Miss McIsaac has compiled an elementary treatise on bacteriology that should prove useful for trained nurses, in enabling them to understand the references of a lecturer or clinical teacher and to take proper care of the bacteriologist's apparatus. No technic is described sufficiently to permit carrying out any of the scientific laboratory procedures, but ample explanation is given, and with this book in hand, the nurse can follow understandingly the work of an expert.

A Mind Remedy. By JOHN G. RYERSON, M. D. Boonton, N. J.: Published by the Author, 1914. Pp. xii-82.

In this extraordinary little work, the author avers solemnly that he has cured cases of asthma, eczema, spinal curvature, alcoholism, mania a potu, diabetes, gout, arteriosclerosis, nephritis, chorea, goitre, dysmenorrhea, and other maladies too numerous to mention, by the administration of lactose. Lactose has also the power of changing the habits and temperament of children, who, under its effects become docile and studious. Now, thirty years ago, we should have had great sport in writing ironically about this treatise, but we have so repeatedly warned our friends from *a priori* conclusions that we are ashamed to do more than summarize the author's statements and leave them with our readers, to whom we promise a concatenation of most remarkable emotions if they will but glance through Doctor Ryerson's pages.

Nurses For Our Neighbors. By ALFRED WORCESTER, A. M., M. D., Fellow of the Massachusetts Medical Society; Member of the Obstetrical Society of Boston; Ex-President of the Harvard Medical School Alumni Association, etc. Boston and New York: Houghton Mifflin Company, 1914. Pp. 267. (Price, \$1.25.)

This is a most entertaining book, calculated to break in on certain lines of thought which have become orthodox to many a physician. It includes among other matter, a history of nursing in England and in America, and praise is given to some of the old types of nurse at the expense of some of the highly trained maidens of today. Nursing, in the opinion of the author, has been somewhat overdone and many a surgeon shirks his responsibilities and saves his feelings by making over to the nurse too many postoperative details. There is sharp criticism of the training given in some hospitals, and it is noted how high spirited, sensitive women who have broken down under work unintelligently imposed, have made superb

nurses under other and more scientific and sympathetic supervision. We should advise not only every nurse, but every doctor to read this unusual book.

Der Salvarsantod. Seine Ursache und seine Verhütung Intravenöse oder intramuskuläre Salvarsaninjektion? Von Dr. CARL SCHINDLER, Spezialarzt für Hautkrankheiten in Berlin. Mit 5 Tafeln und 1 Abbildung im Text. Berlin: S. Karger, 1914. Pp. iv+184.

This book is a violent defense of the thesis that the typical "salvarsan death" is characteristic of acute arsenic poisoning. This thesis is skillfully supported by laboratory and clinical data. The book concludes with a plea for intramuscular injection of calomel and salvarsan in oil, of which the author states that he has administered over 50,000 injections with uniformly satisfactory results. This book merits the attention of all who are interested in salvarsan therapy.

Atlas und Lehrbuch wichtiger tierischer Parasiten und ihrer Überträger. Mit besonderer Berücksichtigung der Tropenpathologie. Von Dr. med. et phil. R. O. NEUMANN, O. ö. Professor der Hygiene und Direktor des Hygienischen Instituts der Universität Bonn, und Dr. med. MARTIN MAYER, Abteilungsvorsteher am Institut für Schiffs- und Tropenkrankheiten in Hamburg. Mit 1300 farbigen Abbildungen auf 45 lithographischen Tafeln und 237 schwarzen Textfiguren. München: J. F. Lehmann, 1914. Pp. vi+580.

Lehmann's atlases are so well known that it seems hardly necessary to say more than that this volume is equal to the others. In this day, when the great importance of the transmitters, as well as of the parasites themselves, is so thoroughly recognized, such a book as this is of utmost value. The text gives excellent descriptions of the many organisms, and their carriers, that have been found to be the cause of disease. In the reading matter some 237 splendid illustrations in black are included. At the end of the book are forty-five plates containing 1,300 colored lithographs that cannot be too highly praised and that add much to an already valuable publication. Though costly, it would be money well spent to add this book to one's library.

Electricity in Diseases of the Eye, Ear, Nose, and Throat. With Illustrations. By W. FRANKLIN COLEMAN, M. D., M. R. C. S., Eng., Ex-President of, and Professor of Ophthalmology in the Post-Graduate Medical School of Chicago; Ex-President of The Ophthalmological Society of Chicago, etc. The Courier-Herald Press, 1912. Pp. 595. (Price, \$5.)

There is no doubt but that electricity has long since taken its place in the practice of medicine, and the fact that the implements of administration are still being developed and improved upon, speaks for its possibilities in the future. The author seems to have studied the subject well, and in the volume at hand has attempted to present this branch of medicine in a complete and up to date form. Not only are his own views and successes freely cited, but he refers extensively to those of others of recognized authority. The opening chapter discusses the physics of electricity in terms of such simplicity as to be easily understood by any reader not versed in the subject. The various forms of administration of the current and the appliances used are duly considered. The application of electricity in diseases of the eye, ear, nose, and throat, is thoroughly discussed. Many cases are cited in which beneficial results have been noted. While the citation of these numerous cases is of interest, some of the results reported are almost miraculous, and would tend to indicate that electrical treatment will succeed when all other methods fail. Unfortunately the value of these references to the cases of others goes for naught, because of the failure of the author specifically to quote the source of the references. Furthermore, in reporting the cure of certain conditions, frequently only a single case is cited, rarely more than two or three. This is hardly sufficient evidence to stamp the efficacy of any special form of treatment. No doubt, there is considerable virtue in the use of electricity in skillful hands and in selected cases. According to the results of the author, the x ray is almost a specific in the treatment of trachoma, he having had only one failure in thirteen cases. The illustrations are clear, instructive, and well executed. The list of authors at the end of the book, occupying a little more than two and a half pages, is hardly of benefit to the

reader, while the biographical references, consuming a page less, seem to be useless because of the absence of dates. Notwithstanding the existence of numerous typographical errors and other points subjected to our friendly criticism, the book contains much useful knowledge of benefit to the practitioner.

Interclinical Notes.

G. L. Teeple, in *The Steam Shovel*, a story in the September *Century*, gives an old woman's idea of the picture of Justice on the wall of a court room: "A great fierce looking woman, a big sword in one hand, a pair of balances in the other, lifted up ready to throw; with her eyes blindfolded so there was no telling who would get hit!"

* * *

George Bronson Howard, in *The Oubliette*, a capital story of Villon in the *Century* for September, speaks of processions of acolytes with priests at their heads. Mr. Howard ought to know that the clergy walk last in processions.

* * *

There is a fine essay on literature and life by Arthur C. Benson, in the September *Century*. It contains a sentence, amusing to twentieth century readers: "Browning was haunted by the eighteenth century idea that there was something not quite respectable about professional literature, and that, like Gray, he wished to be considered a private gentleman who wrote for his amusement."

* * *

Louise Winter, in *Young's Magazine* for September, tells of a heroine who has one of those mysterious diseases confined to fiction, in which an operation is imperatively necessary, but which permits her to rush fairly through the story. The Price at Thirty is the name of this otherwise very good tale. In *The Misfortunes of a Walking Telepath*, Edward S. Goodhue states that his hero once took part in "a private theatrical," which sounds to us much as if it had been said that he had studied a mathematic or was interested in an optic. *Young's* has acquired the reputation of being racy, but its stories resemble those of other magazines of greater pretensions.

* * *

There is a great deal more in *The Antitangoist*, by Caroline Duer, in the September *Ainslee's*, than a difference of opinion about modern dances between a young man and his fiancée. Gardener Adamson, who dislikes the tango, represents the whole anti band of the United States, inventing evil where intrinsically there is none, finding sin in the pleasures of others which do not attract him. Evalyn Greenleaf is the rational, clean minded disciple of Horace, who holds justly that "there's nothing wrong in the world but falseness, meanness, cruelty, and taking advantage of other people."

* * *

Charles Belmont Davis, in the September *Metropolitan*, writing about a kind of chorus girl, makes the dumbfounding statement that, although willing to accept villas and jewels and automobiles from her admirers, *her morals are normally beyond reproach*. The stupefied italics are ours—the irreproachable morals of an unscrupulous grafter!

* * *

Our readers who agree with this JOURNAL's views concerning criminals, will enjoy *The Criminal Shop*, by Mary Rider, in the September *Metropolitan*. Doctor Daily, the prison physician, is a fine character sketch, and the hero, No. 1416, a remarkable creation. We should like to ask Miss Rider, in the language of the day, "where d'y'e get this stuff?"

* * *

The beautifully illustrated *Metropolitan* for August may disturb people who naturally expect a socialistic magazine to look cheap and shabby; yet the Socialists comprise many of our best writers and artists. We read nothing of the history, tastes, or habits of Melville Davisson Post in magazine or newspaper gossip, but—partly for that reason, perhaps—we are always much impressed with his stories, like *The Hidden Law*, for example, on page 41. The stories are all capital, however, although the editor avers that he cannot get the kind he wants. Mr. Harry Grant Dart, a new humorist, graduated from the *New York World*, writes and draws, too, and is highly amusing.

There is plenty of socialism, most attractively presented, It always sounds well on paper.

* * *

Current Opinion for August has two articles which have acquired great significance within the last week, The Dynastic Tragedy that Begins a New Political Era in Europe and Russia's Mysterious Intervention in the French Political Crisis. They have been getting ready for war for some time in Europe without telling the associated press about it. The department of religion, drama, music, literature, art, finance, industry, and contemporary history are as admirably edited and as enthralling as ever. The attack on the Carnegie foundation assumes a new significance in being recalled from the forgotten columns of the daily journals. The God of a Man Who Works is an interesting religious article. We consider the article on The Timidity of Science in the Presence of the New Ghost, however, to be the veriest drivel; it is not the editor's, but Professor Schrenk-Notzing's.

Meetings of Local Medical Societies.

- MONDAY, September 7th.—Roswell Park Medical Club, Buffalo; Williamsburgh Medical Society.
- TUESDAY, September 8th.—Associated Physicians' Economic League of New York; Medical Society of the County of Schenectady; Newburgh Bay Medical Society.
- WEDNESDAY, September 9th.—Alumni Association of Norwegian Hospital, Brooklyn; Medical Society of the Borough of the Bronx; Richmond County Medical Society; Dunkirk and Fredonia Medical Society.
- THURSDAY, September 10th.—Gloversville and Johnstown Medical Association; Physicians' Club of Middletown; Blackwell Medical Society of Rochester; Buffalo Ophthalmological Club; Jamestown Medical Society; Society of Physicians of the Village of Canandaigua; Flatbush Medical Society, Brooklyn.

Official News.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending August 29, 1914:

Allen, J. H., Major. Reports arrival at Honolulu, H. T., for duty. **Bloombergh, H. D.**, Major, Medical Corps. Granted two months' leave of absence when his services can be spared. **Creighton, S. S.**, Captain, Medical Corps. Relieved from duty in the Second Division, and from further duty at Fort Leavenworth, Kansas, and will proceed at the proper time to San Francisco, Cal., where he will take the transport sailing about December 5, 1914, for Honolulu. **H. T. Demmer, C. C.**, Captain, Medical Corps. Reports arrival at Honolulu, H. T., for duty. **Dowdle, E.**, First Lieutenant, Medical Reserve Corps. Assigned to active duty at Fort Ontario, New York. **Farmer, H. C.**, First Lieutenant, Medical Reserve Corps. Assigned to active duty at Madison Barracks, New York. **Fisher, H. C.**, Lieutenant Colonel, Medical Corps. Reports on thirty days' leave of absence from the surgeon general's office, August 28, 1914. **Flynn, J. G.**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Crockett, Texas, September 1, 1914. **Garcia, Leon C.**, Captain, Medical Corps. Relieved from duty at Fort Morgan, Alabama, on expiration of leave, and will then report for duty at Fort Rodman, Massachusetts. **Griessinger, J. W.**, Captain, Medical Corps. Granted leave of absence for one month, about September 7, 1914. **Haverkamp, C. W.**, Captain, Medical Corps. Reports as on duty as attending surgeon, New York city, in addition to his duties at Fort Jay, August 24, 1914. **Jones, P. L.**, Captain, Medical Corps. Reports arrival at Walter Reed General Hospital, Takoma Park, District of Columbia, for duty. **King, E.**, Captain, Medical Corps. Reports arrival at United States Military Prison, Fort Leavenworth, Kansas, for duty. **McDaniel, A.**, First Lieutenant, Medical Reserve Corps. Reports for active duty at Fort Crockett, Texas, and assigned for duty as assistant to the commanding officer, Port of Embarkation, Galveston, Texas. **Miller,**

E. W., Captain, Medical Corps. Relieved from duty at Fort Ontario, New York, on the arrival of Major H. D. Bloombergh, and will then proceed to Texas City, Texas, for duty with the Second Division. **Morse, Charles F.**, Captain, Medical Corps. Granted twenty days' leave of absence. **Phelan, H. Du. R.**, First Lieutenant, Medical Reserve Corps. Will proceed about September 1, 1914, to his station at Fort Barry, California, and will proceed to the Philippine Islands for duty as previously ordered. **Roberts, E. E.**, First Lieutenant, Medical Reserve Corps. Relieved from temporary duty at Fort Moultrie, South Carolina, and will return to his proper station at Fort Caswell, North Carolina; on September 15th will be relieved from duty at Fort Caswell, and after being granted two months' leave of absence will stand relieved from active duty in the Medical Reserve Corps. **Sparrenberger, F. H.**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Mackenzie, Wyoming, and will report to Fort Yellowstone, Wyoming, for duty. **Walker, T. C.**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Rodman, Massachusetts, on arrival of Captain Garcia, and will report for duty to the commanding officer of the Second Division, Texas City. **Warriner, B. B.**, First Lieutenant, Medical Corps. Granted fifteen days' leave of absence. **Watkins, V. E.**, First Lieutenant, Medical Reserve Corps. Reports departure from Key West Barracks en route to Henry Barracks, Porto Rico.

Births, Marriages, and Deaths.

Married.

Bartlett—O'Grady.—In White River Junction, Vt., on Saturday, August 22d, Dr. Walter A. Bartlett, of Manchester, N. H., and Mrs. Hazel O'Grady. **O'Neill—Hermann.**—In Hamilton, Ohio, on Wednesday, August 19th, Dr. C. H. Francis O'Neill, of New York, and Miss Olga Hermann. **Webb—Bontecou.**—At Pilot Knob, Lake George, N. Y., on Saturday, August 29th, Dr. Charles W. Webb, Jr., of Ithaca, to Miss Susan May Bontecou.

Died.

Byrne.—In New York, on Thursday, August 27th, Dr. Joseph M. Byrne. **Cook.**—In Long Beach, Cal., on Saturday, August 15th, Dr. A. G. Cook, aged seventy-five years. **Derby.**—In Falmouth Foreside, Maine, on Friday, August 21st, Dr. Hasket Derby, aged eighty years. **Drake.**—In Gloversville, N. Y., on Sunday, August 23d, Dr. Jeremiah H. Drake, aged eighty-seven years. **Englerth.**—In Honey Creek, Ind., on Wednesday, August 19th, Dr. J. T. Englerth, aged sixty-four years. **Garvey.**—In Dunmore, Pa., on Sunday, August 23d, Dr. James B. Garvey, aged seventy-one years. **Hazard.**—In Atlantic City, N. J., on Tuesday, August 26th, Dr. Alexander Hazard, of Philadelphia, aged sixty-seven years. **Jones.**—In Atlanta, Ga., on Saturday, August 29th, Dr. William L. Jones, aged eighty-seven years. **Leavitt.**—In Pittsfield, Mass., on Sunday, August 23d, Dr. Dudley Leavitt, of West Stockbridge, aged fifty-two years. **Leverty.**—In New York, on Wednesday, August 26th, Dr. Alexander S. Leverty. **Macleay.**—In Newport, Vt., on Monday, August 17th, Dr. K. L. Macleay, aged forty-three years. **Monroe.**—In Eureka, Mo., on Sunday, August 16th, Dr. L. E. Monroe, aged fifty-five years. **Moore.**—In Seguin, Texas, on Wednesday, August 19th, Dr. T. W. Moore, aged sixty-eight years. **Nicholson.**—In Bradford, Mass., on Monday, August 17th, Dr. S. A. Nicholson, aged forty years. **Owings.**—In Ellicott City, Md., on Friday, August 28th, Dr. Thomas B. Owings, aged eighty-four years. **Parkison.**—In Athens, Tenn., on Monday, August 17th, Dr. John A. Parkison, aged seventy-two years. **Sheets.**—In Glen Ridge, N. J., on Tuesday, August 25th, Dr. Levi D. Sheets, aged eighty-two years. **Smart.**—In Boston, Mass., on Monday, August 17th, Dr. William H. Smart, aged eighty-one years. **Spalding.**—In Rochester, Minn., on Saturday, August 22d, Dr. L. H. Spalding, aged sixty-nine years. **Swayze.**—In Philadelphia, on Saturday, August 22d, Dr. G. B. H. Swayze, aged eighty-two years. **Utter.**—In Crawfordsville, Ind., on Wednesday, August 19th, Dr. Joseph A. Utter, aged sixty-seven years.

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Original Communications.

TUBERCULIZATION AND IMMUNIZATION.

An Epidemiological Study.

By MAURICE FISHLBERG, M. D.,
New York.

Paradoxical it may be, yet it is an incontrovertible fact that, going hand in hand with the encouraging decline of the death rate from tuberculosis which has been observed during recent years in civilized countries, the number of persons infected with tubercle has not decreased at all. It can be stated without fear of meeting serious contradiction from competent sources, that there are at present as many or even more tuberculous persons, absolutely and relatively, as have ever been before the campaign against this disease was started. This is evident from the fact that various recent investigations have disclosed that over ninety per cent. of adults living in cities show signs of tuberculous infection. To be sure, the evidence has been gathered among the poorer strata of population, but this proves nothing against the contention that the tuberculization of civilized humanity has been going on in spite of all efforts to prevent it, because tuberculosis is mainly a disease of the lower social and economic strata, and if it is to be eradicated at all, it is among these classes. Even the suggestion that at present more persons are cured than formerly, which is undoubtedly a fact, does not disprove the contention that tuberculosis has not been prevented by the measures taken during the last twenty years. If the campaign had been effective it would have prevented the infection of children that were born within that period. As a matter of fact it has not, because even in countries or cities where the campaign has been most vigorously waged, the number of children that react to tuberculin could not have been greater at any time, reaching as it does over ninety per cent. of all examined, and in Germany, where the statistics of mortality are more reliable than in many other countries, the relative number of children that succumb to tuberculosis has not decreased during the last twenty years.

The paradox of the increase in the number of persons infected with tubercle in modern large cities, going hand in hand with a decided decrease in the number of persons who succumb to this disease, is explained by certain epidemiological characteristics which are only rarely emphasized by

writers on the subject. A study of the distribution of phthisis along geographical, national, and racial lines shows clearly that there is a noteworthy difference in the character of the malady, as regards its symptomatology, course, and liability to kill among the various races of mankind. It appears that while all human beings that are exposed to tubercle laden surroundings are infected, yet wherever tuberculization gains in extent, wherever it infects enormous numbers, it loses in potency to produce active and fatal phthisis, and, conversely, in communities in which but few persons are infected, these few almost invariably succumb in a short time. These epidemiological data, which during recent years have accumulated sufficiently to warrant certain generalizations, will be discussed in this paper, because they have important bearings on the problems of prevention and ultimate extinction of the disease.

Epidemiology of tuberculosis. Careful and reliable scientific studies made within the last twenty-five years have revealed that the tuberculization of humanity goes hand in hand with civilization, and that in the large industrial cities of Europe hardly anybody escapes infection. While clinical as well as demographical data brought forth the fact that about one out of seven persons dies from this disease, pathologists have shown that the figures of the mortality rates are by no means sufficient to give us a correct estimate of the number of persons infected by the tubercle bacilli. From the published results of several thousand autopsies made in various cities, it appears that the vast majority of people, from fifty to over ninety per cent., have suffered from tuberculosis at some period of their life, whether they were aware of the fact or not. Among 500 autopsies made by Naegeli (1) at the anatomical institute at Zurich he found that eighty-four per cent. presented either healed or active tuberculous lesions; of persons over eighteen years of age, ninety-eight per cent. showed tuberculous lesions. Similar series of autopsies have been published by other pathologists, notably Harbitz (2) at Christiania, Victor Scheel (3) at Copenhagen, Lubarsch (4) at Berlin, Burkhardt (5) at Dresden, Adami (6) at Montreal, and many others. They all found that, no matter what the cause of death may have been, whether the persons knew that they had ever been tuberculous or not, between fifty and one hundred per cent. of people living in large cities show active or healed lesions of tuberculosis in some organ of their bodies.

In the newborn infant, tuberculous lesions are never found, thus indicating that infection, if it takes place at all, always occurs after birth. During the first year of life some children already show lesions of a tuberculous character, while during the second year the number of infected children begins to increase steadily, so that at fourteen years there are as many with tuberculous lesions as adults. Cohn (7), Hamburger (8), and Sluka, and many others have found that at the age of seven to ten years sixty-four per cent. had tuberculous lesions, and between eleven and fourteen years even seventy-seven per cent. Among living children the number may not be as large, because in hospitals there is a concentration of tuberculous children, yet inasmuch as these children mostly died from causes other than tuberculosis, it may safely be assumed that among the surviving children the proportion infected with tubercle bacilli is not much lower.

This point has been tested recently in another way, which is even more delicate in detecting the number infected with tuberculosis. I refer here to the tuberculin test, which is more sensitive in disclosing infection than a macroscopical examination of the body after death. The tuberculin test reveals the number of living persons apparently healthy, though infected with tubercle bacilli. It was found that children living in a tuberculous milieu are almost invariably infected before they reach the fifteenth year. Pollack (9) has found that in Vienna ninety-six per cent. of these children are infected before three years of age; Mantoux (10) found eighty-four per cent. of positive reactions at seven to fourteen years of age; the present writer (11) found, in New York city, that sixty-seven per cent. of the children living with tuberculous parents are infected with tuberculosis, and at the age of fourteen years eighty-four per cent. show signs of infection. Similar results have been obtained while testing large numbers of children in various European cities.

Taking children at random, i. e., those who do not live in homes harboring tuberculous persons, it appears that in the large cities of Europe and America nearly all are infected by the time they reach maturity. Thus Hamburger (8) found that at the age of fourteen years ninety-four per cent. of the children of the artisans of Vienna show signs of infection with tuberculosis. Calmette (12) at Lille, France, testing 1,226 persons of all ages, taken at random from diverse social classes, all apparently healthy, i. e., not frequenting hospitals and dispensaries, found that during the first year of life only nine per cent. were infected, but the percentage kept on increasing, so that at the age of fifteen years and over, 87.7 per cent. had been infected. Similar reports are available about other European cities, like Paris, Edinburgh, Manchester, Berlin, Dresden, Moscow.

Very few investigations have been made to ascertain the extent of tuberculosis in rural communities, but those that have been made show that cities have no monopoly in this regard. Thus Jakob (13) investigated villages in Germany, and found that among children under six years of age, 35.6 per cent. were infected with tuberculosis, and

among children between six and fourteen years of age, 45.9 per cent. were infected. Similarly, Hillenberg (14) investigated conditions in villages and agricultural settlements in Germany in which no cases of open tuberculosis had been observed for many years. The majority of the population pursues agriculture and the housing conditions are good; the people are economically prosperous and of cleanly habits, thus strongly contrasting with the proletariat of large industrial cities. Yet he found that of 810 children between six and fourteen years of age, 25.9 per cent. showed signs of infection with tuberculosis. Similarly Overland (15) tested children in rural communities in Scandinavia, and reports that of 843 living in a small city, twenty-nine per cent. were infected at the age of seven, and 51 per cent. at fourteen years of age. In rural communities the children between six and fifteen years of age had 27.18 per cent. reacting to tuberculin. In rural communities in Russia, Besbokowa (16) found even more tuberculosis. Thirty per cent. of the school children suffer from scrofula, which goes hand in hand with inferior sanitary and hygienic conditions.

Tuberculosis among primitive peoples. We have seen that among civilized people tuberculosis is ubiquitous in the full sense of the word. Neither a superior civilization, nor improved sanitary and hygienic conditions, nor economic prosperity, etc., precludes its presence, and notwithstanding the strong efforts to stamp it out during the last twenty years, it is with us today and is in fact prevalent even in rural communities where we should least expect it. On the other hand, all available evidence tends to show that tuberculosis is exceedingly rare among primitive peoples who have not come in intimate contact with civilization. Considering that the unsanitary mode of life of savages and barbarians is such that tuberculosis should find a favorable soil among them, it is evident that the white and civilized man introduces it among them, and this is another proof of the observations in civilized communities, that the greatest factor in the dissemination of tuberculosis is man himself.

This is shown in a striking manner in an investigation among the natives of the French colonies reported by Calmette (17). The cutaneous tuberculin test was applied on natives in the African colonies, in Senegal, Guinea, the Gold Coast, Madagascar, Réunion, and Algiers; in America, in the Antilles, in Martinique, and Guadeloupe; and in Asia, in Tonking, and also in some of the colonies on the Oceanic Islands. From the numerous tests applied, Calmette arrives at the conclusion that tuberculosis in the tropics is not perceptibly influenced by climate. Its frequency is in direct relation with civilization. It is extremely rare or absent among the native blacks in countries into which the Europeans have penetrated only during the last few years; but the proportion of infected persons grows among them in direct ratio to the intensity of immigration of European settlers and with commercial interchange among the whites and blacks. That their immunity from the disease before the advent of the white man was due solely to the absence of tubercle bacilli and not to any

biological peculiarities, is evident from the fact that when they meet with the bacilli which the whites have brought into their countries, they display a strong susceptibility, which is greater the more they have been protected by isolation against the importation of the bacilli during former years.

Tuberculosis was practically unknown in Algeria before the European invasion of that country, as was shown by Hirsch (18), but now Parrot (19) has found that in the province of Constantine thirteen per cent. of the children under five years of age are infected; between six and fifteen years of age, thirty-four per cent. are infected and of the natives between fifteen and forty-five, even seventy-seven per cent. reacted to tuberculin. Sorel (20) found in the neighborhood of Grand-Bassam on the Ivory Coast, that among 405 natives 12.4 per cent. reacted to tuberculin. On the other hand, Arlo found at Bouake, which is 350 kilometres from the coast, a place not yet traversed by a railroad, the natives only rarely coming in contact with Europeans, that only two per cent. of the natives showed signs of tuberculous infection. In Bassam, he found that on the average 22.9 per cent. were infected, and the nearer the coast the more tuberculosis, which goes hand in hand with contact with civilized Europeans.

Similar conditions have been found in German South Africa, where Ziemann (21) shows that tuberculosis is prevalent among the indigenous population commensurate with their contact with Europeans. The more they deal with the latter commercially and industrially, the more tuberculosis there is among them. The native laborers are infected and carry the virus of the diseases to their homes, where in turn they infect their families and neighbors. In East Africa also, the Europeans have been introducing tuberculosis among the natives at the coast and it is carried further inland by the caravans. Peiper (22) found in Kilwa that 25.4 per cent. of the native Hindus, and 17.4 per cent. of the negroes reacted to tuberculin. On the other hand, among the Nyam-Nyam, Gauss, in the Eastern part of Central Africa, and Cummins (23) did not meet with a single case or even a suspicious case of tuberculosis, evidently because the natives hardly ever meet a European. In Madagascar tuberculosis is rare, according to Clarac (24), among the natives who live in the mountains, while those on the coast are quite often infected. In Kamerun, Ziemann (21) found no case of tuberculosis among 559 hospital patients during 1905, while two years later, after the natives had been with the whites for some time, he encountered sixteen tuberculous patients. In all cases in which he found Bantu children with positive tuberculin reaction he also ascertained that their parents were serving in homes of Europeans, while in the highland of Kamerun, where the indigenous population has not been under European influences, he inoculated with tuberculin ninety-four persons, including fourteen children under ten years of age, and only one reacted; and he had served as a soldier and had thus come in contact with Europeans at the coast. The same conditions were found among other indigenous tribes of that region.

Very little work has been done along these lines

in Asia, excepting perhaps in Japan. But from the few clinical reports that are available, it appears that here also the Europeans have been introducing tuberculosis among the indigenous inhabitants at some distance from the coast and along the main channels of trade and commerce. According to Marrable (25) some fifteen years ago pulmonary tuberculosis was practically unknown among the Persians. How it was first introduced is doubtful, but within the past five years it has spread rapidly, and is today becoming a veritable scourge. The inhabitants have not yet had time to acquire even a small degree of immunity, and the result is remarkable, for until the treatment by tuberculin was begun not only had Marrable never come across a case of spontaneous cure, but in not a single case had he seen other than a fatal termination, even when treated as far as possible on sanatorium lines.

Metchnikoff (26) investigated the Kalmucks who live on the right banks of the Volga, isolated from the Russians and Mohammedans in that region by differences in religion, language, habits, and customs, and by certain geographical conditions. He found that those who live at the periphery of the steppes, and thus come in close contact with the Russians, were in ninety per cent. infected with tuberculosis, while those who live in the centre of the steppes showed only sixty-four per cent. of positive tuberculin reactions. The difference was even more striking among the women; seventy-five per cent. reacted at the periphery, and only forty-three per cent. in the centre of the steppes.

On the continent of Australia, according to Ruge (27), tuberculosis reaches as far as civilization has penetrated, and in Victoria it is first in frequency as a cause of death. The frequency of tuberculosis in Oceania differs according to the locality. On the Bismarck Archipelago and the Marshall Islands, it has apparently only recently been introduced and is not much disseminated, while in Samoa and on the Wallis and Horn Islands (west of Samoa), it is very frequent, and usually runs an acute course. In Guam it is already second in frequency as a cause of death, and the same is true in Tahiti, where it exacts a tribute of twenty to twenty-five per cent. of the total mortality of the prisoners; all the Arabs that are deported to New Caledonia die from tuberculosis. In the Marquesas Islands, the Gilbert and Ellice Islands, tuberculosis is very prevalent, and on the Carolinas it became widespread after the Europeans brought it there.

In the Philippine Islands, according to reports by Gilman (28), Brewer (29), Musgrave (30), and others, the natives are also infected by the white immigrants who have brought the tubercle bacillus among other concomitants of civilization. It is thus clear that the tubercularization of humanity follows in the wake of civilization, and that while the indoor life and overcrowding, characteristic of modern city life, greatly enhance the opportunities for its dissemination, these factors alone cannot produce tuberculosis *de novo*. The tubercle bacilli must be introduced to cause infection. It is most widespread in European industrial cities among the poorer classes of population, but

the well to do are by no means exempt; in fact it is rare to find an adult inhabitant of a large city, no matter what his social and economic condition, who does not show evidence of tuberculous infection when tested with tuberculin. In the European rural communities, where we have good reason to believe that tuberculosis was formerly rare, it has been spreading of late commensurate with the increased facilities of intercommunication between the urban and rural population, and the recent democratic tendencies toward mutual association of the various classes of society. While the death rate from tuberculosis has been declining in most civilized countries within recent years, the number infected with the bacilli has by no means diminished, which tends to show that modern methods of prophylaxis are not altogether effective in the direction aimed at, and other factors must be present which have been operative in reducing the mortality from this disease. Among the primitive peoples of Asia, Africa, America, and Australia, it appears that tuberculosis was entirely absent before the advent of the civilized white man, while today wherever the savage or barbarian comes in contact with the European, he is bound to suffer in many ways, and tuberculous infection is one of the most pernicious effects which civilization brings to primitive man.

Differences in rates of infection, morbidity, and mortality from tuberculosis. It is a striking fact, which has only recently been elicited while studying carefully the epidemiology of tuberculosis, that notwithstanding the ubiquity of infection with tubercle bacilli, the deaths caused by this disease are relatively few and are decreasing in civilized communities. To be sure, tuberculosis causes more deaths than any other single disease, yet when taken in connection with the number that are infected with tubercle bacilli, it is evident that comparatively few succumb. Thus, while more than seventy-five per cent. of adults in large cities have suffered infection, as revealed by autopsy findings and the tuberculin test, only one out of seven deaths is due to this cause, while the rest are either cured, or they never know that they have harbored the bacilli in their system. Formerly it was thought strange that in spite of the extraordinary ubiquity of the tubercle bacilli, so many escaped infection as was evident from their survival, and many physicians doubted the transmissibility of tuberculosis for this reason. But more exact methods of research have shown that hardly anybody escapes infection, although comparatively few succumb.

On the other hand, when tuberculosis is introduced for the first time among people who have never before known of this disease, it is deadly in the vast majority of cases, and the chronic, sluggish type of phthisis which we meet among civilized peoples in European and American cities, lasting for months or years and terminating in recovery in a large proportion of cases, is exceedingly rare. This is concretely illustrated by conditions among the American Indians. From available historical evidence it appears that tuberculosis was unknown in America before the advent of the white man, as has been shown by Woods Hutchinson (31), Ales Hrdlicka (32), and others who studied the question. Ever since the white man made his appear-

ance on the continent, tuberculosis has begun to manifest itself among the Indians who came in contact with him. Hrdlicka quotes many writers to the effect that tuberculosis and scrofula have been observed among some tribes during the past two hundred years, while from most of the tribes it has been entirely absent, and it appears that its frequency depends on the degree of contact of the red with the white man. When striking virgin soil, tuberculosis also meets with the maximum of vulnerability and attacks not only the lungs, but also the bones, joints, glands, and viscera. Woods Hutchinson draws a vivid picture of the clinical forms and severity of tuberculosis among the American Indians. The first thing that struck him on visiting Indian schools and reservations, was the large number of individuals, both adults and children, showing huge scars in the neck or enlarged glands; next he found a strong tendency among Indian children to acquire tuberculosis of an exceedingly rapid and fatal type. "Hardly anybody dies on this reservation except of gunshot wounds and tuberculosis," he was told. This, he states, is true of the Indians all over Oregon, Washington, and Alaska (this last including the Aleuts and Eskimos), among whom tuberculosis was the cause of the majority in many cases from two thirds to three fourths, of the deaths in the tribes in contact with civilization. "In tribes still fairly well isolated the disease appeared to be rare, but where it did occur it was almost invariably fatal." That it was not only indoor life that gave them tuberculosis, but that actual infection is imperative, is shown by conditions which Hutchinson found among the descendants of the Hudson Bay *voyageurs*, living in a region known as French Prairie, near Portland. They were most extraordinarily subject to tuberculosis, in spite of their open air life, abundant food, and comfortable houses. Contact with tuberculous whites was clearly the cause, and inasmuch as they had not met with the disease before, the bacillus came upon virgin soil, and the results were disastrous for the *voyageurs*. Hutchinson shows that the same high degree of susceptibility prevails among the Indian tribes of the south and west and in Mexico, except that it appeared to be diminished somewhat in severity among those who had been living in villages for generations, the so called Pueblo Indians, particularly among such of these as had long been in contact with civilization, which also means tubercle bacilli. He also reports that among the Mojaves, tuberculosis was responsible for ninety-five per cent. of the deaths; among the Hopis and Navajos, tuberculosis is the greatest cause of death in children. On another Navajo reservation, it is "not very prevalent, but always fatal." Among the Zunis "the actual amount was small, but the mortality 100 per cent." James Walker (33) states that among the great Dakota, or Sioux group of Indians west of the Mississippi, the mortality from tuberculosis was 24.8 per 1,000, contrasted with 1.73 per 1,000 in the United States in 1900. In other words, the death rate among the flower of the Indian tribes in a healthful climate, well fed, comfortably housed, was more than fifteen times that of the whites in cities.

Hutchinson points out the marked differences in

type, course, and clinical features of tuberculosis in the Indian compared with the whites. He could hardly believe his ears, when some agency physicians assured him that they had seen adult braves die in three weeks of tuberculosis. There is a large amount of glandular tuberculosis, both in the fatal cases and in survivors, and the large proportion of scars in the neck found in children and young adults was from this cause.

Among the Indians in South America, it has been observed that tuberculosis behaves in the same manner. Westenhoffer (34) reports in his autopsy findings, that although tuberculosis kills in Chile relatively as many people as in Europe, only one half as many are affected with the disease, owing to the fact that it appears there as an acute disease, and shows no tendency to heal through the formation of connective tissue; rapid cavity formation is the rule. Similar conditions have been found in Argentine by Paul Römer (35), Coni and Velazquez (36), and others. Into some South American countries the disease has, however, not yet penetrated, for instance in Bolivia, according to Trentlein (37).

Experience among the German, English, and French physicians in African, Asiatic, and American colonies shows the same conditions among the indigenous tribes who are now being infected with tuberculosis for the first time. Thus Heim (38) found that in the German African colonies the morbidity among the European settlers, especially among the native blacks, is much lower than in Germany, but the mortality among the colored natives is high. Owing to improved methods of transportation the intercommunication between the whites and blacks is now greater. Tuberculosis is disseminated by the former, who brought it from Europe, and the mortality has grown enormously, reaching twenty to forty-six per cent. Tuberculosis of the glands, bones, and joints is very common, and galloping consumption is the rule. Calmette (12) shows that the Polynesians and the negroes of the African Hinterland are most susceptible to tuberculosis, and when infected a fatal issue is almost invariable, just as is the case with all other races that have only recently come in contact with Europeans, with civilization and tuberculosis. Among the Hottentots Ziemann (21), while making autopsies, found that tuberculous lesions were invariably acute, showing no tendency to repair, and Jeanselme met with similar conditions in Siam.

Tuberculosis was not unknown in ancient Egypt, as was shown by the examination of bodies of ancient Egyptians made by G. Elliott Smith (39), who found five cases among more than 10,000 skeletons, the earliest of which was dated 3,500 B. C. On the other hand, in Sudan the disease is unknown at present. From statistics published by Cummins (23) it appears that from 1902 to 1906, the average annual incidence of tuberculosis among the Egyptians in the army was 1.5 per 1,000, while among the Sudanese soldiers, who meet with the disease for the first time when entering military service, the rate was 3.7 per 1,000, again showing that new and hitherto exempt elements succumb more quickly than those who have been in contact with tubercle bacilli for generations. This excessive liability to tuberculosis of the Sudanese is well known in

Egypt; so much so that in former times Shilluk and Dinka slaves were the cheapest in the market, as it was assumed that a large number would contract the disease and die. Among the primitive Sudanese tribes there is an almost complete absence of tuberculosis in their natural home surroundings. In Cummins's own experience, as well as in that of other army medical officers who have served in the Bahr-el-Chazal, no case of tuberculosis had been seen in natives, except in the vicinity of government posts where contact with troops was frequent. The Egyptian soldier, proceeding to the northern Sudan from Egypt, a country where tuberculosis is apparently common, has a decidedly low tuberculous incidence, while the Sudanese soldier, recruited from the southern tribes among whom tuberculosis is rare or absent, shows under military conditions a case incidence which is decidedly high. Conditions in South Africa are an exact analogy to the Sudanese paradox. As was shown by Mac Vicar (40) there is a high incidence of the disease among colored people when in contact with Europeans, while in the interior, especially in the Transvaal and on the upper Zambesi, tuberculosis is almost unknown. The average death rate of colored people in six towns of the native western provinces of Cape Colony was 8.6 per 1,000, while among the whites it was less than 1.5 per 1,000.

Tuberculosis shows the same tendencies wherever it has been introduced in Asia. Marrable (25) found that in Persia hardly a patient recovers from the disease. In Syria and Palestine the same extraordinary acuity and fatality has been observed. Among the indigenous population it was unknown, but since the large number of European travelers and immigrants have brought it along, many are infected and, according to Auerbach (41), Ribbing (42), Much (43), and others, hematogenous tuberculosis, affecting the bones, joints, skin, glands, and viscera, is very prevalent among them, while among the European immigrants tuberculosis of the lungs is mostly seen. Auerbach shows that there are significant differences in the type of the disease as seen among the Jewish immigrants in Palestine according to their origin. Those coming from Europe, where they have been in contact with tuberculosis for generations, when tuberculous, suffer from chronic phthisis and often recover, while those derived from Yemen, Arabia, where tuberculosis is unknown, when infected are quickly carried off by the acute form of the disease. Similar conditions have been observed by Deycke (44) in European Turkey, where many Asiatics come from countries in which tuberculosis is altogether absent. In them acute military tuberculosis is very prevalent, the glands, bones, joints, and viscera are usually affected, and chronic phthisis is extremely rare. Especially is this true in the Turkish army and in the schools.

Conditions among the negroes in the United States show the same phenomenon. Before their emancipation they were isolated from the whites in the plantations and villages, and tuberculosis was exceedingly rare among them, but since they have invaded cities and come into close contact with the whites and the tubercle bacilli, their lack of resistance is striking. According to Thomas D. Cole-

man (45) and other physicians who know the negro, "when the negro acquires tuberculosis, it rarely leaves its victim alive"; in other words, the mortality is much greater than among the whites. From the United States census statistics, it appears that the mortality from tuberculosis of the colored population for the quinquennium, 1906 to 1910, was higher than that of the whites all over the registration area. In Mobile it was 613.8 per 100,000 colored, against 217.7 among the whites; in Baltimore, 583.3 and 206.2 respectively; in New Orleans 532.9 and 206.2 respectively, etc. It is well known among physicians in this country that galloping consumption is the rule and that chronic phthisis running a slow course, is exceedingly rare. Of the West Indian negro, McCarthy (46) says that he is even more vulnerable than the American negro and that most patients die. When we bear in mind that they have not till recently been exposed to the disease, we see here another example of the significance of virgin soil for the tubercle bacillus.

In the Philippines it appears that the same conditions prevail among the indigenous population. The natives coming in contact with the whites are soon infected, and the disease runs an acute course almost invariably. Tuberculosis of the lungs is in the minority, while hematogenous tuberculosis involving the bones, glands, joints and viscera, is the rule, as has been shown by Gilman (28), Brewer (29), and Musgrave (30). The same has been observed among the autochthonous population of Australia.

Those having the task of colonial problems meet with failure in attempts to educate native teachers and officers, civil and military, because of the great ravages of tuberculosis which the invading whites introduce. Metchnikoff (26) points out that the efforts made by the Russians to educate Kalmucks were futile, because after remaining in schools for some time they contract tuberculosis, and either die or must return to the steppes for their health. During a period of forty-five years (1865-1910), 715 Kalmuck pupils were admitted to the primary and secondary schools at Astrakhan. Of this number seventy-five died before finishing their studies, twenty-seven had to quit the city because of tuberculosis, and the remaining 613 had to rest content with a primary education and return to the steppes for their health. Of the fourteen students in the high school from 1907 to 1910, four were tuberculous. It is a significant fact that during recent years the tuberculosis mortality among the Kalmucks in the cities has been falling. Khlopine shows that in the schools at Astrakhan it sunk from 118 to 37.7 per 1,000. Similar observations have been made in other colonies, where invading Europeans have attempted to assimilate the autochthonous population. In the United States, Woods Hutchinson (31) says that the greatest difficulty in educating Indian children lies in their strong tendency to acquire tuberculosis of an exceedingly rapid and fatal type.

Such is the case when tuberculosis finds virgin soil—it attacks all men, women, and children, and in most individuals who are infected, the disease runs an acute and fatal course. On the other hand, that the disease becomes less dangerous and fatal after

a population has been exposed to it for several generations, is evident from the fact that in modern large cities the mortality from tuberculosis is comparatively low. We must bear in mind that nearly every one of the inhabitants is infected during childhood, and in those in whom the bacilli are instrumental in producing phthisis, the disease is spontaneously cured in the vast majority of cases; in a considerable proportion of cases it is amenable to treatment, and only relatively few succumb. This virgin soil theory is also sustained by the fact that in infants, just as in people who have formerly not been exposed to the tubercle bacilli, the disease also is hematogenous, as a rule, and fatal in the vast majority of cases, and chronic phthisis is exceptional before the eighth year of life, while tuberculosis of the bones, joints, glands, and viscera is very common.

This is strikingly confirmed by conditions among the Jews, a social or religious group of people, who for many centuries have lived in cities; in fact for nearly two thousand years have not engaged in agricultural pursuits. In the cities they were compelled by political and social laws, habits, and customs, to live in Ghettos, isolated from the general population, in overcrowded houses, and under adverse hygienic conditions. While we have no evidence that tuberculosis was frequent among them in their ancient home in Palestine 2,000 years ago, nor even whether they knew of the disease at all at that time, we know that their mortality rates in the medieval Ghettos were very high, as has been shown by me elsewhere (47). In the Ghetto of Vienna, about one third of the deaths from 1648 to 1869 were caused by tuberculosis. Among the Christians in Europe the population in cities is constantly renewed by migrations from the country, thus supplying virgin soil for the tubercle bacilli, while the modern Jews can trace back their ancestry for eighteen hundred years as city dwellers, and as such, have always been exposed to the tubercle bacilli. And when we study the morbidity, mortality, and clinical forms of tuberculosis among them, we find them in complete agreement with our contention, that the longer people are exposed to tuberculosis, the less the mortality from this cause. In fact, the mortality among the Jews is lower than that of any other people who have been exposed to infection, in spite of the deleterious milieu in which the bulk of the Israelites find themselves. I have shown this to be a fact in 1901 (48), and since then it has been confirmed by many others, notably by Sokolowski (49). Indeed, in spite of the fact that very few Jews escape infection with tubercle bacilli, as can be seen from conditions in New York city, Philadelphia, Chicago, London, Vienna, Budapest, Warsaw, etc., their mortality rates are from one half to one third less than those of other faiths among whom they live. The course of the disease among the Jews who do suffer from phthisis, is much slower than in others, and the acute, fulminating type of galloping consumption is exceedingly rare. In a practice of seventeen years among them, seeing many thousands of consumptives, I have only twice met with cases of acute miliary tuberculosis. A case of phthisis lasting less than one year is exceedingly rare; most last for three to five years, and numer-

ous cases are met with that have lasted for ten, fifteen, and even more than twenty years.

Tubercularization and civilization. The epidemiological facts brought together admit of a generalization: The fatality of tuberculous infection depends on the length of time the ancestors of the affected people have been acquainted with the disease. In communities in which tuberculosis has been unknown, but has only recently been introduced, the character of the malady, its clinical course and termination are different from those observed in communities in which tuberculosis has been endemic for generations. In the latter it has gained in extent—having infected nearly every person within the reach of the bacillus—but it has lost in virulence, killing but a small percentage of the infected persons, while those who suffer as a result of the infection, have to cope with a slow, sluggish course of the disease, chronic phthisis. On the other hand, among primitive peoples, as well as among rural dwellers who have been isolated for generations from the city inhabitants, those exposed to the disease are soon infected, and the disease runs an acute, rapid, and fatal course in the vast majority of cases. Among civilized, i. e., tubercularized peoples, we meet with thousands of persons showing every evidence of having been infected, yet they hardly suffer as a result, in fact, it renders them to a certain extent immune against reinfection, as we shall see later on, while among those whose ancestors have not known of the disease, practically all, adults and children, when infected, succumb to it.

Tubercularization also goes hand in hand with the industrial development of a city or country. The agricultural elements of the population live more or less comfortably, when not invariably more cleanly, than the proletariat in our large industrial cities; they spend more time in the open air, and there is no greater destroyer of tubercle bacilli than the sun's rays. Even when a consumptive lives in the midst of them, his sputum is rendered innocuous during the day when eliminated from the home. Moreover, in agricultural settlements and villages the inhabitants as a rule are isolated from the rest of the world, living their own life and coming very little into contact with people outside of their own community. On the other hand, workmen in large industrial cities work in closed workshops, mills, and factories, closely associating with diverse elements of population while at work, and in places of amusement, and when a case of tuberculosis is introduced, the expectorated bacilli can thrive in their workshops and overcrowded homes which they often change without caring to inquire about the state of health of the previous tenant or neighbor at the factory. The lack of fresh air and sunshine also contributes to the growth of the bacilli, which are scattered everywhere. The result is, that in older cities, where industrial masses have been living for many generations, tuberculosis has been raging for a long time, and the number infected has not been reduced by the efforts recently made in the direction of prevention. But inasmuch as the majority of those infected with tuberculosis do not die as a result, but are rather immunized against reinfection, the mortality from this disease has been de-

clining. This is the case in London, as well as in England, where, according to Sir Thomas Browne (50), who wrote in 1690, tuberculosis was exceedingly prevalent and was the cause of practically one half the deaths. Tuberculosis has gained in extent in that country but lost in virulence, killing a smaller proportion of the number infected. On the other hand, in Ireland, where the population has been free from the disease to a certain extent in former years, it increased during the second half of the nineteenth century. In 1864, the mortality from tuberculosis was in Ireland the lowest in the three kingdoms, which made it the lowest in Europe. Since then it has been increasing, and has now reached a mortality of sixteen per cent. of all the deaths, compared with nine per cent. for England. The distribution of the disease in Ireland agrees with this theory. Sir John Moore (51) quotes the census commissioners to the effect that the disease was, in 1851, more prevalent at the coast line of the country, and that on the western coast of Ireland the mortality was less than on the eastern, and this was attributed to certain climatic conditions. But as a matter of fact, the large cities, Dublin, Belfast, and Cork, are all situated on or near the coast, and it is in cities that tuberculosis finds its best soil. That it is not economic conditions alone that determine the mortality, is shown by the fact that the western division represents what may be called the poverty stricken portion of the country; the eastern is more well to do, more populous, and represents a higher grade of civilization because of the large towns and the urban population which it contains, but tuberculosis prevails more in the eastern, and falls below the average in the western districts. Flick attributes the hypoinmunity of the Irish to tuberculosis, to their immaturity in the struggle against the disease. He is of the opinion that tuberculosis was brought to northern Europe by the Romans, and the Irish were not conquered by the Romans, and for a much longer period than the other races in Europe avoided contact with them.

This explains why the tuberculosis mortality in England has been sinking since 1870, while in Ireland it has been rising all along that period, and only during the last few years came to a halt. It went hand in hand with the large migrations of the agricultural population of large, industrial urban centres of a population that had been free from the disease for centuries, thus offering virgin soil for the bacilli; larger numbers were infected, the disease running an acute and fatal course in many. Similar phenomena have been observed in other parts of Europe, notably in the southeast, as in Turkey, Bulgaria, and Servia. The Austrian military physicians have observed that among the soldiers in that country tuberculosis is most frequently found in those who have been drafted from Bosnia and Herzegovina, where tuberculosis is exceedingly rare, probably because they have been isolated from the rest of Europe. Similarly among the immigrants in the United States, the highest mortality rates from tuberculosis are found among those nations and races that come from places where tuberculosis is not frequent. The bulk of our immigrants are derived from the agricultural population of southern and eastern Europe, and in the villages

of Italy, Austria, Hungary, Bulgaria, Servia, and also Ireland and Scandinavia, tuberculosis is not widely prevalent, being only recently introduced. In the United States immigrants settle in the densely populated industrial cities or mining camps, where tubercle bacilli are in abundance and they are soon infected in large numbers. While the census returns do not show us the real ravages of tuberculosis among these immigrants, because many who contract the disease soon return to their native homes for a cure or to die, yet they give us some facts which are in complete agreement with our theory. Thus, the highest death rate from tuberculosis among the immigrants is found among the Irish. As is well known the majority of Irish immigrants "come from the poorest and most God-forsaken districts of the country, the famous bog regions, where they live scattered about in little lonely *sheilings*, coming into no close house contact with the hated Saxons. And as Doctor McArdle, one of the head inspectors of the local government board, said, 'in these thinly settled bog and hill districts consumption is very rare.'" (Hutchinson.)

Next to the Irish, the Scandinavian immigrants show a high death rate from tuberculosis, and it appears that Norway is, just like Ireland, only recently tubercularized. The death rates in that country from tuberculosis were as follows: From 1871 to 1875, 10.8 per 10,000; 1876 to 1880, 12.6; 1881 to 1885, 14; 1886 to 1890, 14.4; 1891 to 1895, 17.3; 1896 to 1900, 20.6; 1901 to 1905, 19.6; 1906 to 1908, 20. At home Norwegians apparently present virgin soil, and for that reason the campaign has not been effective in stopping the increase in the mortality, which was bound to come with the increase in the urban population and industrial development. In the United States they also succumb in large numbers when they segregate in cities. The suggestion made by some authors, notably Charles E. Woodruff, that it is because of their blond hair and blue eyes that they are ill adapted to the climate of North America, or to some parts of it, does not hold; in their natural homes tuberculosis has been on the increase as a cause of death during the past forty years, and we may suggest that, after they have been thoroughly vaccinated by tubercle bacilli through residence in industrial cities for the few generations, the death rate from tuberculosis will decline just as it did in England and Germany.

The Italian immigrants in the United States also have high death rates from tuberculosis, which cannot be gauged by the census returns, because an enormous number of Italians who are infected soon leave the United States and go home for a cure or to die. In 1907, I counted sixty consumptives in the steerage of a steamship going from Boston to Naples. In Italy also, the mortality from tuberculosis has been low, and has not perceptibly declined within the past twenty years, and in southern Italy, where the bulk of our Italian immigrants hail from, it has actually been increasing, which has been attributed by Sanarelli (52) and others to the growth of cities and also to infection by returning immigrants from the United States. The English immigrants, who have for generations been exposed to tuberculosis, have a lower mortality from this dis-

ease, which is clear when we bear in mind that these immigrants come mainly from cities, and not from villages, like those hailing from Ireland, Scandinavia, Italy, Hungary, and the Balkan states.

The thoroughly urbanized and tubercularized Jewish immigrants have the lowest mortality from tuberculosis in the United States, in spite of the fact that they live in the most congested parts of cities and are exposed to infection much more than any other element of the population. That they suffer from the disease there is no doubt, but they do not succumb in such large numbers as do the other immigrants, or even native Americans, who have not been tubercularized for generations.

(To be concluded.)

THE PARAFFIN TREATMENT OF CONSTIPATION.

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Although but recently brought into prominent notice as a therapeutic agent, paraffin oil has long been used as a remedy by the laity in this and other countries. A French writer (*Mémoires de la société de biologie*, 1883), more than thirty years ago, mentioned this agent as being much used in Germany as a remedy for constipation and also refers to the use in this country of crude petroleum oil under the name of oil of Gabian. The writer remembers well the medical use in his boyhood of crude petroleum gathered from the surface of creeks in oil regions and sold in bottles in the drug stores. So this is by no means an altogether new remedy.

Great credit is certainly due, however, to Sir William Arbuthnot Lane, of London, for urging upon the profession the value of this simple agent as a remedy for constipation, especially for his advice during the last year or two. It was indeed from Lane, whom the writer chanced to meet in Vienna three years ago, that he learned of the peculiar and efficient value of paraffin oil as a laxative. At once on my return home, a test of its merits was made, and the results were so satisfactory that it has since been employed by myself and my colleagues of the Battle Creek Sanitarium in several thousand cases. To record the results of this somewhat wide opportunity for observation is the chief object of this paper.

This remedy has proved itself to be one of such extraordinary value that the writer experiences no small degree of chagrin when he recalls his neglect to accept the suggestion of a casual acquaintance met while traveling some twenty years ago, who declared that he had found complete relief from most obstinate constipation by taking daily a tablespoonful of paraffin. However, there are certain disadvantages or objectionable features which must be overcome and certain limitations which must be understood, for paraffin is far from being a panacea for peristaltic woes, though even in most obstinate cases it often proves so valuable an accessory as to constitute the most essential feature of a necessary combination.

By paraffin oil is meant the refined white Russian

paraffin oil imported from Germany. It is sometimes sold under the name of oleum petrolatum, and a petroleum product similar if not identical is sold under various trade names. From a chemical standpoint paraffin oil is a hydrocarbon, but it is not a fat. It is a mineral oil and differs radically from all animal and vegetable oils in the fact that it will not saponify when mixed with alkalies, does not oxidize when exposed to the air, is not attacked or decomposed by bacteria, and is not digested or absorbed by the animal body.

To understand the action of paraffin oil it is necessary to have in mind the chief facts relating to the physiology of defecation. Of all important questions relating to the physiology of man the function of defecation has until recent times been the least understood and, as the result, constipation, perhaps the most common of all physical ailments as well as one of the most serious because of its far reaching effects, has been treated in a purely empirical and altogether unsatisfactory manner. Within recent years the work of Cannon, Hertz, Schwartz, Case, and others has so far confirmed and extended the early observations and theories of O'Beirne, the first diligent student of this subject, that we have now a complete account of the physiology of defecation, and through understanding this function we are able to see that there are many different forms of constipation, each of which has its own cause and requires its own special remedy. Defecation is a muscular act. An action of the bowels is the result of a combined and coordinated muscular effort in which both external and internal muscles take part.

Constipation is essentially a disturbance of the motility of the colon. Peristalsis begins with the esophagus and extends successively to the stomach, small intestine, and colon, traversing the whole length of the digestive tube. According to Cannon and other observers, the movement of foodstuffs and other intestinal contents is not in health at all due to the action of gravity. The food mass is seized by the muscular tube and moved from one part to another. Food is swallowed in morsels. It is doled out to the intestine by the stomach through the action of the pylorus in spoonful doses. The indigestible and unusable residues are finally spooned into the colon by the small intestine through the action of the ileocecal sphincter. The time schedule of the intestine has been determined to be about as follows: In the stomach, four to six hours; in the small intestine, four to six hours; ascending colon, two hours; transverse colon, two hours; descending colon, two hours; pelvic colon an indefinite time, from one or two hours to several days. The writer believes that the time which should normally elapse between the ingestion of food and the discharge of indigestible and unusable residue ought to be not more than twelve to eighteen hours.

It is interesting to note the striking difference in the functions of the several parts of the alimentary canal. The work of the stomach is almost wholly preparatory. The small intestine digests and absorbs the digestible and usable portion of the food. The colon receives the unusable residues, absorbs the surplus water which they contain, and discharges the remainder along with excretory pro-

ducts. The functions of the stomach are analogous to those of a kitchen. The small intestine is the dining room, the feeding place. Through it we receive our supplies of energy-making material. The colon is the garbage box or sewer of the body, its function being to take care of unusable residues and waste products; it is the filth receptacle of the body. In the normal state the movement of food along the alimentary canal is sufficiently rapid to secure an evacuation of the bowels after each meal. This is the result of the fact that food is the natural laxative. When peristalsis is set up in the stomach by the taking of food, peristaltic waves traverse the whole length of the intestine. An intake at one end of the tube is thus naturally followed by an output at the outer end. Careful inquiry by the writer of a large number of medical missionaries whose lives have been spent among primitive and uncivilized people, showed that the normal intestinal rhythm of healthy human beings is two to four bowel movements daily. The Turks have regularly three bowel movements daily and consider themselves sick if the bowels do not move at least three times a day. The keeper of the chimpanzees, orangs, and other big apes of the London Zoological Garden, informed the writer that these anthropoids have three or four bowel movements daily. Professor Hornaday, superintendent of the Bronx Park, states that his big apes move their bowels three times a day. After several years of observation and diligent inquiry upon this subject, the writer is fully persuaded that the physiological rhythm is three or four bowel movements daily. Such frequency of bowel movement produces no weakening effect such as is observed in connection with a diarrhea, but the very reverse, a very distinct and delightful increase in mental clearness, aptitude, and working capacity, as well as physical vigor and endurance.

Physiology of defecation. The pelvic colon, the loop portion of that part of the colon which was formerly known as the sigmoid, when empty, lies back in a prolapsed state in the back of the pelvis. As the pelvic colon is gradually filled by the forward movement of material in the descending colon, it rises. This change of position facilitates the movement of fecal matter from the pelvic colon into the rectum. This filling of the pelvic colon and the passing of fecal matter into the upper part of the rectum is the preparation for defecation. The presence of fecal matter in the upper rectum normally produces a desire to move the bowels. The evacuation of the bowels is accomplished by means of seven distinct actions, three of which are voluntary and four automatic. Arranged in the order of natural sequence, the following are the several acts referred to:

1. Descent of the diaphragm and compression of the bowels, accomplished by taking a deep breath.
2. Voluntary contraction of the abdominal muscles, increasing the compression.
3. Pressure of the thighs against the abdominal wall (the natural position in moving the bowels is not the upright sitting position, but a crouching or squatting position universally employed by savages and in some pioneer rural communities).

The result of these three voluntary efforts is to

force a portion of the contents of the pelvic colon into the rectum, the distention of which gives rise to stimulation of the defecation centre of the sympathetic by means of which the four automatic movements in defecation are brought into action consisting of the following:

4. Reflex contraction of the abdominal muscles, reinforcing the voluntary compression.

5. Contraction of the colon; the descending and pelvic colons are chiefly active, though sometimes the whole colon contracts.

6. Reflex relaxation of the anal sphincter, an example of the general law which prevails throughout the entire digestive tube by virtue of which a wave of contraction passing along any portion of the canal is immediately preceded by a wave of relaxation.

7. Contraction of the levator ani, a structure which surrounds the rectum and contracts at the end of defecation for the purpose of forcing out the last remnants of fecal matter so that the rectum may remain empty until another movement occurs.

There are really eight acts in the defecation process, if we include the preliminary filling of the pelvic colon with fecal matter. A disturbance of any one of these eight factors in the process of defecation may result in constipation. If the diaphragm contracts insufficiently because of weakness, tight lacing, adhesions, or any other cause, if the abdominal muscles are weak, as is generally the case among civilized people, and if the position assumed in evacuating the bowels is such that the abdominal walls are not compressed by the thighs, the result will be insufficient filling of the rectum to induce sufficient stimulation of the defecation centre to produce the necessary reflex required to set in operation the automatic movements by which the bowel is emptied.

To be effective, the distention of the rectum must be complete and must be accomplished quickly. If the rectum is allowed to fill gradually, stimulation may not occur. If, on the other hand, distention of the rectum, as evidenced by a desire to move the bowels, is not relieved by going to stool, the desire for movement gradually disappears through the loss of sensibility of the rectal nerves and the reflex is lost. The nerves which preside over reflex activities are easily exhausted by continued stimulation. Human physiology affords many examples of this principle.

Paraffin oil will not remedy every defect in the defecating process and hence will not cure every case of constipation, but it comes nearer being a panacea than any remedy which has heretofore been found and does meet a surprisingly large number of indications. After a careful study of its effects in several thousand cases, the writer feels justified in saying with much confidence that paraffin oil may be relied upon to accomplish the following results in the treatment of chronic constipation:

1. It lubricates the alimentary canal throughout its whole length. In a large number of cases of constipation there is an excessive absorption of water from the colon, leaving the feces dry or pasty and adhesive. An examination of the rectum and pelvic colon in such cases shows the mucous membrane to be deficiently lubricated by mucus and covered

with flakes of adhering feces. The use of half an ounce or an ounce of paraffin oil at bedtime and half as much half an hour before each meal will in two or three days change the condition completely, as shown by proctoscopic examination.

2. This mechanical lubricating action of paraffin is highly important in overcoming kinks due to redundancy or to Jackson's membrane, adhesions resulting from colitis or other causes. When the mucous surface is kept well lubricated, the fecal matter slips along and easily overcomes mechanical obstacles, which otherwise become formidable sources of obstruction.

3. The human alimentary canal, like that of other primates as illustrated in the diet of the higher apes, is adapted to a moderately coarse bill of fare. The concentrated diet of our modern civilized life contains so little indigestible material that the residue forms a pasty mass which tends to adhere to the intestinal wall, especially when any obstruction is presented by kinks, folds, adhesive bands, or a spastic state of the bowel due to colitis. When delay occurs, the further absorption of water converts these pasty residues into hard masses, scybala, which sometimes have almost the density of wood. Fats of all sorts are more or less laxative if taken in sufficient amount, through their effect in modifying the character of the food residues. They render the mass less adhesive and to some extent prevent dryness, but both animal and vegetable fats are digestible and absorbable and hence are not to any considerable degree effective in changing the character of the stool unless eaten in amounts larger than can be used, so that a considerable portion remains behind in the colon. Such large quantities of fat encourage putrefaction, lessen appetite, diminish the secretion of hydrochloric acid, interfere with the motility of the stomach and the small intestine, and may produce great disturbance of the body metabolism. Paraffin oil is free from these objections, since it is wholly nonabsorbable, and a comparative small amount serves the purpose required because it all remains in the intestine.

4. Paraffin is useful in all forms of intestinal stasis no matter what the cause, by preventing the abnormal drying out of the food residues which is the necessary result of too long retention in contact with absorbing surfaces.

5. Another remarkably interesting and useful property of paraffin oil is found in the fact that it stimulates activity of the small intestine. Observations made by Dr. J. T. Case, röntgenologist of the Battle Creek Sanitarium, in a large number of cases, have shown that paraffin oil greatly accelerates the passage of material through the small as well as the large intestine. This action is exceedingly important in those forms of intestinal toxemia which depend upon iliac stasis, by far the most serious of all forms of stasis. Stagnation in the small intestine is of far greater importance than stasis in the colon for the reason that both putrefaction and absorption are in this part of the digestive tube much more active than in the large intestine. Even in cases in which iliac stasis is due to the so called Lane's kink, as shown by x ray examination, great relief may usually be obtained by the regular

use of paraffin. The writer has demonstrated this in many cases. It is only in the most extreme cases when adhesions are so extensive that the lumen of the intestine is very greatly reduced that operative measures become necessary.

6. One of the very interesting features of the many sided useful activities of paraffin, is its behavior toward intestinal toxins. These toxins consist, not only of bile acids and alkaline wastes of various sorts excreted by the intestinal mucous membrane, but, in addition, of a great variety of ptomaines and toxins produced through bacterial action, especially in the colon, and also in the small intestine in cases of incompetency of the ileocecal valve. Paraffin is a highly active solvent and readily dissolves these waste and poisonous substances, many of which are more soluble in paraffin oil than in water. The result is that the paraffin oil, itself not absorbable, takes up a very considerable portion of the toxins found present in the intestinal tract and thus prevents their absorption. When paraffin is used, it may always be seen in the stools, showing a brownish or blackish color, due to the substances which it holds in solution. In a laboratory test made by a competent chemist by request of the writer, it was found that when paraffin oil was shaken with a watery solution of indol, more than half the indol was quickly taken up by the paraffin. The use of paraffin thus affords an effective means of hindering the absorption of intestinal toxins and conveying them out of the body.

7. Paraffin oil serves a useful purpose in protecting the mucous membrane when it is in an irritated state, as in cases of chronic colitis. The value of petrolatum and other neutral petroleum products as a dressing for wounds is well known. Paraffin acts in an equally favorable way upon irritated mucous surfaces. It has long been used for this purpose in the treatment of diseases of the nose and throat.

8. Paraffin serves another useful protective purpose in hindering the absorption of poisons by mucous surfaces which have been deprived of their epithelium. The normal epithelial covering of the intestines has remarkable filtering powers, by which toxins, especially colloid poisons, are excluded. This filtering power is lost when the surface is denuded. A protective layer of oil renders great service in such cases by hindering the absorption of these poisonous matters, which occurs with great readiness through abraded surfaces.

9. In cases of colitis, paraffin oil protects the irritated surfaces, but also through its lubricating effect and through softening the intestinal contents, aids greatly in overcoming the spastic condition of the intestine, which in many cases of chronic constipation is so formidable an obstacle to recovery. Laxatives of all sorts increase the spasticity of the intestine and so aggravate the constipation which they are given to relieve. This is one reason why many are more constipated after taking a laxative than before. Temporary relief is obtained by the production of watery stools which are able to pass through the contracted bowel, but as soon as the first effects of the laxative pass off, constipation becomes worse than before, since the spasm is greater. Paraffin lubricates and protects the sensi-

tive surface of the spastic bowel, and at the same time softens the intestinal contents so as to permit passage through the bowel without mechanical irritation. Cases of colitis are greatly benefited by the regular use of paraffin.

10. The studies of Cannon and especially the observations of Dr. J. T. Case, of the Battle Creek Sanitarium, combined with clinical observations by the writer and his colleagues, have demonstrated that incompetency of the ileocecal valve is a very active and frequent cause of serious disease. The x ray observations of Case, confirmed in many cases at the operating table by the writer, have shown that incompetency of the ileocolic valve is a most common and effective cause of iliac stasis. The experience in treating several hundreds of cases has shown that, aside from the regulation of diet, the regular use of paraffin oil is the most effective means of combating this condition. Medicinal laxatives cannot be used in these cases for the reason that they stimulate the antiperistalsis by which the reflux from the colon into the small intestine is increased. Case has shown by x ray examination that paraffin increases the motility of the small intestine while it does not increase antiperistalsis. It is thus a rational and efficient remedy of great value in dealing with this very large and important class of cases.

11. In cases in which the iliac stasis is due to spasm of the ileocecal valve, induced by chronic appendicitis, ovarian irritation or inflammation, colitis, or possibly painful rectal disease through reflex irritation, paraffin proves itself to be an invaluable remedy, since it has the property of increasing the peristaltic activity of the small intestine to such a degree as to enable it to overcome the spasm of the ileocecal valve without producing irritation, which would inevitably increase the spasm of the sphincter as do drug laxatives. The peculiar property of paraffin which enables it to stimulate and facilitate intestinal motility without producing irritation, is invaluable.

The regular use of paraffin oil very generally relieves hemorrhoids and fissure, even when of some years' standing. These morbid conditions are usually the result of constipation and are maintained and aggravated by straining at stool. By the habitual use of paraffin, the stools are made soft, straining is avoided, the sensitive surface is protected, the intestinal contents are rendered less irritating and infectious, and thus the tissues are given an opportunity to heal and return to a normal condition.

Since adopting the use of paraffin, the author has found that the number of cases in which operation for hemorrhoids is required is greatly reduced. Patients who have contemplated submitting to operation for removal of hemorrhoids of many years' standing, often within a week after beginning the use of paraffin, have found themselves so completely relieved that an operation was no longer considered.

13. Paraffin is capable of rendering invaluable service in cases of intestinal intoxication by increasing the number of daily stools. The length of time which foodstuffs remain in the intestine is reduced from several days to a few hours. This greatly

lessens the opportunity for development of putrefactive processes and the absorption of putrefaction products. By the use of paraffin in connection with an antitoxic diet and antitoxic ferments, such as the cultures of *Bacillus bulgaricus*, *Bacillus bifidus*, and *Bacillus glycobacter*, it becomes a comparatively easy matter to change the intestinal flora, a task difficult without this aid and very often impossible. Any one who has made a serious effort to change the intestinal flora, checking up his dietetic and other prescriptions by frequent bacteriological examinations of the feces and chemical examination of the urine, knows how difficult a task this is. It is absolutely necessary that constipation should be overcome. Laxative drugs are harmful, as pointed out by Combe long ago, and hence cannot be used with advantage, but paraffin is harmless and, by its systematic use in combination with other suitable measures, success may be obtained in all cases in which conditions requiring surgical interference do not exist. Indeed, the writer feels that his experience has demonstrated that by the systematic use of paraffin combined with a laxative and antitoxic dietary, a very large proportion, probably by far the largest proportion of the cases now subjected to short circuiting and other operations, might escape surgical interference altogether, certainly a thing greatly to be desired, especially since we do not yet know what may be the remote effects of these operations, while we do know that the immediate results are often far from satisfactory.

Paraffin possesses so many advantages over other laxatives that it will be given precedence over all others under nearly all circumstances when its merits are fully appreciated. Among these special advantages may be enumerated the following:

1. It is absolutely nonirritating, and consequently leaves no unpleasant effect behind and may be used for an indefinite time without producing ill effects. Even the mildest of ordinary medicinal laxatives produce irritating effects, which sooner or later result in disastrous consequences. The extreme prevalence of colitis at the present time is doubtless one of the evil effects of the habitual use of laxatives, including mineral waters, the use of which has become so general in recent years. It may be truly said that no laxative drug is known that can be habitually used for a long time without injury. As von Noorden tersely puts it, "nothing is so bad as the chronic use of drugs."

2. Paraffin is nonabsorbable. No matter how large a quantity may be taken, it simply passes through the body. It does not carry with it any useful elements, but dissolves and carries out of the body a considerable amount of toxic substances which can well be dispensed with. Being non-absorbent, its use involves no extra labor by the liver and kidneys, which are often greatly embarrassed by the enormous amount of extra work thrown upon them by the free use of laxative mineral waters and other drugs. This property especially recommends paraffin for use in cases of Bright's disease, hepatic cirrhosis, and other conditions in which these great vital organs are crippled.

3. Paraffin does not increase intestinal putrefaction as do animal fats and oils. The introduction of a considerable quantity of oil into the rectum at

night serves as an excellent laxative in many cases, but unpleasant effects are not infrequently seen. The patient complains of loss of appetite, symptoms which are described as biliousness, headaches, and other unpleasant effects, which are evidently the result of surcharging the body with fat, and an increase in the intestinal putrefaction. As paraffin is not digestible, oxidizable, nor absorbable, it may be taken in as large doses as may be desired either per os or per rectum without producing any of these effects.

4. One of the most serious objections to the use of animal or vegetable fat in liberal quantity, is the fact that fats inhibit the production of hydrochloric acid by the stomach. In cases of extreme hyperacidity this objection does not hold; but in advanced cases of chronic gastritis, in achylia, in all cases in which the hydrochloric acid secretion is reduced, the free use of oil often produces extremely ill effects. Paraffin oil has no effect upon gastric secretion.

5. *Cascara sagrada* and other drugs of the same class irritate the stomach as well as the colon, and often give rise to an excessive secretion of hydrochloric acid which produces extremely unpleasant effects. On this account, these drugs cannot be used in cases of hyperacidity or gastric or duodenal ulcer. Paraffin oil is especially useful in these cases, since constipation is an almost constant accompaniment of the conditions named, and the regular use of the oil soon shows its beneficial effects in marked relief of distressing symptoms.

6. Another special advantage of paraffin oil is the fact that its beneficial effects are not diminished by continued use, as is the case with almost any other laxative. It, in fact, should not be regarded as a drug, but rather as a dietetic accessory. It furnishes lubrication in cases in which the ordinary mucilaginous and other lubricating elements of the food are insufficient to secure normal intestinal activity. When the effective dose of paraffin is found, it is never necessary to increase it; but, on the other hand, it may be in most cases gradually diminished, although its continuous use in some dose may be found necessary. In cases in which the colon has been permanently crippled, permanent assistance is necessary.

7. Cases in which the colon is markedly redundant or is obstructed by kinks, folds, adhesion bands, contractions, etc., may often be saved from the surgeon's knife by the habitual use of paraffin, a small inconvenience when compared with the risk and other inconveniences of a surgical operation.

8. Most laxatives increase the absorption of toxins by irritating and congesting the mucous membrane, thus lessening its filtering power and rendering it permeable to toxins. Paraffin produces no irritation and protects the body against toxins both by dissolving toxins and holding them in solution and by mechanical protection of the mucous membrane.

9. Paraffin is not an unpleasant remedy to take, and when properly prepared it may be taken without the slightest difficulty by the most delicate invalid and may be given to infants. Indeed, it is an ideal laxative for infants, as it in no way disturbs digestion, is very active in small amounts, and has no objectionable flavor.

10. Paraffin is an ideal laxative for surgical cases. When used in proper dose, one to two ounces night and morning, for two or three days before operation, it thoroughly empties the alimentary canal without producing irritation or any other undesirable effects. It does not rob the body of fluids as do saline laxatives; it does not disturb the liver and kidneys as do many other drug laxatives; and it does not exhaust the patient. It is particularly valuable in intestinal surgery, as it leaves the stomach and bowels in a quiet and nonirritated state. In the writer's practice, after every abdominal operation one or two ounces of paraffin oil are given through a tube while the patient is still under the anesthetic or as an emulsion an hour or two later. The appearance of the oil in the stools after the operation is evidence of the absence of obstruction and the presence of normal peristaltic action throughout the whole length of the intestinal tract. This information is of no small importance to the abdominal surgeon. Paraffin is especially adapted to use in connection with surgical cases, because its use is not followed by an increased tendency to constipation and may be continued almost without interruption, by the operation. The bowels are stimulated into an active state before the operation, and the activity is kept up so that the dangers which arise from stasis and obstructive adhesions are almost wholly obviated. These considerations are not merely theoretical, but have been well tested in dealing with many hundreds of surgical cases in the surgical wards of the Battle Creek Sanitarium. In cases in which it is necessary to obtain very quick and complete emptying of the intestine, and in cases in which it is difficult to secure a thorough movement, half an ounce or an ounce of castor oil may be added to the dose of paraffin oil. In some cases it is well to make use of pituitary extract in addition.

11. Paraffin oil is an admirable laxative for use in pregnancy. It produces no irritation of the bowel, has not the slightest disturbing influence upon the uterus, and no effect upon the infant. Its regular use in the later months of pregnancy is a most effective means of avoiding some of the most serious dangers attending the parturient state.

12. Cases of dysmenorrhea dependent upon chronic constipation are promptly relieved by the use of paraffin oil, which is especially adapted for this purpose as it may be employed for any length of time without injurious effects.

13. In cases of diabetes, the systematic use of paraffin is an effective means of combating the intestinal putrefaction and autointoxication which are constant accompaniments of diabetes in its graver forms and may be one of the most potent factors in its causation.

14. Paraffin oil is of great service in the treatment of obesity. The reduction in the diet necessary in these cases often naturally leads to constipation which may be successfully combated by the aid of paraffin.

DRAWBACKS AND DISADVANTAGES.

That there are certain inconveniences, disadvantages, and drawbacks connected with the use of paraffin oil cannot be denied. Fortunately, however, all of these may be successfully met. One

of the most frequent inconveniences encountered in the use of paraffin is nausea. Many persons have such a great aversion for fats and oils that they find it almost or quite impossible to swallow the oil. The best means of overcoming this difficulty is to present the oil in the form of an emulsion. Paraffin oil is difficult to emulsify, but after considerable experimentation we find it possible to produce a very good emulsion by the use of gum acacia. In the writer's practice the oil is generally used in the form of an emulsion which contains about sixty-five per cent. of oil. Very few patients are found who cannot take the emulsion. It may be taken in hot or cold water, preferably the former. When well diluted, it is almost tasteless. A little sugar, honey, or lemon may be added for flavoring. It is easily taken with grape juice or cereal coffee. If, in any case, all the measures suggested fail, the remedy may be used by rectum. Two to four ounces should be injected into the rectum at night just before retiring. The best preparation for this purpose is a specially prepared paraffin which has a melting point of 102° to 104° F. Two to six ounces of this special preparation introduced into the rectum at night just before retiring, is a most effective means of securing regular movements of the bowels in very obstinate cases which have resisted other measures.

Itching. Cases occur occasionally in which the use of the oil is followed by intense itching about the anus. This itching is caused by infection of the surrounding skin. The remedy is thoroughly to cleanse the parts after each bowel movement with soap and water. It is also a good plan to introduce a tannic acid suppository into the rectum after each bowel movement.

Involuntary discharge of oil. In persons who have long been constipated and in whom the normal sensibility of the rectum has been lost, soiling of the clothing sometimes occurs through the unconscious discharge of the oil. This is most likely to occur with the escape of flatus. This difficulty disappears in time as the rectum recovers its normal sensibility.

Flatulence. Not infrequently there seems to be during the first few weeks after beginning the use of paraffin an increase of flatulence. This condition always indicates imperfect emptying of the intestine. It is especially likely to occur in cases in which the ileocecal valve is incompetent. In most cases this symptom disappears after a few weeks. Temporary relief may be obtained by means of the enema taken daily for a time to secure as thorough emptying of the colon as possible.

Failure. In the use of paraffin oil for constipation, failure is never complete for the reason that the oil passes through and carries off with it a large amount of bacterial toxins and poisonous wastes, even though complete bowel movements are not secured. In such cases the feces are not infrequently discharged in hard, round masses. This condition indicates the necessity for a more bulky diet. By the use of agaragar and bran as well as fresh vegetables in connection with the paraffin, this difficulty may be overcome. In severe cases of constipation a combination of paraffin oil with agaragar is often necessary for complete relief.

Paraffin cancer. It has long been known that the workmen engaged in paraffin works are especially subject to cancer. A commission appointed by the British Government to make a special study of this subject employed Dr. H. C. Ross, of the Lister Institute of London, a scientist who is well known for his cancer researches, to make a special study of the frequent occurrence of cancer among paraffin workers, especially among the manufacturers of briquettes who employ tar. This investigation, the results of which have been recently published by Doctor Ross, showed that paraffin oil contains substances associated with anthracene which he believes are, under favorable circumstances, capable of producing cancer. On this account, it can hardly be considered safe to recommend for continued use the ordinary commercial paraffin oil. Ross has shown that these objectionable substances are soluble in water and may be removed by washing. In the opinion of the writer, paraffin oil should never be used as a laxative without first being subjected to a special process of purification by thorough washing.

ACCESSORY MEASURES.

It is not to be supposed that by means of paraffin alone every case of constipation or indeed the majority of cases may be radically cured or even temporarily relieved. Paraffin is not by any means a panacea, and besides it is not a laxative in the ordinary sense of the term. It does not irritate or stimulate the intestine as do senna, aloes, castor oil, mineral waters, and various saline substances. Its action is purely mechanical. It simply facilitates bowel movement by making conditions favorable for physiological activity.

The most important thing in the treatment of constipation is, of course, the removal of the primary causes. In not a few cases, however, this is not sufficient, since the long continued operation of erroneous habits such as sedentary life, concentrated dietary, etc., have produced more or less permanent crippling of the bowel by the creation of redundancy with folds, kinks, bands, colitis, and other obstructive conditions. In such cases, the most scrupulous attention to the hygiene of the bowels may not be sufficient to establish the normal rhythm of three daily evacuations of the bowels, so that permanent assistance, such as that which is afforded by the regular use of paraffin oil, may be necessary. On the other hand, attention to diet and all other matters pertaining to the hygiene of defecation are essential to complete success.

Perhaps the most important factor of all is bulk. Such foodstuffs as milk, eggs, meat, fine flour bread, butter, cheese, cane sugar, potatoes, and pastry, which constitute much of the bill of fare of the average person, leave practically no residue behind in the intestine, as they contain practically no cellulose, the only substance normally found in the food which the digestive juices are unable to dissolve. There is only one way, then, in which the bulk of the food residues can be increased and that is, by the use of vegetable foods, particularly vegetable foods which abound in cellulose. Lettuce, spinach, cucumbers, cabbage, parsnips, turnips, beets, Brussels sprouts, Chinese cabbage, celery, and greens of various sorts are a highly essential part

of a laxative dietary. Fresh fruits are also of great value, especially those which contain a considerable amount of cellulose, such as the blueberry. The accompanying table, which has been carefully compiled from the works of Koenig and others, shows the amount of cellulose to the ounce and to the hundred calories of nutritive substance in a considerable variety of fruits and vegetables.

VEGETABLES.

	Number of cellulose grains in one ounce.	Calories in an ounce.	Grains of cellulose in 100 cal.	Ounces necessary to give 300 grains cellulose.
Asparagus	5.2	13.9	37.4	57.7
Beans	4	30.96	12.9	75
Beets	5.25	11.6	45	57
Brussels sprouts	7.85	6	131	40
Cabbage	9.2	8.8	145	32.4
Carrot (raw)	4.9	14	36	60
Cauliflower (steamed)	4.55	10.2	44.6	66
Celery (raw)	7	5.5	127	45
Cucumber (raw)	3.9	5	78	75
Green peas	9.35	34.4	27	32.2
Kohlrabi (raw)	7.75	9	66	39
Lettuce	3.65	5.6	65	82
Onion	3.55	10.32	33.7	85
Parsnips	8.65	17.1	57	36
Peas (dried)	28.5	103	20	10.8
Potato (baked)	5.45	32.7	16.6	55
Pumpkin	6.1	9.3	65.6	50
Spinach	4.65	9.3	50	65
Tomatoes	4.20	6.6	63.6	71
Turnip	6.6	6.1	108	46

FRUITS.

	Per cent. cel- lulose	Grains of cellulose in one ounce.	Calories in an ounce.	Grains of cel- lulose in 100 cal.	Ounces nec- essary to give 300 grains of cel- lulose.
Prunes (cooked)	2	10	27.5	36	30
Apples	1	5	101	5	60
Pears	3	15	18.5	81	20
Peaches	1	5	12.8	40	60
Plums	1.5	7.5	24.7	30	40
Cherries	2	10	22.8	44	30
Raspberries, red	7.4	37	18.3	200	81
Blackberries	5	25	16.8	150	12
Huckleberries	12.2	61	21.5	300	5
Strawberries	2	10	11.4	87	30
Currants	4.6	23	16.7	138	17
Grapes	1.5	7.5	20.3	36	40
Raisins	1.7	7.5	100.6	38.4	36
Raisins (stewed)	1.7	7.4	100.6	....	40
Oranges	2	10	14.9	67	30
Bananas	3	1.5	28.8	5.2	200
Figs	4.5	22.5	92.4	24.3	13.3
Apricots	2.5	12.5	16.3	74	24
Gooseberries (stewed)	3.5	17.5	19.4	90	17
Cranberries	5.0	25	48	51	12

Experience has shown that most cases of chronic constipation require at least an ounce of cellulose every twenty-four hours to give the feces sufficient bulk. Some cases require even more than this. In such cases agaragar may supply the necessary bulk. This substance known also in commerce as Japanese isinglass and Ceylon moss is a highly valuable remedy for constipation. The attention of the writer was first called to the value of agaragar in the treatment of constipation by Professor Mendel, of the Sheffield Scientific School of Yale. Professor Mendel was conducting some experiments for the purpose of determining the digestibility of the carbohydrates found in algæ and sea mosses of various sorts. A Japanese student who was a subject of the experiments noticed that when agaragar was taken in quantity of about two thirds of an ounce to an ounce per diem, a distinct laxative effect was produced. A few months later, when spending a little time in the laboratory of Professor Adolph Smith, then of Dresden, I learned that he had made a similar observation.

In my first attempts to make use of agaragar as a laxative, I encountered a considerable number of cases in which the remedy was ineffective. The material seemed to lodge in the cecum and produce

great distention of the bowel and much discomfort, but without producing a laxative effect. Professor Smith sought to remedy this difficulty by the addition of a watery extract of cascara sagrada to the agaragar. It should be generally known, however, that the laxative properties of this mixture are not due to agaragar, as the amount of the latter in the preparation, in the doses in which it is given, is not sufficient to produce any decided effect. The action is chiefly that of cascara sagrada, of which it contains twenty-five per cent. watery extract.

By the combined use of agaragar and paraffin oil, the difficulty referred to may be overcome in almost every case. Agaragar in convenient form for use is now obtainable almost everywhere.

Wheat bran is a convenient and highly valuable source of cellulose which is nearly always available. Bran may be used in various forms. It may be added to oatmeal, cracked wheat, corn meal, and even mashed potatoes in proportion of twenty-five to thirty per cent. by weight. It may also be combined with cereals in making biscuit, bread, crackers, etc. Several preparations of this sort are on the market. It is also possible to obtain sterilized bran, which consists of bran which has been thoroughly purified and sterilized by steam cooking at a high temperature. A tablespoonful of bran taken at each meal in connection with the use of paraffin is quite sufficient in a large number of cases to secure three regular bowel movements daily.

The free use of fruit is important. Fruit acids stimulate intestinal peristalsis. Taking a couple of apples or oranges at bedtime is a useful measure in many cases. Food is a natural laxative. When food is taken into the stomach peristaltic waves pass along the whole length of the intestine and advance the intestinal contents toward the point of exit. A little fruit taken at bedtime does not interfere with sleep, as fruit requires practically no digestion and will generally secure a free bowel movement immediately on rising. Massage of the colon, especially with the patient lying upon an inclined table with the hips elevated, is a valuable aid in many cases. Numerous clinical observations indicate that the chief seat of the morbid conditions which lead to constipation is in the lower part of the colon, particularly in the iliac and pelvic portions of the colon at the rectum.

Massage of the colon is invaluable in many cases and succeeds with paraffin where neither is wholly successful alone. In the application of massage to the colon, it is important that the manipulations of the operator should be guided by radiographs of the colon obtained after the injection of bismuth. It is only by means of the x ray that the location of the colon can be definitely known. The x ray examination also gives valuable information as regards the exact location of stasis, and the kinks, folds, or spastic contractions to which the stasis is due.

In cases in which the pelvic colon is greatly enlarged, and especially in cases in which obstruction is due to prolapse and contraction of the pelvic colon, relief may be obtained by the application of massage with the patient in the knee-chest position. It is often necessary to introduce water or air into the colon to distend it and thus increase the effect of position in lifting the pelvic colon into the posi-

tion necessary for discharge of its contents into the rectum.

The radical cure of constipation requires a change of the intestinal flora. This can be accomplished only by a combination of measures, no one of which is effective when employed alone: 1. Increased frequency of bowel movement secured without the use of irritating drugs; 2, a strictly antitoxic diet in which meats and flesh foods of all kinds are excluded, and, in some cases, even milk and eggs for a time; and, 3, the use of cultures of acid-forming organisms by mouth and when necessary by rectum also. The most efficient of the antitoxic ferments are *Bacillus bulgaricus*, of Grigeroff; *Bacillus bifidus*, of Tissier; and *Bacillus glycobacter*, of Wollman and Metchnikoff.

Bacillus bulgaricus, especially when combined with *Bacillus bifidus* and *Bacillus glycobacter*, is a valuable means of combating constipation by encouraging the formation of fatty acids in the colon. These acids are the normal stimuli of the colon. The writer has found great advantage from the introduction of liquid cultures of these organisms in the colon, while at the same time administering liberal quantities of fresh cultures in connection with each meal.

OPERATIVE MEASURES.

In certain cases of constipation, the colon is so greatly crippled that complete relief is not obtainable without the aid of surgery. Cases of stricture due to ulcer or malignant disease or to peritoneal bands and certain kinks due to adhesions, are proper subjects for operation. Some cases of extreme incompetency of the ileocecal valve require operation, though these cases are usually benefited by the various measures which have been outlined above. In cases in which the pelvic colon is dilated, prolapsed, and adherent, operation is sometimes required. The pelvic colon must be freed and suspended or otherwise held in position. In all these cases, as well as in cases in which the operation of short circuiting has been performed, paraffin renders great service, and its regular use is generally found to be necessary to complete and maintain the cure.

New Method of Treating Ulcerations on the Neck.—Lucien Jacquet, in *Bulletins et mémoires de la société médicale des hôpitaux de Paris* for July 10, 1913, reports a case of nonspecific ulceration above the clavicle in a woman fifty-three years of age, in which, treatment with tincture of iodine and bismuth subgallate for five weeks having failed to induce granulation and healing, daily voluntary exercise of the platysma myoides brought about early improvement in the condition of the ulcer. Twelve days after the measure had been instituted, the muscle being contracted for four or five minutes about ten times a day, active granulation was observed in the inner and outer portions of the ulcer. It was noted that the part of the platysma corresponding to the central portion of the ulcer, which had remained unchanged, was not being contracted by the patient. This having been overcome by special attention on her part, the central deep, smooth surface of the ulcer began gradually to granulate, and perfect healing soon took place.

NEWER TEACHINGS CONCERNING DISEASES OF THE GASTROINTESTINAL TRACT.*

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X.

DISEASES OF THE ORAL CAVITY.

The alimentary canal begins with the oral cavity and, therefore, we begin with the diseases of the organs and tissues composing this cavity. Any affection which involves the entire oral cavity, or only some parts thereof, may react upon the general digestion. There exists, nay, *a priori* it should be assumed that there does exist, a correlative, causal relation between the individual and the component parts of the gastrointestinal canal. Thus, a primary affection of the oral cavity may finally involve the stomach and intestine and, vice versa, a primary affection of the gastrointestinal tube may react, injuriously, upon the organs of the oral cavity. Let us never lose sight of the fact that, in the functions of the organs of the alimentary canal, we are dealing with the immutable laws of physics and chemistry and, that, therefore, in discussing pathological conditions of the alimentary canal, we must ever bear in mind that here also we are dealing with the same immutable laws. True, pathological conditions involve chemical reactions of a different nature from those which take place in the normal conditions which govern those changes, yet the laws are the same.

The oral cavity is exposed to attacks from without and within. From without, we have the atmosphere and food and drink. From within, we have the propagation of disease by continuity and by chemical irritants from the gastric or gastroenteric canal, which may reach the mouth in a gaseous, fluid, or solid form. The atmosphere is not a definite, chemical compound, but a mixture of gases and finely divided floating particles, the interrelation between which is seldom constant. Beside the oxygen, nitrogen, and the carbon dioxide, the air contains many other chemicals in various quantities. Such chemicals ascend from the earth, from the water, from the animal and the vegetable kingdoms, and mix in the air and, as such, we may inhale them or swallow them. In the spring and the fall the air and the water are surcharged with vegetable matter, the result of decayed or decaying substances which are stirred up and spread by wind and rain. We inhale such injurious matter, we drink it in our water. Indeed, the perils of drinking water are hardly appreciated. My conviction is that a great many diseases, beside typhoid, have their cause in impure water; we have yet to learn to recognize such impurities. Involuntarily we may inhale highly irritating chemical gases, or we may enjoy highly seasoned foodstuffs which affect the oral mucous membrane. Acid eructations, acid regurgitations also irritate the mucous membrane of the mouth and, in the young, this seems to be the cause of oral affections *par excellence*. Much as external influences have their bear-

ing upon diseases of the oral cavity, diseases of the gastrointestinal canal are to be considered as offering the chief cause. Chronic maldigestion and therefore malnutrition bring about the so called run down constitution, another extremely broad term, pregnant with ignorance.

Chilitis is an inflammatory condition of the lips. It is, as a rule, of an infectious character. The lips may swell up considerably and become painful, interfering with speech and the taking of food. Under ordinary precaution and attention to the cause, all symptoms disappear in a few days.

Stomatitis may be of the ordinary catarrhal, or of the toxic type, and the result of any kind of irritant, chemical, mechanical, or thermal; it may also be caused by fungous growth, or it may develop secondarily by continuity, from the nose or the respiratory organs, or from irritation proceeding from the stomach.

The simple, catarrhal stomatitis is an inflammatory condition of the mucous membrane of the mouth, accompanied by desquamation of the epithelium, exudation, and increased secretion of mucus. In the severer cases there may be a notable increase of temperature and the patient may have to take to his bed. Usually, however, it is not severe enough to confine the patient indoors. There will be redness of the mucous membrane, which appears to be stretched tense. The patient complains of heat and dryness, of a sensation of burning and of tightness, which latter sensation is aggravated when the muscles of the cheek or the tongue are exercised. There is more or less exudation, which is especially noticeable on the tongue. Talking, the taking of food, and drinking are painful. The coating of the tongue is especially marked in the morning, but during the day it is removed, partly and mechanically by the food and drink. It gives the peculiar taste in the mouth, so variously described by the patient as pappy, sticky, pasty, etc. This coating may decompose and thus produce *fetor ex ore*. In severe cases there are erosions and shallow ulcers.

Toxic stomatitis includes as the cause the chemical caustic irritations by acids and alkalies, as well as the inflammation produced by the prolonged use of such remedies as mercury, bromine, iodine, arsenic, etc.

The treatment is to eradicate the cause. The oral cavity and the teeth should be kept clean. Locally we can use chlorate of potassium, one dram to five or eight ounces of water; permanganate of potassium one in 200; a two to three per cent. boric acid solution; 0.5 to 1,000 salicylic acid; thymol, one to 2,000; or one to 3,000 of tannic acid; alum, two to five per cent.; and should it become necessary, erosions or fissures may be touched with silver nitrate, one to five per cent.

Ulcerative stomatitis or *stomatocace*. This is an inflammatory condition of the gums, tongue, and mucous membrane of the buccal cavity and never affects the pharynx. It may extend to the maxillary bones and cause necrosis. It usually begins as a gingivitis, with hyperemia, swelling, and loosening of the gums which bleed easily. The margins of the gums may become gangrenous or suppurate. The teeth may become exposed down to their roots, become loose, and fall out. There is *fetor ex ore*.

*See JOURNAL for April 26, 1913, page 872.

The tongue is swollen and shows the impressions of the teeth; there is profuse salivation, and during sleep saliva may gravitate into the lungs and produce symptoms there. There is swelling and tenderness of the submaxillary glands. The etiology is rather of a constitutional nature, the predisposing causes being scurvy, tuberculosis, rhachitis, chronic diseases of the gastrointestinal canal, etc. This disease may also be caused by poisoning with mercury, lead, and phosphorus. The symptoms are comparatively few and are restricted chiefly to the oral cavity. There is pain, the movements of the tongue, lips, and buccal muscles are painful; therefore, the taking of food, drinking, and talking are painful. The patients complain of the fetor and of very much increased salivation. After the breaking down of the gums, the teeth become exposed and cause pain. Numerous small ulcers may appear and also produce pain. The prognosis is good. The treatment consists in attention to the general health and digestion and the use of any of the mouthwashes mentioned before.

The tongue has been supposed to mirror the general condition of the alimentary canal; but this view has changed. The coated tongue shows its own condition, but it may also reflect the condition of the stomach to some extent. Normally, the tongue has a slight coating in the morning, which, however, wears off, being removed mechanically by the food and drink. In health the tongue feels soft and velvety; an inflammatory condition of the papillæ makes the tongue feel raw and sandy. In zymosia gastrica there is considerable coating of the tongue and the patient complains of a bitter taste. The bitter taste is due to the yeast growth, yeast tasting bitter. In gastrosia fungosa the fungous growth may also be upon the tongue, the patient then complaining of a musty, foul taste and odor.

Treatment consists in removing the primary cause and attention to the gastric condition, and, in addition, the local use of the mouthwashes mentioned before. Of chief importance is proper attention to diet.

Excoriations and erosions of the tongue are not infrequent and are usually situated near the tip. They are quite painful. In a patient of mine, a woman, forty-three years old, such an excoriation persisted for a very long time. When she came to me, she had made up her mind that she suffered from cancer of the tongue. She made a very rapid recovery after treatment of her intestinal derangement. My view of these erosions is that they belong in the class of urticarious disease; they are to be treated as an urticaria, and when so treated they heal rapidly. On the other hand, excoriations are also caused by the acid eructations of organacidia gastrica. The treatment will be considered later on, in connection with the gastric and enteric disorders.

Thrush, sprue, from *Saccharomyces albicans* is quite common in infancy, but occurs at all ages. It is a fungous growth upon the mucous membrane of the oral cavity. It appears first as little white colonies and may then spread all over. It usually appears first on the tongue, whence it spreads. These little white dots soon become confluent and form a membrane. The color may change into a grayish white or grayish yellow. This fungous growth may ex-

tend into the esophagus. I have certainly found it even in the stomach. In the adult this condition causes very little discomfort, but in infants it may become of very serious consequences, leading into marasmus. Its appearance in the adult points to a bad constitutional condition and is of bad prognostic significance. Treatment consists in frequent cleansing of the mouth and attention to the general nutrition.

Tonsillitis is an inflammatory condition of the tonsils, which occurs at all ages, but oftenest in the young. The etiology is not very clear. As a rule, it is assumed to be due to a cold. But what a "cold" really is I have never been able to fathom; it is an expression of convenience. Whatever the inciting cause, the predisposing condition of the constitution is of paramount importance. My experience teaches me that the predisposing constitution is a surcharge of acid elements. Under such a condition, perhaps, the atmospheric changes may have some influence. In a great many instances the inflammation of the tonsils and of the pharynx followed repeatedly and immediately upon the ingestion of salads and sour, pickled food, which was accompanied by the drinking of fermented liquors, such as beer. This could not be taken as the exciting cause in infants. Here the hyperacidity and the irritation of the oral cavity are furnished by the regurgitation of the sour stomach contents, while the yeast fungus of the fermented liquor is here replaced by the yeast in the cake and bread.

The tonsils are swollen and red; so are the fauces and pharynx and the submaxillary glands. I hold that the inflammation of the submaxillary glands is caused by the irritating juices, which are now in the oral cavity, and which gravitate through Wharton's ducts, whose course is downward. In follicular tonsillitis, the follicles inflame and suppurate and appear as white and yellowish dots, protruding upon the surface; they burst and leave raw, ulcerative surfaces. The frequently recurring tonsillitis leaves enlarged tonsils, which impede the breathing and help in the creation of mouth breathers. A quite frequent sequel is the formation of calcareous deposits, stones in the substance of the tonsils, which themselves later become irritants.

Diphtheritic tonsillitis belongs rather in the domain of pediatrics, although it also occurs in the adult, and I will touch upon it only lightly. The symptoms are those usually met in inflammatory conditions generally. There are fever, general malaise, headache, perhaps vomiting, swelling of the tonsils and of the submaxillary glands, but the most prominent symptoms are pain in the throat and painful swallowing. The fever, as a rule, subsides in a day or two. The prognosis, nowadays, is generally good. Treatment consists, first, in a dose of calomel, in accordance with the age of the patient, best to be given in divided doses; then iron in large doses, which latter therapy I learned of my esteemed teacher, Joseph E. Winters, and which I have employed with uniform success. No matter how young the patient, I never began with less than five drops of the tincture of iron and gave from ten to fifteen drop doses to a child two years old, always with phenomenal success. We have been taught not to give calomel and iron the same day, and I usually

followed this rule. But I confess that the patients would occasionally mix up directions and take the iron on the same day as the calomel and nothing untoward happened. In children I have used always hot baths from the first day, once every day, irrespective of the height of the patient's temperature. In fact, the high temperature always was an incentive to persevere in the bathing.

As a matter of record, I should like to say here that I have systematically used hot baths in all acute inflammatory diseases, ever since I began to practise in 1894, a procedure for which I have been severely criticised. In conjunction with this I also employed warm rectal irrigations. This therapy I have based on a conception of mine of the actual cause of inflammations, which conception I arrived at when I was an undergraduate. I am glad to see that this therapy has found its way into general practice, here as well as abroad, but, as I have never published my views, I presume only those who have worked with me or come in contact with some of my cases know of the origin of the hot baths and of the hot irrigations. I had occasion to demonstrate the value of the hot irrigations to Baginsky in Berlin, in 1899, in the hospital with which he is connected. There a boy of nine years, suffering from tuberculous meningitis, with a very high temperature and absolutely apathetic, was given, in my presence, rectal irrigations. The result was, that immediately after the irrigation the child's temperature dropped and he began to whistle, which fact very much impressed those who were present at the demonstration.

Permit me to narrate here one anecdote concerning the hot bath treatment. It happened during the first few months of my practice. A woman brought her little daughter with scarlet fever to the dispensary. *Lege artis* she was sent home and I assumed supreme command of the patient, although no one had vested such rights in me; but neither did I get or expect any pay for it. I then visited that patient at her home. At my first visit I advised the mother to bathe the child in hot water. After the mother had sufficiently recovered from the shock of such advice, she stated that she had never heard of such treatment before and asked me if I really meant it, inasmuch as she knew that in scarlet fever the body should not be wetted. Whereupon I rejoined that my advice was not to wet the body, but to bathe it. Again the mother stared at me. But after a little while she collected herself, summoned up courage, and told me that if I wanted to bathe the child myself, I could do so, but that she would never do so herself. "Well," I said, "go ahead and get me hot water," which the mother immediately prepared and I bathed the child. I called the next day. What a greeting! Full of joy and happiness, the mother said to me: "Doctor, I bathed the child myself this morning." As in all other cases treated with hot baths the child recovered.¹

The treatment with hot baths and irrigations of the rectum in diphtheritic tonsillitis is not based

upon chance or coincidence, but upon reasoning, which I began a year and a half before my graduation, some time early in 1893. The hot bath is continued for eight to ten minutes. Concerning the rectal irrigations, which I have used thousands of times, and am using now as well, there is no specified maximum quantity of water to be used. The small nozzle was used and the hot water was allowed to run into the rectum from a height of not more than twelve to fifteen inches, the child being on its back with the hips elevated. I let the water run in until it shot back. But the shooting back was at no time an indication to discontinue the irrigation. One need not fear rupturing the intestinal wall from overdilatation, as there is a natural opening, the anus, ready to relieve the overdilatation before the pressure acquires such force as to tear the wall.

The food should be light and not solid, so as not to irritate the tonsils. In children an exclusive milk diet is the best; I have always dreaded meats, meat broths, meat soups, and beef tea, and I would never allow them. As to serotherapy, I will say that I have never but once used antitoxin. This was lately in an adult, who insisted upon my treating him and using antitoxin. I have never lost a single case; I have never had any complications; nor has my treatment taken any longer than the time averred by those who use antitoxin. I cannot help thinking that the antitoxin treatment is based on a delusion. It is true that under the present treatment with antitoxin much better results are achieved than before; it is indisputable that with the antitoxin treatment diphtheria has been robbed of its terrors. The excellence of the antitoxin treatment, however, rests upon a negative and not upon a positive basis. When antitoxin is administered, nothing is used topically; while before, excessive local treatment was in vogue. It was the local interference with the consequent spreading of the infection and the doing too much that killed. If we only keep our hands off local applications and do not rush stimulants, and if we let the fever take care of itself, and are cognizant of the fact that every increase of temperature has as its necessary corollary, increase in pulse and respiration, and therefore do not attempt to convert the sufferer's stomach into a drug shop by giving too many drugs, the patient will get well under the treatment I have outlined.

That the Klebs-Loeffler bacillus is found in diphtheria seems to be a demonstrated fact; but that it is the cause of diphtheria has not, to my mind, yet been conclusively proved.

To sum up the treatment of diphtheria: Calomel in divided doses, according to the age of the patient; a tenth of a grain may be given to an infant a week old, every ten minutes until one grain is given, large doses of iron, hot baths, and rectal irrigations. Do not let us meddle with fever, pulse, or respiration, and above all do not let us run to stimulants. Keep away from meats and any of its derivatives, and use no local applications. Under this medication I have had no deaths. Fumigations and some more hocus-pocus might, perhaps, serve well to impress the anxious parent, but there is no true scientific reason

¹It is still my intention to publish my views on inflammation, which I conceived after very hard and painstaking study during my studenthood and which have given me very good results in my general practice, as a posthumous work; but, perhaps, I may yield to persuasion and publish them earlier.

for it, the assertions of misinterpreted bacteriology to the contrary notwithstanding.

Let us hope, for the benefit and the elevation of our sublime profession, that Carrel's experiments will give the death blow to that pernicious, criminal, homicidal teaching of bacteriology, as at present understood, and against which I have always contended. But these sentiments must not be construed otherwise than that I do not hold to the present views, although I am firmly convinced that through bacteriology we shall finally be able to solve the very origin of life.

616 MADISON AVENUE.

THE INDICATIONS OF GASTRIC ULCER AND ITS SURGICAL TREATMENT.

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Gastric ulcer has undoubtedly a natural tendency to heal, and proper medical treatment gives satisfactory results in the majority of uncomplicated cases. This statement is so true that by going over the literature of gastric ulcer, it is impossible not to be struck by the fact that all the writers are well pleased with the treatment they have employed. One can only conclude that the ulcer has a natural tendency to heal and all that is necessary to obtain this end is to place it in conditions which do not disturb this natural tendency in order to derive good results. Now, although medical treatment should always be tried first and often is quite successful, it is none the less true that sometimes it utterly fails and that there exist ulcers which are rebellious to treatment. It is in these instances that the surgeon comes into play, and two methods are at our disposal, namely, the radical and the palliative interferences. The radical method is resection of the ulcer.

Exercises of the diseased part is evidently the ideal treatment, and certainly has considerable advantages theoretically, such as complete removal of the lesion and the impossibility of malignant transformation taking place in the ulcer. But in reality the cure is not as permanent as at first sight it would seem. In the first place, the ulcer is only single in about twenty per cent. of the cases, in the remaining eighty per cent. it is multiple, and when one ulcer is resected, we can never be certain, even after a careful exploration of the interior of the stomach, not to overlook another, so that the resection of one does not prevent the evolution of another which has escaped the operator's notice. Then, too, resection of the ulcer hardly changes the causes to which it is due nor the soil on which it has developed, so that there is nothing astonishing in the fact that a new ulcer develops after the operation.

It cannot be denied that resection of a gastric ulcer is a difficult procedure and is rarely possible under good circumstances, because the absolutely essential condition for a successful resection is an easy mobilization of the stomach. Now, in most instances, the organ is bound down, retracted, and ad-

herent to the neighboring viscera, with, not infrequently, extensive lesions of perigastritis.

After resection of the lesion and suture of the stomach, the loss of tissue may be such that the organ is deformed and its motor functions considerably interfered with. The thick adhesions often conceal from view small abscesses, the rupture of which can readily infect the peritoneal cavity, thus adding still another danger to the operation. Quite as fertile in disadvantages as it is exempt of advantages, this method of treatment has, I am glad to say, had few in its favor. Theoretically a method of choice, it is, in practice, a most exceptional procedure.

There remains the palliative method. This has for object, not the elimination of the ulcer, but the creation of conditions favorable for its rapid cicatrization. Two quite different operations attain this result, namely, gastroenterostomy and jejunostomy. The former has been considered by many as the only permissible one, while the latter remained forgotten and neglected by the majority of operators. In reality, both have their value, which depends entirely on the judicious choice of its application, and this choice depends completely on the site of the ulcer. From this viewpoint, gastric ulcer is to be divided into two groups, viz., ulcers seated in the pyloric region and pylorus and, secondly, ulcers in any other part of the stomach, including the cardiac region. The first class is the only one where gastroenterostomy is indicated, while the second should be treated by jejunostomy. Ulcers of the pyloric region and pylorus alone give rise to contracture in the beginning and later to stenosis of the pylorus. Now, the occlusion of the pylorus is at present the recognized indispensable condition for the proper functioning of the anastomotic opening, which function is the end to be obtained by the gastroenterostomy. It seems almost superfluous, at the present time, to say that this operation, even when the opening between stomach and gut is large, with vertical suspension, in no way changes a stomach whose pylorus is normal. The food remains in the stomach and makes its exit via the pylorus, just as if the operation had not been done, and the result is that the gastroenterostomy opening at length closes. With a partially patent pylorus the artificial opening in the stomach is bound to function imperfectly, and under the most favorable conditions it can give only partial exit to the gastric liquids, which, physiologically and naturally, are propelled toward the pylorus, so that slowly but surely the neopylorus narrows down and ends by closing up.

The pylorus must be occluded, either by a stenosis or spasm if the anastomosis is to function, and in all other cases it remains without functional results, so that the operation is useless. That this assertion is true, is amply demonstrated by numerous secondary operations, the experimental work of Debet, Maury, Kelling, and many others, not to mention radioscopic studies aided by the ingestion of bismuth carbonate. This phenomenon is quite in accord with the general law of anastomosis, which requires that to be useful, some mechanical or physiological hindrance must exist in the continuity of the stomach. Consequently, the only gastric ulcers to which gastroenterostomy is applicable are those in the

pylorus or pyloric region and the operation can favor their cicatrization. This it does by bringing about changes in the mechanical and clinical functions of the organ.

From the functional standpoint, the stomach may conveniently be divided into two distinct portions, viz., the region of the greater curve, which has especially a digestive function, and the pyloric region whose function is to empty the chyme from the organ. It is in the former region that the food is pulpified and transformed by the digestive fluids secreted by the glands in the gastric mucosa. When the first period of gastric digestion is ended, the pyloric antrum, which forms a distinct region functionally, enters into action, and its movements draw the transformed gastric contents to it. Now, gastroenterostomy in no way changes the first period of gastric digestion, although it was once thought that it transformed the stomach into a kind of funnel which did not retain either the food taken or the gastric juices secreted, all these passing directly into the intestine. But at present it must be admitted that a gastroenterostomy does not do away with the gastric period of digestion as was supposed, and it has been demonstrated clearly by Castaigne and Dujarrier that this is even prolonged by the operation. But after gastroenterostomy has been done, the food leaving the organ by the new opening before reaching the pyloric portion, puts the latter to rest and prevents caustic fluids from irritating the ulcer when the lesion is seated in or near the pylorus.

Thus gastroenterostomy sets up changes in the gastric chemistry, which without any doubt result in a favorable healing influence for the ulcer. It diminishes the gastric hypersecretion and hyperacidity, the principal factor being the mixture of the bile and pancreatic juice with the gastric juice, by reflux of the former into the stomach.

This reflux, first mentioned by Soupault and Debone as far back as 1895, has since been observed by Katzenstein in his experiments on dogs. This writer has experimentally proved the useful part played by the reflux of the biliary and pancreatic juices into the gastric cavity, as he found that they did away with acid secretion of the stomach on account of their alkaline reaction and the inhibitory influence of their reflux on this secretion. Now, this reflux cannot take place unless the anastomotic opening functions, that is to say, when the chyme and digestive juices no longer pass through the duodenum.

Ulcer of the cardiac portion does not place the stomach in the requisite conditions for the proper functioning of the gastroenterostomy, because it does not provoke occlusion of the pylorus nor its intermittent spasm. Now, as the changes in the gastric chyme, which favor healing of the ulcer, are entirely dependent on the functioning of the gastroenterostomy, it results that ulcers situated in the cardia do not receive any benefit from the operation. But supposing that the gastroenterostomy functions, its application to these ulcers is clearly illogical, because, first, it places the neopylorus directly in the area of pathological change, and, what is more important, the food continuing to remain in this region longer than normally, the ulcer, far from

being protected from the mechanical and chemical irritation, is still more exposed to it.

For these various reasons ulcers situated far from the pylorus should never be treated by gastroenterostomy, which should be reserved for pyloric lesions only, if the surgeon does not wish to have a poor therapeutic result, or one which is nil. When one hears occasionally of an ulcer being cured by this operation when seated far from the pylorus, this result is a coincidence and the favorable outcome is more probably due to a well directed postoperative treatment than to the gastroenterostomy.

When the ulcer is not pyloric, jejunostomy by the Eiselsberg-Wizel technic, the only one to be employed, to my way of thinking, is the only proper interference, and it may be laid down as an axiom that the nearer the ulcer is to the cardia, the greater is the contraindication to gastroenterostomy and an absolute indication for jejunostomy. This operation should be done when the symptoms due to the gastric lesion put the patient's life in danger, also when a well directed medical treatment gives no durable result.

Among the symptoms which endanger life, hemorrhage is the first to be considered, and here let me say that I do not refer to serious hemorrhage, because any operative interference is here contraindicated and medical treatment gives far more hope. This does not apply to slight hematemesis, however, which recurs at frequent intervals, and if it is not permanently stopped by medical treatment, it is a sufficient argument for surgical treatment. Persistent hemorrhage or rather oozing results in loss of blood sufficient to give rise to melena that is noticeable by simple inspection. These patients usually have rather dark colored stools, even when a severe medical treatment has been practised, but a time comes when this can no longer be carried out, and then one is in presence of two dangers equally grave, viz., serious hemorrhage and exhaustion. Under these circumstances it is wiser and more prudent to resort to jejunostomy without waiting for the development of more serious trouble.

Progressive loss of flesh is another important symptom, but here it is essential to make a distinction. When the patient is strong and sufficiently fat, the loss of weight need not alarm one in the beginning, because the value of his reserve may be enough to permit placing him on a long and severe regimen without danger. Such patients revive rapidly as soon as they are put on a more substantial diet. But patients with gastric ulcer rarely have a brilliant constitution at the time medical treatment is begun, and usually they are weak, anemic, or even cachectic. Far from being able to support another loss of strength, they rather demand physical reinforcement, or at least the equilibrium of the organism must be maintained. If this cannot be realized with the regimen requisite for the lesion, as denutrition will soon be noted, accompanied by an exaggerated decrease in the blood pressure, it is better not to postpone operation, for one might then interfere too late, even if jejunostomy is to be done.

For other reasons the loss of weight should not be allowed to go too far, first, because a weakened organism is in poor condition for defense and repairs its lesions with difficulty; secondly, because

the ulcer markedly undermines the organism and thus favors the development of tuberculous infection or the appearance of a latent tuberculosis. Here the danger is considerable, when it is recalled that some statistics show that one out of every five (twenty per cent.) cases of death from gastric ulcer presented evidence of an advancing tuberculosis. Here, then, when any suspicion of tuberculosis exists, jejunostomy should be done without delay.

There are also cases of gastric ulcer, in which gastric intolerance is absolute, and severe pain is produced by taking food. In these the stomach is generally retracted and the seat of multiple ulcers with extensive perigastritis. Or it may be that there is only a single ulcer, but the gastric mucosa is much changed and very sensitive. Absolute rest of the stomach is here particularly necessary, so that jejunostomy is clearly indicated.

In the simple types of acute gastric ulcer, the medical treatment, which is easily carried out, should rapidly show results. Put at rest, with a milk diet, after which a progressively increased diet should quickly control the situation, the patient should recover rapidly. The permanent cicatrization of the ulcer is not, perhaps, completely realized, but since there is no precise indication to the contrary, this may be very properly admitted if the patient feels well, his former weight has been regained, and the characteristic manifestations of the ulcer have disappeared. But if by chance the disturbances which were thought to have been permanently cured, return upon the slightest fatigue or error in diet; if the treatment has to be resumed frequently only to end in temporary relief, thus giving excellent evidence that medical treatment is of no avail, then jejunostomy is to be recommended without hesitation. This operation is even more imperative when the social position of the patient precludes proper medical treatment.

Jejunostomy will also be advantageously applied in those cases where gastroenterostomy is indicated, but where the physical condition of the patient is at a low ebb. This is, of course, not frequent at the present time, but such cases turn up from time to time. This operation can be done with such rapidity, in from ten to twelve minutes and without general narcosis, that these patients support it very well.

Again in all cases where gastroenterostomy is unwise, although feasible on account of the local condition, jejunostomy has its field of usefulness, likewise in cases where gastroenterostomy has already been done and failed in its results. In this class I include patients in whom the secondary dyspeptic syndrome appears after a certain lapse of time in spite of the regimen followed after the gastroenterostomy. Such stomachs are so altered in their motor function and glandular structure, that the relative rest given by gastroenterostomy is insufficient to restore completely these changes to the normal, and here, again, jejunostomy is clearly indicated. It is also useful after gastroenterostomy when a peptic ulcer develops. This lesion results when the transformation of the gastric mucosa is such that the gastroenterostomy is incapable of checking or neutralizing the gastric acidity which is the causal factor of the peptic ulcer. As a last

application of jejunostomy, I would mention those very rare cases of ulcer causing stenosis of the cardia and pylorus, in which any other interference would be practically without result.

3 RUE BELLOT.

APPENDICOSTOMY IN A CASE OF CHRONIC ULCERATIVE COLO- PROCTITIS.*

By J. F. SAPHIR, M. D.,
New York,

Visiting Proctologist, People's Hospital; Chief of Rectal Department, German Poliklinik; Associate Visiting Physician, Home of Daughters of Jacob.

I have a case, interesting not on account of the rarity of either the disease or the operation, but because of the trials and tribulations of this patient, who had traveled from one hospital to another for the past three years, seeking relief, and after remaining for a time at three different hospitals, was discharged unrelieved, or compelled to leave; seeing no improvement, he became so discouraged and his life under existing conditions became so unbearable that he threatened to do away with himself.

CASE. B. W., tailor, Austrian, married, aged thirty years, was referred to me by Dr. M. Rosenbaum, December 12, 1913. Three years ago, he complained of rectal trouble which he called "piles" for which he entered New York Hospital, where he was operated upon for hemorrhoids, remained in the hospital four weeks, and left unimproved. He then complained of frequency of stools and of bleeding at every movement for a period of eight months, after which time he noted a discharge of pus before each defecation, and mucus and blood accompanying every fecal movement. Each defecation was preceded by a strong desire for a bowel movement, and accompanied by tenesmus and pain due to the straining. During this time he complained of no abdominal pain. He then was treated by a physician for eight months with salves and suppositories, without relief, after which he went to Har Moriah Hospital, where he was told that he had "ulcers of the rectum," and was asked to remain for treatment; he was in the hospital for three weeks and left unimproved. He was then treated by one of the hospital surgeons privately, for a period of one and a half year, receiving daily treatment, during which time his chief complaint was a diarrhea, especially severe for the past eight months, defecation being accompanied with blood, pus, and mucus. This condition obtained until three months ago, when, seeing that he was still unimproved, he became very much discouraged; he was losing weight, could not work for three years, was very weak, and seriously threatened to do away with himself, when, as a last resort, he was advised to go to St. Luke's Hospital, where he remained for about three months up to three days ago. Here he states, a Wassermann was taken, which proved negative; however, a salvarsan injection was given as a complement test, after which another Wassermann was taken, which also proved negative. He was operated on for stricture and fistula, and received daily irrigations of silver nitrate. He felt somewhat relieved, and was discharged from the hospital, still passing blood with his stool, having one to three movements daily, no mucus but occasionally pus.

After leaving the hospital, he felt well for one or two days, and when he came to me on the recommendation of Doctor Rosenbaum, he complained of frequency of desire for defecation (having as many as fifteen to twenty impulses a day), but on going to the toilet passed merely some mucus or mucus accompanied with blood, and a discharge of pus was continuously flowing from the rectum, so much so, that it necessitated frequent changing of a large pad of absorbent cotton at the anus to collect the discharge, which saturated the pad about every half hour to an hour. On examination, I found some external and internal hemorrhoids, a small fistula, and on proctoscopic

*Presented before the Eastern Medical Society, May 8, 1914.

examination, an ulcerative coloproctitis, the mucous membrane thickened, hypertrophied, and congested, and distinct bleeding areas. He complained of feeling weak, with frequent cramplike pains in the abdomen, had lost all ambition, was incapacitated from work, and had lost over fifty pounds. I suggested an operation, but the patient requested me to try medicinal treatment first. He was given strychnine sulphate grain one thirtieth three times a day to tone up the muscular wall of the colon and bowel, and he was ordered daily irrigation of the bowel with fluid extract of krameria one half ounce in one pint of warm water, before retiring, to be retained all night if possible. This treatment controlled his diarrhea for about a week. When the condition returned, I suggested appendicostomy as a last resort.

He entered the People's Hospital, December 22, 1913; his blood was examined, but the Wassermann was negative; his feces were examined for intestinal parasites, the pus that was continuously flowing from his rectum was examined, but nothing pointing to anything specific could be found. December 29, 1913, he was taken up to the operating room, where after the usual preoperative preparations and antiseptic precautions, the grid-iron incision as for appendicectomy was made, the appendix located by following the anterior longitudinal band downward, when it and the cecum were freed and brought outside. The appendix was then straightened, adhesions and mesentery ligated and divided so as not to interfere with the vascular supply of the appendix; two seromuscular suspension sutures were then placed, one on either side, at the base of the appendix, and carried through the entire thickness of the abdominal wall, to act as anchoring sutures, and clamped with forceps; the appendix was then surrounded with gauze, while the tip was amputated, cauterized, and probed as to its patency. (When the appendix is not patent, through stricture or through obliteration of the lumen, or through too narrow a lumen, the appendix should be removed and a cecostomy performed.) A soft rubber catheter was then introduced into the appendix, and the latter sutured to the abdominal wall, with about a quarter of an inch of the appendix protruding from the lower angle of the wound; the peritoneum and the abdominal layers were then separately approximated, and the suspensory sutures were tied. A cravat clamp was then placed over the catheter opening to prevent leakage; sterile adhesive strips were applied to prevent slipping of the catheter, a gauze nest was then arranged about the protruding catheter to prevent pressure upon the wound from the layers of gauze and adhesive plaster which were then applied.

The patient was returned to his bed, and his temperature and pulse never registered more than 99.8° and 98° F. January 2, 1914, the colon was irrigated through his appendix by means of the catheter with about three gallons of one to 20,000 silver nitrate solution and, by means of a rectal tube inserted into the rectum, the fluid passed off, carrying with it, pus, mucus, and feces. He received daily irrigations of three or more gallons of either silver nitrate or boric acid solution, or sterile water. Since receiving this first irrigation, he had had but one movement a day. His appetite became ravenous, and he demanded a double or triple portion of rations. He got out of bed at the end of a week. When he entered the hospital, he weighed 129 pounds, having lost over fifty pounds during the three years of his illness. January 17, 1914, he left

the hospital, nineteen days after the operation, weighing 135.5 pounds, and started to irrigate himself at his home. February 1st, the mucus was diminished and the pus discharge was very small. February 6th, he weighed 141.5 pounds. February 21st, he weighed 143.5 pounds. His bowels did not move unless he took his irrigation, and the mucus and pus with his stool were growing less. February 24th, he went to work for the first time in over three years. March 15th, he weighed 145 pounds, his bowels moved only on irrigation, and he still noticed some mucus and some pus with his stool. March 29th, he weighed 147 pounds, had daily movements without irrigation, and had not noticed any pus. At this time he was given some Russian paraffin oil, one ounce, three times a day. April 7th, he weighed 152 pounds, noticed no mucus, but did notice a small quantity of blood and pus with his stool. April 22nd, same weight. April 27th, no further increase in weight, but he had not noticed any blood or pus or mucus, and he had one bowel movement a day regularly every morning. April 29th, still weighed 152 pounds, noticed no pus, no mucus, and no blood, took eight to ten eggs and three quarts of milk daily. May 4th, proctoscopic examination revealed some ulceration about six inches above the anal opening, the mucous membrane paler and not as congested as on previous examinations, and covered with a small quantity of pus and mucus, although the patient stated that he passed stools that were clean, without any pus, blood, or mucus. May 7th, weight 152 pounds, no pains, no pus, no blood, no mucus, appetite good, and felt better than for three years past. He had gained in weight twenty-three pounds since December 22, 1913, a period of a little over four months. This patient will continue these irrigations daily for the next five or ten months, when after a number of examinations show an absence of the inflammatory condition of the mucous membrane, absence of pus, blood, and mucus on defecation, the catheter can be removed and the appendicular opening will close by itself within a few days; or if closure is delayed, cauterizing with the Paquelin cautery or silver stick will successfully accomplish it.

118 FIRST STREET.

A CLINICAL STUDY OF THE RENAL FUNCTIONAL ACTIVITY BY MEANS OF PHENOLSULPHONEPTHALEIN.

By J. PAUL JONES, M. D.,
Philadelphia.

The methods at our disposal for determining the functional activity of the kidneys are not satisfactory, but at present we are able to determine the renal function with more certainty than we were before the introduction of tests based on the use of certain chemicals which are eliminated with more or less rapidity by these important organs. The estimation of urea and of total solids, along with the routine urine examination, were the only tests of practical value to the profession prior to 1897, when Achard and Castaigne published their findings after the use of methylene blue as a test for renal efficiency.

Since then a great deal of work has been done along that line, using various chemicals, with various results. The urea estimation and quantitative solids determination have been found to give results which do not agree with all the clinical or pathological findings. Likewise, we often see cases in which the urine contains albumin and casts and the autopsy reveals normal kidneys; while, on the other hand, even in the absence of these laboratory findings of nephritis, the autopsy may reveal an advanced nephritis.

It has been repeatedly proved that urea may be markedly subnormal in amount for years and yet no symptoms of uremia occur. Again, a typical uremic convulsion may occur while the total urea is practically normal. Of course, the urea output is largely governed by the amount of food taken, the amount of work done, the general condition of the system, etc. Consequently we have to turn our activities toward finding other methods for determining the functional condition of the kidneys. Prior to the use of the functional test, our inquiries were directed toward determining, not the functional condition of the kidneys, but the pathological condition. Renal insufficiency may be present for a time, while permanent pathology is not. What we, as clinicians, most need is some test or combination of tests which will give us some insight into the actual amount of work the kidney is doing at any given time. Even the post mortem room does not show us this.

History. In 1820, Hahn noticed that after the ingestion of turpentine by gouty persons the urine did not have the characteristic odor of violets. Then, in 1837, Rayer noticed that gouty subjects could eat asparagus without the characteristic odor of the urine. It has long been known that many nephritic patients cannot take potassium iodide, mercury, salicylates, the bromides, and various other drugs without the production of untoward symptoms which do not occur in persons with healthy kidneys. Duckworth, Bouchard, and others have repeatedly shown that nephritics fail to excrete quinine, iodine, salicylates, and other drugs with anything like the normal rapidity. These several observations readily suggested a practical application, but nothing was found of practical value until after the time of Achard's and Castaigne's research on methylene blue. Since that time indigo carmin, rosanilin, phloridzin, and various other substances have been used, but all, with probably the exception of phloridzin, have been found to have either too many sources of error, or the complexity of the technic prevents their being of practical value to the general clinician. For instance, in using methylene blue, we find at times that the urine entirely dissipates the color, the collection of urine has to be observed for many hours, the injection is often followed by great pain and subsequent inflammation, and occasionally prolonged anesthesia.

The phenolsulphonaphthalein test. This test was introduced to the profession in 1910 by Rowntree and Geraghty.¹ It has its disadvantages, but they are very few compared to the other tests, and we have found that the results agree remarkably well with

the clinical findings; and are of great aid in both diagnosis and prognosis.

Fifteen to twenty minutes before injecting the chemical, the patient is given 300 to 400 c. c. of water by mouth, both to hasten elimination and so to dilute the phenolsulphonaphthalein in the urine so as to leave less of the chemical in the bladder in case a few c. c. of urine should be left after catheterization, one c. c. of a slightly alkaline solution, containing six mg. of phenolsulphonaphthalein, is injected deeply into the lumbar muscles. The patient is now catheterized and the specimen discarded. At the expiration of one hour, the patient is again catheterized, and this is repeated at the end of another hour. These specimens are now rendered alkaline with sodium hydroxide (about ten c. c. of a five per cent. solution) and then diluted to 1,000 c. c. with water, and a few c. c. filtered, which is compared with a standard solution of six mg. of phenolsulphonaphthalein to 1,000 c. c. of water. By means of the Hellig colorimeter, this standard solution contained in a prism shaped vessel, is compared with the urine solution contained in an oblong vessel by its side and the percentage of phenolsulphonaphthalein can be quite accurately determined by matching with the urine solution the color given by the thick or thin part, as the case may be, of the prism or standard solution. The percentage is read on a scale indicating the depth of the prism at the point which is compared with the urine.

We usually dilute the urine to 500 c. c. instead of 1,000 c. c., as done by Rowntree and Geraghty, and divide the reading by two, as it is easier to compare the colors when they are not too faint. Of course, in a high percentage excretion it is preferable to dilute to 1,000 c. c. The percentage of phenolsulphonaphthalein can be quite accurately estimated by this test. The pure purple color of the phenolsulphonaphthalein is not obscured by the ordinary urinary pigments, except in very dark concentrated urine, and in this case it can be readily cleared by precipitating with a little basic lead acetate and then filtered.

Heretofore the arm muscles have been used as the site of injection, but it has been amply shown that absorption is more rapid from the thick muscles of the lumbar region. Instead of waiting for the phenolsulphonaphthalein to appear in the urine, as is usually done, and then catheterizing one hour later, we catheterize one hour after the injection, as it greatly simplifies the technic, beside giving us a better idea of the clinical condition of the cardio-renal system. For, if the circulatory system is in such a state that the drug is slowly absorbed, as well as slowly excreted after it enters the circulation, we have additional evidence of poor circulatory and excretory systems, which systems are so closely interrelated.

The specimens of urine examined were obtained from patients in various wards of the hospital, and the work was done by me while on the laboratory service; I take this opportunity to thank Dr. C. Y. White for suggestions and aid in the prosecution of this study.

Normal cases. In taking twenty cases in which we have no reason to suspect any abnormalities of the kidneys, we find that there is an average excre-

¹An Experimental and Clinical Study of the Functional Activity of the Kidneys by Means of Phenolsulphonaphthalein, *Journal of Pharmacology and Experimental Therapeutics*, i, 6, July, 1910.

tion of thirty to forty per cent. the first hour, and fifteen to twenty-five per cent. the second hour. The findings of Rowntree and Geraghty were higher than this, averaging forty to sixty per cent. for the first hour and twenty to twenty-five per cent. for the second hour. As the test is ordinarily used, I believe forty-five to sixty-five per cent. for the two hours will be about the average findings.

Acute parenchymatous nephritis. We have only six of these cases, excepting the slight nephritis which is almost always present during the fastigium of enteric fever, of which we have twenty cases. In all of these twenty-six cases, excepting two very severe, in which there was almost complete anuria, there has been a slight increase of the phenolsulphonephthalein excretion over the normal. Then, as the nephritis clears up, the phenolsulphonephthalein drops back to normal again. In one case of acute nephritis, with marked edema and almost complete anuria, we did the test on the day that the urinary secretion became very much larger. On that day the kidneys secreted sixty-eight ounces of urine and the phenolsulphonephthalein output in two hours was ninety per cent. From that day the edema rapidly subsided and the patient was apparently well in about a week. Unfortunately we made no tests while the urinary output was so low.

In two cases of severe acute nephritis produced by phenol, the output was only fifteen per cent. in one and ten per cent. in the other for two hours. One case ended fatally and the other in slow recovery. While these two cases of severe nephritis show a low phenolsulphonephthalein output, the less severe cases of nephritis show an increased output, and I think in that way the test is of great prognostic value.

Chronic diffuse nephritis. In this series we have eighteen cases, all of which show a marked decrease in the phenolsulphonephthalein output, some showing only a trace too small for estimation.

The phenolsulphonephthalein output in a few of the severer cases agreed remarkably well with the clinical picture. Two patients had a blood pressure as high as 250 mm. Hg. and were quite delirious, with a small twenty-four hour urine output. At this time the phenolsulphonephthalein output would range from a trace to five or ten per cent. for the two hours. As they would improve under treatment, the blood pressure dropping, mental condition clearing up, and a greater quantity of urine passing, the phenolsulphonephthalein invariably increased, in one of the cases going up to forty-six per cent. for the two hours.

Chronic interstitial nephritis. We used this method of determining functional activity of the kidneys in fifteen chronic cases. They all showed a low phenolsulphonephthalein output; many of them only gave a trace. The average for the fifteen cases was sixteen per cent. for the two hours. Those that gave the very low phenolsulphonephthalein output were not amenable to treatment.

EPISCOPAL HOSPITAL.

Prostatic Obstruction and Vesical Atony.—A final, but too late recognition is a poor solace for a lifetime of suffering due to delinquencies in diagnosis, avers Dr. Bransford Lewis.

A CASE OF SCIATICA ENTIRELY CURED IN THREE WEEKS' TREATMENT.

By HARRY MARCUS, M. D.,
New York.

I read in the NEW YORK MEDICAL JOURNAL for January 17, 1914, a report of a case of sciatica successfully treated by Dr. L. W. Reynolds. Having had a case of that kind at the time, which was not in the least influenced by any kind of treatment, including massage, salicylates, iodides, electricity, etc., I thought I would try a formula suggested by our English colleague.

CASE. Woman, at the beginning of the treatment, had been confined to bed six weeks, suffering from intense pain, which radiated from the right hip down through the entire lower extremity. Her trouble started immediately after giving birth to a child, which had to be delivered instrumentally with great haste during an attack of eclampsia. The pains in the extremity were so severe, that she could not bear anyone to touch her bed, to say nothing of the intense pain experienced in changing the position of her body to the slightest extent. All the usual measures were tried, but with no result. As she was passing albumin in her urine and gave a nephritic history, her diet was regulated accordingly, but her condition in the right leg did not show the slightest change for the better.

On February 1, 1914, I injected sixteen minims of the following prescribed mixture:

R	Antipyrinæ, ...	.5ijss;
	Cocainæ hydrochloridi, ...	grs. ijss;
	Aquæ destillatæ sterilisatæ, ...	.5ijss.
M. fiat solutio.		

I injected it at first over the external popliteal nerve, behind the head of the fibula, thus trying to get the injection as near to the affected nerve as possible. About twelve hours after the time of the injection, the pains changed for the worse. This aggravation lasted about twenty-four hours, but within an equal length of time the symptoms gradually subsided until, as she expressed it herself, half of her extremity was cured. She then complained of pains only above the knee, for those below that joint entirely disappeared.

Shortly after the injection was made, an area of inflammation appeared at the point of inoculation, which gradually increased to one and one half inch in diameter within twenty-four hours, then gradually decreased within the succeeding twelve hours.

February 7th, I gave her the second injection on the dorsum of the foot, using again sixteen minims of the same solution. She experienced the same changes as after the first injection, with the result that the pains above the knee were greatly reduced. The area of redness about the point of injection was exactly similar to, and underwent the same variation as that noted the first time.

Her pains were so far reduced as a result of the second inoculation that she did not care to submit to another jab of the needle, although she still had slight pains in the thigh.

Four or five days after the second injection, she was able to leave the bed. Her pains gradually decreased until they entirely disappeared, and they have, so far, failed to return.

1030 KELLY STREET, BRONX.

SYSTEMATIZED EDUCATION OF THE PUBLIC IN HEALTH MATTERS.

BY HORACE GREELEY, M. D.,
New York.

Systematic attempts have been made, time and time again, to educate the public in particular matters of sanitation and hygiene by public health authorities, civic committees, and philanthropic agencies. First, the effects of alcohol and tobacco, polluted water supplies, then the evil of poor ventilation, adulterated food, child labor, and finally the house fly have been canvassed, but all more or less in the way that a modern newspaper handles a sensation, by creating a temporary furor over the most striking points with very little attempt to make the agitation thorough or sustained.

Knowledge of physiology and parasitology has, however, now progressed sufficiently to make plain some deficiencies of our civilization, and a little thought suggests what marvelous betterment of the public health might ensue from the inauguration of, not a campaign, but a system of health education as permanent and as thorough as that which transforms the child of a second grade emigrant into a first grade citizen—our public school system. "All that a man hath will he give for his life" is not new, yet that knowledge which we possess potentially most powerful in prophylaxis, is withheld from all but a few. The truths of science are simple, no matter how complicated some of man's invented explanations of natural processes may be, and those involved in hygiene and sanitation are few in number, far more easy of comprehension than many of the abstract subjects studied during the last two years of our grammar schools, and would be more interesting to every pupil and certainly far more useful.

When urging these points the other day to one of the district supervisors of the New York board of education, I was told that this would tend to make materialistic machines of the children, whose imagination and moral character would suffer, it was thought, through deprivation of other abstract studies that would have to make way. So far as the first is concerned, no one can think of anything more stimulating to the imagination than natural science, and as to morality, since both hygiene and sanitation put a premium upon it, the result, as affecting a school child in such particulars, can only be elevating.

But what is the need of such education, and in what is public knowledge defective that, if supplied, could benefit the community? Primarily, of course, to prevent the spread of communicable disease—and every day adds to the percentage of disease that is communicable, a converging series with a value of 100 per cent. and, further, to teach the elements of normal human anatomy and physiology, knowledge which is essential as a guide to health and as protection against follies into which one might unwittingly drift or be led, through reliance upon information derived from the easy and common process of "taking thought," rather than from the more laborious method of observation and investigation.

A watch, or any mechanical contrivance of some

delicacy and cost, is never intrusted to one without knowledge as to the way in which it must be used and cared for, and the dangers of injury are particularly pointed out; and yet so many human beings are started out in life to learn, as the burnt child who dreaded the fire, by actual injury, the snares and pitfalls, a chart of most of which might so easily have been provided beforehand.

The most glaring and important defect of public knowledge, which forces itself to the fore in all health matters, is that concerned with venereal diseases, maladies which have been variously estimated to afflict at some time of their life from forty to ninety per cent. of the adult male population, and through them an undetermined although large number of the opposite sex; the diseases whose infection our latest knowledge assures us is completely eradicated with such difficulty. It is the common knowledge of the profession that the average young man looks upon his first gonorrhea with a sort of pride akin to that felt on account of a budding mustache or his first cigar, and even hardened old sinners feel the indifference in regard to it that they have for a common "cold." Most women and girls have never even heard of it, unless as an evil of prostitution which they never dream of encountering. In effective instruction in regard to this malady, our mainstay is the severe pain that first infections commonly induce, as man, in common with all animal life, dreads this more than all else, although, of course, the clouds of possible complications and permanent infection should always be shown, as well as the possible consequences to others.

Although even the most dissolute have a respectful dread of syphilis, the possibilities of the latent disease are not popularly understood, nor are those which have to do with what has been called *Syphilis insontium*. As public knowledge, at best, is that it is a contagious disease frequently contracted through sexual intercourse, and as few ever miss the game through dread of the candle's flame, some correct and definite notion of the manner in which the agents of infectious disease in general are propagated, is necessary to comprehend the actual dangers; for instance, the general fact that the agents of all infections are killed within a few hours by drying (according to Zinsser and Hopkins, *Spirochæta pallida* within one hour), but that with most organisms protection, such as is afforded by mucous deposits upon hard surfaces, is sufficient to prolong their life for an indefinite period, certainly many days, and that this last is doubly true when cloth is the retaining substance. The experiments above alluded to indicate that *Spirochæta pallida* does not survive such exposure more than twenty-four hours, at least such is the conclusion of Professor Zinsser, as expressed personally to me.

Although, perhaps, eccentric to a degree approaching insanity, the emperor Caligula, when he bestowed the consulate upon his horse, recognized the great value of horse sense in human affairs, and it is really nothing of greater complexity than this that need be inculcated into the public to guide it in matters of venereal disease. Let nothing but what is certainly true be taught. Let reason with object lesson be attached to all, and do not let ques-

tions of supposititious morality and religion interfere to obscure the issues—the physical welfare and salvation of the individual, the community, and the race. I was once visiting physician to an institution to which a girl of twenty-two years was admitted, whom I found to be suffering, in addition to her main complaint, from a profuse leucorrhea, probably postgonorrheal since she had had an illegitimate child shortly before. I gave orders that she was to be supplied with a douche bag, but was met with the earnest protest of the matron that it was “most immoral for a girl to have such a contrivance”—a good illustration of the attitude of those who advocate concealment and ignorance in regard to such matters.

So far, the tendency of the public is to fear only cases of infectious disease, which are branded in characters of scarlet letter size, and I have known women who had a syphilitic cook in the kitchen refuse to sit at table with a consumptive. I even recently saw a physician at the head of a large tuberculosis sanatorium, dispatch several of his minor children in the care of his coachman to a nearby village “to drink ice cream soda” from glasses which, judging from the usual dip method of washing, and the large numbers of consumptives who overran the town, must have frequently supplied droplets of mucus-held tubercle bacilli.

While the church should be in the lead in all that concerns the healing art, in the matter of a common communion cup, which, at least here in New York, is even a violation of the law in regard to public drinking vessels, it, in some instances at least, is extremely backward—“conservative,” as one good minister told me. “In my church,” he said, “the edge of the cup is, after each sip, wiped off with alcohol, and in another that I know of the edge is rotated”—never regarding the possibilities that float away from each mouth, and which, in the case of the public horse watering trough, are regarded so seriously as to lead to agitation for its abolition.

While the burden of detecting and affording protection against what may be termed mute infections (“carrier” cases) lies with the sanitary authorities and the physicians of a community, still, since advancing knowledge indicates the great responsibility of such for the spread of disease, the fact that convalescents frequently harbor for long periods the germs of the passing malady, and that nonclinical infections by most disease organisms must be very frequent, is an important item for the public to know, for who could make good use of an umbrella unless the direction of the rain were known? Such cases, which are always with us, represent the steady downpour, the most penetrating of all.

Apart from the way in which infectious disease is spread, the public must be taught the limitations of treatment, and of all disease, so that life, money, and time, so often lost through ignorance and superstition, may be saved, in spite of the machinations of drug exploiters, sure cure specialists, Christian scientists, and “sich.”

Above all, must be taught the wisdom of letting well enough alone until something better is clear, and the public saved from the folly of always doing or taking something for everything, real or imaginary. Preaching the simple truth will never do alone, while the human appetite for complicated

nonsense is so intense. We must “knock” all of this at first appearance, as vigorously as the traditional Irishman did the heads at the fair of Donnybrook. Public health organizations should meet advertisement with advertisement, statement with statement, and every false pretence or notion with immediate exposure or correction. The public press can easily be induced to cooperate with such measures for, while lack of specific knowledge or interest might prevent pioneer individual newspaper work, if the health authorities lead the way, none will refuse to follow.

Individuals are ever willing, usually anxious to do what the community at large regards with favor, so just so soon as the public approval is gained for a health measure, its success and permanence are assured. In some things, those who are not against us are with us, but in matters of public health the interest and cooperation of all must be courted for that signal success such important work demands.

As it is only intended to call attention to some community needs of which all physicians must be aware, in order to stimulate interest, it is hardly necessary or proper to go into detail as to how they are to be met. It is, however, apparent that whatever work is to be done must be systematized. What is to be taught in the schools (those beyond primary cannot be considered since they reach too small a proportion of the population), must be fixed upon and followed up by the one sure method of reaching the mass of the adult population, newspaper work. An elaboration of the special pamphlet system employed to a certain extent by various health authorities, would be useful, and it seems that a general distribution through the schools or elsewhere of what might be called a “Health Catechism,” provided such a publication were official, useful, and suitable for preservation, or even a more elaborate treatise or book might be undertaken. This would replace those commonly circulated under such captions as *The Home Doctor*, *Sex Hygiene*, etc., but would also reach much further and would certainly prove effective allies of the family physician, in guarding the health of his charges, and in freeing them of the temptations which frequently come to all who stray after the vain and absurd pretensions of charlatans and ignoramuses.

140 CLINTON STREET, BROOKLYN.

THE CONTRIBUTIONS WHICH WOMEN HAVE MADE TO MEDICAL LITERATURE.

BY METTA M. LOOMIS,
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The account of the contributions which women have made to medical literature does not unfold in a crescendo of increasing excellencies as to quantity and quality of output. Indeed, the first woman known to have written on medical subjects comes to us with the commendation of no less an authority than Galen, who advises those who would learn of midwifery to consult the writings of one Cleopatra. A knowledge of the works of Aspasia, who wrote on the diseases of women, would also have been

lost to the world, except for references and quotations which were made in certain manuscripts dating back to the sixth century A. D. The works of St. Hildegarde, of Bingen, who lived in the twelfth century, not only claim precedence of all medical writings now extant produced by the pen of a woman, but also rank with the best medical writings of that age. Her chief work, *Physica*, is the product of a very practical mind, thoroughly familiar with the practice of medicine.

The University of Salerno evidently had none of the modern prejudices against women physicians, for several professorships were held by women who were also celebrated as writers. Trota seems to have been the most famous. She is the reputed authoress of an extended work on gynecology, which circulated beyond the bounds of her own country and outside her own profession. A work on surgery and one on gynecology, written by two other women of the Salerno university, were long used as textbooks by medical students. Mondino received valuable help from his assistant, Alexandria Galiani, in preparing his great work on anatomy.

After this period of remarkable achievement, we find no woman contributing to medical literature until the middle of the eighteenth, and beginning of the nineteenth centuries, when the German and French midwives produced works that ranked as authorities, until the science of bacteriology revolutionized the practice of gynecology and obstetrics. Madame Lachapelle's *Practice of Obstetrics* is a work in three volumes, which appeared, volume one in 1821, and the last volume in 1825, in which year it was translated into German. The numerous and valuable tables of statistics compiled from her 50,000 cases, show remarkable pains in the keeping of case records. This presentation of original work was supplemented by careful consultation of the literature. Madame Lachapelle herself states that she consulted all the authorities, beginning with Hippocrates.

Madame Bovin, for a short time associated with Madame Lachapelle, is a more prolific writer, and her works are equally worthy of commendation. Her best known book, on the *Art of Obstetrics*, published in 1812, reached a third edition in 1824 and secured for its author public commendation from the general council of the administration of the city hospitals of Paris. Madame Bovin also translated several gynecological works from the English. Her book, entitled *One of the Most Frequent and Least Known Causes of Abortion*, received the commendation of the Royal Society of Medicine of Bordeaux, while her greatest work, on diseases of the uterus and its appendages, was used as a textbook for many years. Madame Bovin worked up the literature of her subject well and presented her facts in a logical and lucid style, and to her the world owes a debt of gratitude for collecting and putting in readable form the combined knowledge of the principal authorities of her time. As a recognition of her writings, the University of Marburg conferred on her the honorary title of doctor of medicine.

Louise Bourgeois is another of the noted French midwives, but the writings she has left have less of scientific value than of literary merit. Her

quaint description of the birth of Louis XIII, with its detailed account of the crimson red velvet bed, ornamented with gold, and the holy relics of St. Margaret which lay on the table near the queen, is more diverting, we fear, than the more scientific part of her work.

In Germany, we have Justine Siegmundin and Elizabeth Hornburg, who contributed by their writings to the advancement and extension of midwifery. Siegmundin's book, called *The Midwives of the Royal Family of Prussia and of the Kurfürst von Brandenburg*, was published in 1723. The book is in two parts, the first arranged as a conversation between herself as instructress and a second midwife as pupil. In the second part she quizzes her pupil on the instructions given.

The modern activities of women in connection with the practice of medicine began in the United States about the middle of the last century, when the Blackwell sisters began the study of medicine. Women took up the study of medicine about two decades later in England and Russia, and some fifteen years later the movement reached France, Germany, and Scandinavia. From the time that women became practising physicians, they have made contributions to the periodical literature of medicine and to some extent they have produced textbooks and extended theses.

The first American woman to contribute papers which really added to the knowledge of medical science was probably Dr. Mary Putnam Jacobi, whose works on abdominal hysterectomy and uterine fibroids are the result of original research. In a work published in 1891, entitled *Women's Work in America*, a list of medical articles written by American women between 1872 and 1890, compiled by Dr. Mary Putnam Jacobi, is appended to a historical sketch of women in medicine. This list includes 145 articles written by forty-one different women.

A history of the Women's Medical College of Philadelphia lists 573 articles by graduates of this college prior to 1897. The first volume of the *Index Medicus*, published in 1879, lists twenty-one articles written by ten different women. Eight of this number were Americans and the remaining two Frenchwomen. In the last indexed volume of the *Index Medicus*, that of 1912, articles by 459 women are listed, the total number of entries being 616, of which eighty-three are classed as books. Of the articles listed, 261 were published in American magazines, fifty-three in those of Germany, 108 in France, sixty-one in England, six in Russia, four in Italy, six in Belgium, two in Poland, ten in Switzerland, two in Austria-Hungary, one in Australia, and one in Manila. The greatest number contributed by any one woman was by Kol-Yakimova, a Russian, who wrote twelve different articles published in German, French, and Russian. As to the output of books, German and French women far excel the others, in point of quantity at least, the list being as follows: Germany, thirty-eight; France, thirty-one; America, nine; Switzerland, three; Russia, one; Holland, one.

The works classified as books include many German and French monographs of less than 100 pages. One German book so classified has but six

pages, but the books published by American women are much more extensive. The greatest number of contributions was on the subjects of obstetrics and gynecology, the second largest number on surgery. If, however, the branches of medical science depending on work with the microscope were grouped together, they would represent the greatest output of medical articles written by women.

The women of this last period of medical activity, worthy perhaps of individual mention, are numerous. The writings of Florence Nightingale and Ellen Richard have probably contributed as much as any toward quickening the public conscience to a realization of its sanitary obligations. Of the women whose writings record original investigation, we may mention Dr. Martha Wollstein, who has made many contributions to medical literature in connection with her work at the Rockefeller Institute; Professor Lydia Rabinovitch, bacteriological studies carried on under Professor Koch; Professor Hirsch, work on the thyroid and other internal secretions and diseases connected therewith; Dr. Alice Hamilton, work on occupational diseases; Dr. Katherine Van Tussenbrock, editor and secretary of the Holland Gynecological Society for many years, numerous contributions to the society; Dr. Florence Sabin, work on the nervous system and the lymphatics.

But for stars of the first magnitude to grace our list of modern writers, we must go to France, which has contributed the writings of Madame Curie, and to Italy with its contributions from Doctor Montessori. Madame Curie's writings, relating to radium and its discovery, are opening new paths in the medical world—paths that have been explored but a short distance, but give promise of leading to new realms of medical achievement.

Doctor Montessori's works have been appropriated by the educational world rather than by the medical, but a work built up entirely on psychological and physiological principles, and one that has forced on the educator and the doctor a recognition of the dependence of pedagogical success on such principles, may justly be claimed for the glory of medicine.

If the compiler's scissors have sometimes been the source of the articles that women have furnished to medical periodicals, yet the research laboratory has also been the origin of many contributions that have enriched the literature of medicine and contributed to the honor of woman's achievements. That only the earlier records of women's contributions to medical literature were resplendent with such notable achievements, need not occasion disquietude. Up to the time of this latest development of woman's activity in medicine, her field was limited to obstetrics and gynecology. If the stream rose high, it was confined in a very narrow channel. There are no longer barriers against women in any branch of medicine, and her contributions to medical literature are representative of the broadening scope of her work.

Especially in general sanitation, with its harvest of specific results, does there seem to be a great field for women, with the increasing aid of the ballot, to undertake the task of community housecleaning. This field must attract women of a cer-

tain type, just as the painstaking detail of the laboratory, with its suggestive glimpses of hidden truths, attracts a different class of women.

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Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXLIX.—How do you treat the opium habit, viewed as a neurosis? (Closed.)

CL.—What is your experience with belladonna or atropine in the treatment of alcoholism? (Answers due not later than September 15th.)

CLI.—How do you treat whooping cough? (Answers due not later than October 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best essay submitted in answer to Question CXLVIII was awarded to Dr. Harold S. Glosster, of Wheeling, W. Va., whose article appeared on page 173.

PRIZE QUESTION NO. CXLVIII.

THE TREATMENT OF SUNSTROKE AND HEAT EXHAUSTION.

(Concluded from page 473.)

Dr. J. M. Cunningham, of Philadelphia, writes:

In considering the treatment of heat stroke and heat exhaustion, we have two conditions which have the same etiology, but require different treatment except as to prophylaxis, which is the same in both conditions and is by far the most important.

First, the body must be kept in as good condition as possible, the skin kept clean by frequent baths to allow free evaporation and to keep the body refreshed; these baths should be cool, but not cold.

Those exposed should discard their heavy clothing and wear clothing that is loose and light. The diet should be light and of such a character that it does not throw unnecessary work on the body nor tend to produce heat. All alcoholic beverages

should absolutely be forbidden. Plenty of drinking water should be supplied, as it assists the excretory organs in getting rid of the toxic material which has a tendency to accumulate in the body. This water should be cold, but not iced. Wet cloths applied to the head will aid in keeping the body cool. Those who have heavy work exposed to direct rays of the sun, or an occupation which requires them to be indoors, should have short hours, and endeavor to have as much ventilation as possible, both natural and artificial. They should avoid all anxiety, worry, and fatigue, and should pay special attention to the organs of elimination, especially the kidneys and bowels, the latter in reference either to constipation or diarrhea.

In reference to the curative treatment of the condition itself, it has been very unsatisfactory in most of the cases, especially those in which the temperature has reached or exceeds 106° F., on account of the changes that have taken place before the patients are admitted to the hospital. After improvement in these cases, mental imbecility, mental incapacity, and epileptoid convulsion, or, if the patients are exposed to high temperature, headache, vertigo, and mental excitement are often met with.

Hyperthermia is the critical symptom with which we have to deal, and this may range from 104° to 108° F.; there are even a number of cases on record in which the temperature reached 112° F. These patients should be immediately put in baths of cool water about 70° F., gradually reduced in temperature by the addition of ice. Ice should be kept to the head constantly and at the same time the patient should be rubbed with ice. If it is impossible to put the patient into a bath tub, he should be placed on a table and rubbed with ice; ice should be applied also to the head, and a small stream of cold water allowed to fall on his head for two or three minutes at a time.

Patients should be allowed to remain in the bath for ten or twelve minutes and then removed to bed. This treatment must be continued until the temperature has fallen to 102° or 103° F. and the patient has regained consciousness, which may require a number of hours. If at any time the temperature has a tendency to rise, the patient should be given another bath. In the graver cases the treatment must be more radical; cold should be applied in every possible manner. The lower bowel should be cleaned out with an enema of soap and water as soon after the patient is admitted to the hospital as possible, and when the patient has regained consciousness, he should have a course of calomel and soda in divided doses—one tenth grain of calomel, every twenty minutes until one grain has been taken. This is to be followed by a saline purge in the course of three or four hours. Normal salt solution should be given by hypodermoclysis or preferably by intravenous injection, and should be preceded by venesection, taking out sixteen to twenty ounces of blood; in return inject the same amount of normal salt solution, which aids in cooling the blood, diluting the irritants, and stimulating the heart.

Enteroclysis is very effective in these cases, as a solution can be given cold which helps to cool the tissues, supplies fluid, and assists the kidneys in getting rid of the toxic material.

Headache is a troublesome symptom in some cases, but depressants should be used very cautiously, especially the coal-tar products, on account of the weakened condition of the heart, which requires stimulation.

This can best be given by the exhibition of aromatic spirits of ammonia, brandy, ether, camphorated oil, or digitalis. The former drugs are much more rapid in their action and serve as stimulants until digitalis has time to act. No drugs should be given which will stimulate the brain, such as quinine.

In heat exhaustion, the treatment is somewhat different, heat being required instead of cold. Hypothermia is the cardinal symptom with which we have to deal in these cases and the temperature may fall as low as 95° F. These patients should be immediately placed in bed, wrapped in blankets with hot water bottles, bricks, or plates around them. Stimulation is required and should be given as stated in the preceding paragraph. Just here, however, must be uttered a word of warning, namely, that the body temperature must be watched, lest the other extreme of heat be reached. After the temperature has reached normal or thereabout, the eliminative organs should have the same attention as in heat stroke.

In conclusion, I would say that in either of these conditions the patient should be careful not to expose himself to an increase of temperature, as there is great danger of recurrence.

Dr. M. L. Curtner, of Vincennes, Ind., remarks:

Insolation (siris, sunstroke, thermic fever, heat stroke) is a term applied to a condition of the body arising directly from disturbances of its heat regulation. This condition occurs most frequently when the humidity of the air is out of proportion to its temperature, making practically no difference whether the rise in temperature is due to the sun's rays or among stokers, laundry workers, or persons living in crowded quarters with poor ventilation.

Prophylaxis consists in preventing the accumulation of abnormal heat in the body. To accomplish this, the regulatory system should be kept in a normal state of adaptability to circumstances. The skin should be kept clean to allow free evaporation; the clothing should be loose and light, allowing free circulation of the air, moderately absorbed, thus assisting evaporation. The diet should be light, thus making no unnecessary demands upon the system. Plenty of cool water, citric drinks, fruit juices may be indulged in, as these assist in increasing the elimination of urine and regulating the bowels.

During the intense heat of the day, the minimum amount of work should be performed, in the shade if possible. Rest in the shade would be ideal. All breezes should be freely indulged in, whether artificial or natural. Constipation should be avoided with as great care as diarrhea.

My first principle in treating insolation is to decrease the abnormal heat of the body. This is accomplished by the use of ice packs and motor fans. The pack should last for three minutes or until the temperature drops to 104° F. If the temperature exceeds 104° F. at any time, the pack is to be repeated. The stimulants given should be in the

nature of an alkaline, saline, rectal injection, assisted by an intravenous or subcutaneous injection of the same solution. The alkalinity of the solution is based on the theory of an increased acidity of the body during insolation.

The following is a good solution for the proctoclysis.

℞ Sodii chloridi, ... 10.0;
Sodii carbonatis, ... 4.0;
Aquæ, ad 1000.0.
M. ft. solutio.

This solution should be given very slowly; the effect on the secretion of urine is remarkable, and as a rule it will not be necessary to follow with the use of digitalis. However, if digitalis is used, it should be watched closely and a freshly prepared infusion should be given.

After the immediate danger is passed, the treatment becomes symptomatic; with the use of analgesics for headache and salines for the bowels. Due caution must be exercised, however, in the use of the coal-tar products. Sleeplessness can be controlled by bromides.

After recovery from an attack of insolation, great caution must be exercised by the patient to prevent recurrences from subsequent exposures to heat. He must pay careful attention to prophylactic measures. It is advisable for all such persons to arrange to spend the hot months of the year in some cool summer resort.

Dr. Willis M. Gardner, of Brooklyn, New York, states:

The treatment of sunstroke and heat exhaustion begins with prevention. Those liable to sunstroke, such as farmers, roofers, and other outdoor laborers subjected to the direct rays of the sun, should avoid undue exposure, dark clothing, alcoholic drinks, excessive food, especially rich and fatty food. They may protect themselves by wearing light weight and light colored clothing, broad rimmed straw hats with green leaves or cool, moist cloths in the crown, and the moderate use of cooling, nonalcoholic drinks. In a word, "be temperate in all things." In addition, those liable to heat exhaustion, such as laborers about stoves, furnaces, forges, and the like, should secure as good ventilation as possible and should shield themselves from the direct heat by heat deflecting screens. Both classes should guard against sudden cessation of sweating. Bathing daily will help. Their sleeping quarters require good ventilation. Dizziness, throbbing headache, and increasing weakness are imperative demands to stop work and seek a cool place immediately.

The early treatment of sunstroke or heat exhaustion is more in the line of first aid. The patient is almost never in a suitable place for treatment and must be moved.

In a simple, mild case of sunstroke, shade, fresh air, aromatic spirits of ammonia, cooling drinks, fanning, and sponging with cold water will suffice. In a typical case no more is required. Remove the patient at once to the nearest cool and shaded place in which he may be treated. When practicable, remove the clothing; at least bare the head, neck, chest, and arms. Have the head slightly elevated.

Promptness in treatment is imperative, yet the case cannot be treated intelligently without knowing the temperature, which should be taken by rectum. Knowing the temperature, a distinction in type is made. The case may be of the apoplectic type with a temperature of only 102° F., but the patient is cyanotic, restless, twitching, perhaps delirious. In addition to other treatment in such a case, venesection with caution may do good, and intravenous injection of normal saline may aid the circulation. Asphyxia may threaten in this type and require artificial respiration until stimulants can be given and have time to take effect.

Rarely the temperature will be found subnormal, which will modify the treatment accordingly even to a hot bath instead of cold applications. Most commonly, however, the case will be of the hyperpyrexia type in which our chief indication is to reduce temperature and soften a bounding pulse.

The neck, armpits, wrists, groins, and ankles are the points at which the large bloodvessels come nearest the surface of the body, hence they are the places where we may most readily cool the blood. Nothing is more gratefully cooling with the least amount of shock than the immersion of the hands and wrists in cold water. Apply cold to the head, neck, chest, armpits, and wrists, using ice, ice water, spring or well water if procurable. I do not recommend the tub bath, for we are dealing with cerebral congestion, sometimes even simulating apoplexy, and it is better to leave the lower limbs free, allowing the blood to settle in them, thus relieving the congestion in the head at the same time that we are cooling the blood. Indeed the application of heat to the feet is good therapy. The ice may be used as a pack, or the chest may be rubbed with a smooth piece. Water is applied by spraying, or cloths dipped in it are applied to the body and frequently changed. As soon as the patient can swallow, give cold drinks from time to time. Friction of the surface of the body is to be maintained to bring the heated blood to the skin. If the temperature is excessive, cold water enemas may be given along with the applications.

While the cold applications are being made, the temperature is to be watched and with signs of its falling (101° F.), the applications are stopped, the body is dried, an ice cap applied to the head, and the patient, lightly covered, is allowed to rest quietly. If the temperature rises again, the applications are renewed.

A word as to venesection. I consider it heroic treatment. It should never be employed, save with the greatest caution, and only when expressly indicated; for instance, when there is cyanosis, or a full, bounding, high tension pulse, contracted pupils, restlessness, twitching, and perhaps delirium, venesection is permissible, but even then the amount of blood taken should not be large, because its loss simply augments the weakness incident to insolation. I believe the percentage of fatal cases is greater among those in whom venesection is performed. For the same reason antipyretic drugs are contraindicated.

There are a host of drugs advised for the treatment of sunstroke. In a word, they are to be used only symptomatically. The chief indication for

treatment is the regulation of temperature and blood pressure, and for this cold and hot applications according to circumstances far surpass medication. There are, however, indications for drugs. The heart may show signs of failure. One would think alcohol admirable here because of its causing dilatation of the vessels of the skin at the same time that it stimulates the heart, but we must remember that it may have been a contributing cause. Aromatic spirits of ammonia, strychnine, and nitroglycerin are better. Early, free catharsis with a saline is good.

Complications are to be treated on general principles. The failure to perspire may call for a hot bath or the hypodermic injection of pilocarpine. Morphine has been recommended for the control of convulsions.

Throughout convalescence, restrict the diet to liquids, such as skim milk, buttermilk, and semi-solids as junket and gruels, until the stomach is able to digest solids.

The treatment of a case of sunstroke is not completed with the establishment of normal temperature and blood pressure. No case should be discharged so soon, but is to be watched for several days afterward to guard against the general weakness that follows, to see that the complications, if any, clear up, and if possible to prevent sequels. Perhaps the most serious sequel is meningitis, which may again call for venesection, or veratrum and the ice cap.

And, finally, the physician has not discharged his whole duty until he has instructed his patient of the danger of another attack and how to avoid it.

In heat exhaustion, the temperature is to be noted, for we must know that it is exhaustion we are to treat. A cool skin may be found with internal hyperpyrexia. A simple case of heat exhaustion will require removal to a cool place, cool drinks, and restoratives. In a typical case with perhaps subnormal temperature, our chief indications are to regulate temperature and restore strength. We are practically treating a case of shock which calls for heat to the surface of the body by the means of warmed blankets, hot water bottles, and the like, and stimulants as spirit of nitroglycerin, or strychnine; or the condition of the circulation may call for digitalis, preferably an active principle of digitalis. The temperature must be watched that it does not rise too high.

The aftertreatment of a case of heat exhaustion is more protracted than that of sunstroke, and tonic medication will be required for a long time. The patient must guard against exposure very carefully, even, it may be, by changing climate.

Therapeutic Notes.

Treatment of Ocular Infections.—G. E. de Schweinitz, in the *Therapeutic Gazette* for August, 1913, discussing the treatment of wounds of the eyes, states that in certain ocular infections, where the process is not already so advanced that panophthalmitis has begun, particularly if a serpiginous ulcer has formed owing to an abrasion of the cornea permitting the entrance of germs, a most favorable effect is sometimes obtained by the ad-

ministration of autogenous vaccine. From the purulent material, the active microorganism is cultivated, a bacterin made, and injections are given at intervals, the dose varying from 50,000,000 to 100,000,000, according to the effect. Usually the injection can be given on alternate days. The exhibition of hexamethylenamine in doses of 0.5 to one gram is another procedure of value. Thus, in a patient who sustained an injury whereby a cataract extraction wound was reopened, with subsequent violent iridocyclitis and hypopyon, a staphylococcic bacterin made from the infected wound, in conjunction with the administration of 0.5 gram of hexamethylenamine every four hours for two days—after which the dose was slightly reduced—resulted in partial subsidence of the inflammation within twenty-four hours and disappearance of the hypopyon and infiltration of the margins of the corneal wound. Within ten days the eye was white and quiet.

Treatment of Eczema.—A writer in *Paris médicale* for August 16, 1913, advises that the following ointment be applied in a thin layer over the affected areas:

R Bismuthi subnitratris pulveris, ...5ss (2 grams);
Petroli, ...3v (20 grams).
M. et ft. unguentum.

The following powder should then be dusted over the ointment:

R Zinci oxidi pulveris, ... {
Bismuthi subnitratris pulveris, { $\bar{a}\bar{a}$ gr. xv (1 gram);
Amyli, ...gr. xlv (3 grams).
M. et ft. pulvis.

Where the eczema is of the seborrheic type, with crust formation, the following combination may be used:

R Phenolis, ...gr. iv (0.25 gram);
Balsami peruviani, ...5ss (2 grams);
Olei amygdalæ dulcis, ...3iiss (100 grams).
Misce.

Treatment of Infantile Convulsions.—R. Oppenheim, in *Nouveaux remèdes* for September 24, 1913, states that where the little patient is seen already in a convulsive state, the first measures should be to remove any clothes or bands that might be impeding respiration, extend the child on a broad mattress, place a cork between the teeth to avoid biting of the tongue, and administer as quickly as possible an evacuating enema. A prolonged tepid bath should then be given, and if the convulsions still persist, a sedative enema:

I.
R Potassii bromidi, ...gr. iv-xv (0.25-1 gram);
Chlorali hydrati, ...gr. iss-viiss (0.1-0.5 gram);
Vitelli ovi, ...No. i;
Aquæ, ...3ii (60 grams).
Misce.

II.
R Chlorali hydrati, {
Asafoetidæ, ... { $\bar{a}\bar{a}$ gr. iss-viiss (0.1-0.5 gram);
Olei amygdalæ expressi, ...gtt. xx;
Vitelli ovi, ...No. i;
Aquæ, ...3ii (60 grams).
Misce.

If this does not bring relief, the patient should be given small amounts of chloroform or ether to inhale (this measure is probably contraindicated, however in convulsions of digestive origin). In children six or seven years old, venesection or leeching in

the mastoid or lumbar regions may be resorted to. Finally, if all these measures fail, lumbar puncture should be tried; it will frequently yield at least temporary benefit whatever the cause of the spasms.

To prevent a return of the convulsive state, its cause should be carefully sought out and combated. Where teeth are being cut, scarification of the gums and the administration of the following solution for a few days will often prove successful:

R Potassii bromidi, ...gr. lxxv (5 grams);
Syrupi aurantii florum, ...℥iiss (50 grams);
Aquæ destillatæ, ...q. s. ad ℥v (150 grams).

M. Sig.: Teaspoonful three times a day for a child one year old.

Where digestive disturbances have been present, a purgative, e. g. castor oil, seventy-five minims to 0.5 ounce (five to fifteen grams), or magnesium citrate or sulphate, should be given in the morning on an empty stomach, and on the succeeding days disinfection of the alimentary tract attempted by the administration of intestinal antiseptics, suitable dieting, and if the stools are alkaline, lactic bacilli. Abdominal distention may be overcome by the application of flannel dipped in the following liniment:

R Olei terebinthinæ, ...℥i (4 grams);
Linimentum camphoræ, ...℥v (20 grams);
Olei olivæ, ...℥i (30 grams).

M. et ft. linimentum.

Intestinal parasites should always be thought of as a possible cause, and where the occasion presents, an active vermifuge given.

When infantile eclampsia marks the onset of an acute pyrexia, the treatment is that of the latter condition, generally comprising tepid or cold baths and the use of diffusible stimulants—ether, ammonium acetate, etc.

In the idopathic type of eclampsia observed in children with neurotic or alcoholic heredity, continuous use of calmative drugs is indicated. In the daytime there should be given:

R Potassii bromidi, ...gr. lxxv (5 grams);
Aquæ laurocerasi, ...gr. xv (1 gram);
Aquæ aurantii florum, ...℥iiss (100 grams);
Syrupi, ...℥iiss (50 grams).

M. Sig.: Teaspoonful for an infant; tablespoonful for a child four years old.

And in the evening at bedtime:

R Chlorali hydrati, ...gr. xlv (3 grams);
Syrupi aurantii florum, ...℥i (30 grams);
Aquæ destillatæ, ...℥iiss (60 grams).

M. Sig.: Teaspoonful for an infant; tablespoonful for a child of four.

Small doses of thyroid substance should simultaneously be given, to oppose, with their stimulant action, the stupefying tendency of the bromide. In the event of failure, parathyroid medication may be tried.

Treatment of Herpes zoster.—Gottheil, in the *Therapeutic Gazette* for July, 1913, says that he has seen distinct benefit, especially in severe and extensive cases of herpes zoster, from the internal administration of acetyl salicylic acid or the salicylates, including acetylsalicyrin (antipyrin salicylate), in full doses. The medication should be begun as soon as the diagnosis is established, and continued not only until the dermal lesions have healed, but till after all the symptoms of neuritis have disappeared. Locally, a dusting powder of starch to which a small amount of cocaine or some similar

local analgesic has been added, together with as tight a bandage dressing as the patient can conveniently bear, is fully as efficacious and far more agreeable than wet dressings or ointments. Sometimes one or two injections of morphine are required to control pain during the night at the height of the disease.

Treatment of Phthiriasis capitis.—C. Sabatié, in *Progrès médical* for May 31, 1913, advises that in pediculosis capitis without infection and inflammation, the hair should first be washed with soap, then carefully combed with a fine metallic comb frequently dipped in the following solution:

R Corrosive sublimate, ...gr. xv (1 gram);
Glacial acetic acid, ...℥i (4 grams);
Alcohol, (60 per cent.), { of each ℥viss (200 grams).
Water, ... }

M. et ft. lotio.

Where the parasites are numerous, the hair should be moistened with ten per cent. camphorated alcohol, compresses dipped in the same applied, and the head covered with some impermeable tissue, held by a tight bandage. This is to be done as a preliminary to the combing, on the evening preceding this dressing. The camphorated alcohol is allowed to remain in contact over night and next morning all the adult parasites will have been killed. These procedures should be repeated three days after the first treatment, and again later if daily examination shows that the condition has not been completely eradicated.

Another method of treatment is that involving the use of xylol:

R Xylol (xylene), ...℥iiss (50 grams);
Absolute alcohol, { of each ℥i (25 grams).
Ether, ... }

Misce.

This is applied by means of a cotton swab, which is passed over the scalp and along the hair. A single application is generally sufficient. This measure is somewhat irritating, and if the scalp appears already slightly irritated, the following preparation may be substituted for that already referred to:

R Xylol, ...gtt. 1-c;
Petrolatum, ...℥iiss (50 grams).

M. et ft. unguentum.

This preparation should be allowed to remain in contact for six or eight hours. On the succeeding days the hair should be combed with a fine comb, and if a few of the parasites have escaped destruction, the xylol-alcohol-ether mixture should be directly applied.

Where infection of the scalp exists, the hair should be cut short (in men and children) and a thick layer of petrolatum applied over the scalp, to be left over night. The petrolatum both asphyxiates the parasites and softens crusts, which are removed by washing with soap and water next morning. On succeeding days the local infection should be overcome by the ordinary methods, i. e., antiseptic sprays, lotions, and wet dressings or ointments. The following ointment may be used:

R Bismuth subgallate, ...℥ss (2 grams);
Petrolatum, ...℥i (30 grams).

M. et ft. unguentum.

As soon as the inflammation has been sufficiently reduced, the xylol or sublimate-acetic treatments already described should be applied.

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MILITARY SANITATION IN THE FIELD.

Prior to the Franco-Prussian war, in 1870-1871, armies in campaign always suffered a larger mortality and a greater noneffectiveness from disease than from battle casualties. History records numberless instances where an apparently assured victory was turned into defeat by the outbreak of disease among the troops. The Germans in that war established a new record in this respect, in that their troops suffered less from disease than from battle casualties. Up to that time all civilized armies had a sanitary service, but its work was principally devoted to the care of the sick and wounded, while little attention was paid to sanitation. In order that a military sanitary service may be efficient in the prevention of disease as well as in the care of the sick and wounded, it must be well organized, well trained, and well disciplined. The troops likewise must be instructed in the necessity of carrying out the measures advocated and sufficiently well disciplined to obey orders based upon sanitary requirements.

With the remarkable progress made in recent years in hygiene, following the discovery of the causes of diseases and the methods of their transmission, military medical officers have come to

recognize the feasibility of diminishing disease among troops, and as a result all modern armies have now evolved systems of sanitation. The sanitary measures employed ordinarily will not differ in principle from those employed by civil communities, but must be modified to conform with the differences in conditions; frequently they will be sacrificed to the military situation. Thus, sanitary measures can be more thoroughly carried out in a fixed camp than among marching and fighting troops, who, other things being equal, suffer less from disease than troops in camp, especially those in camps of concentration and mobilization made up of raw troops; on the other hand, troops fighting in entrenched positions will suffer more.

Military sanitation concerns itself directly with the supervision of the water supply, prompt detection and isolation of cases of communicable diseases and the prevention of their transmission, the disposal of excreta and wastes, and in addition, on the battlefield, the disposal of the dead. Less directly it concerns itself with the food supply and its preparation and with clothing and shelter. The confusion and chaos incident to battle seems to preclude the institution of sanitary measures, but even here, with a well organized sanitary service, much may be accomplished.

The diseases which have produced the greatest morbidity among troops in modern wars are the transmissible diseases, of which typhoid fever stands at the head; next in frequency come dysentery and diarrhea. At the present time the diseases which formerly played such havoc among troops, as smallpox, plague, cholera, typhus fever, and in the tropics, yellow fever and malaria, probably will not again appear to such an extent as to result in disaster. Venereal diseases, which likewise furnish a considerable morbidity rate in the military service, will constitute but a small factor in troops engaged in active operations. It is only when troops occupy cities that diseases of this class prevail to any extent.

Should the struggle now going on in Europe be prolonged, typhoid fever will probably furnish its usual quota of sickness and death. The difficulty of disposing of excreta in the field, the danger from infected water, the liability of infection from flies, carriers, and the inhabitants of the country in which the troops are operating, make it more than probable that such will be the case. Sanitary measures to combat these conditions will often be impossible because time and facilities will not permit of the detection of carriers, the prompt recognition and isolation of cases of infectious diseases, the proper disposal of excreta, and the elimination of flies, while the supply of a safe drinking water will often

be impracticable. Experience in our army has demonstrated that typhoid fever can be prevented by antityphoid vaccination, and it seems strange that only the French army has made this process compulsory; whether the French reservists have also been vaccinated is not known. In the British army antityphoid vaccination is optional, while in the Indian contingent it has been made obligatory; and though the process was first advocated in Germany, it has not been adopted in the German army. There is no longer any doubt as to its efficacy nor any question as to the harmlessness of the process.

Dysentery and diarrhea always prevail among armies in the field; in the temperate zone, dysentery is usually of the bacillary type; the diarrhea is a catarrhal enteritis, the etiology of which is ascribed to fatigue and exposure, joined to food and water infection and faulty or improperly prepared food. Cholera and typhus fever prevailed to a considerable extent among the troops of the allies and Turks during the recent wars in southeastern Europe. With our present knowledge of the mode of transmission of these diseases, they should present but little difficulty to a well organized and efficient sanitary service. The Japanese during the Russo-Japanese war were especially successful in preventing the spread of typhus fever among their troops, though it was constantly present among the Chinese. As far as cholera is concerned, the medical department of our army in the Philippines has no difficulty whatever in preventing this disease from spreading among the troops during the several epidemics which have prevailed there since our occupation. Cholera, dysentery, and diarrhea are transmitted in the same manner as typhoid fever, hence the same sanitary measures are applicable. Presumably the European armies are well protected against smallpox, and this disease can hardly assume epidemic proportions. The stringent enforcement of the use of mosquito nets, isolation of infected cases, and prophylactic doses of quinine will be largely successful in the control of malaria in regions where this disease prevails.

Scurvy, which in the earlier wars caused considerable morbidity among troops in campaign, now rarely appears except among the besieged. Obviously it cannot be prevented under conditions which make it impossible to supply the necessary dietetic deficiencies.

The ideal in sanitation will never be reached by armies engaged in active hostilities, but the results attained in recent wars warrant the belief that in the future, mortality and morbidity in armies will be due to the legitimate object of war, viz., the killing and wounding by weapons rather than by disease, but such results must be directly propor-

tionate to the efficiency of the sanitary service. The showing in the tremendous conflict now going on will be of great interest to military sanitarians.

THE THYMUS GLAND IN GRAVES'S DISEASE.

Certain cases of Graves's disease cause the physician and surgeon who sees them considerable anxiety. They are not frequently encountered, fortunately—perhaps once in twenty instances—but their course is such as to have caused Halsted to refer to them as “puzzling, dreadful cases.” Their course, as described by this eminent surgeon (*Bulletin of Johns Hopkins Hospital*, August, 1914), is characteristic. There is great emaciation, dilatation of the heart, sweating, diarrhea, relatively slight exophthalmos, not excessive tachycardia, small goitre, and frequently a peculiar grayish bronze hued skin. Palpation just above the manubrium, particularly if exerted downward toward this structure, and over-extension of the head may be complained of, owing to the dyspnea provoked, a symptom due, in typical cases, to the transmitted pressure on the trachea exerted by an enlarged thymus. The x rays and the percussion note over the area occupied by the thymus may furnish useful information, but the absence of both dullness and shadow does not exclude the presence of a persistent gland. This does not mean that such symptoms appear in all cases of exophthalmic goitre complicated with persistent thymus. Indeed, nonoperative clinical examination has shown that the combination occurs in about forty per cent. of the cases, while post mortem examination has raised this proportion to about eighty-two per cent., and even to about ninety-five per cent. where death had resulted from heart failure following operation. It is in connection herewith that the most unfortunate outcome may suddenly occur; if lobectomy is performed the patient may die; though not with the stormy symptoms which suggest thyrotoxis. Death may occur suddenly, though possibly not until several days after the operation, and perhaps when the patient seems to be convalescent.

All these unusual phenomena have been ascribed by Klose, also Capelle, to the production by the persistent thymus of a specific heart poison; Bircher, moreover, evoked them twice by implanting intraperitoneally fresh, pathologically hyperplastic thymus. These facts, in addition to the presence of persistent thymus in ninety-five per cent. of post-operative deaths, led Garrè to try thymectomy where the thymus was enlarged, leaving the thyroid gland unmolested. This operation in a florid example of Graves's disease failed to improve the goitre, exophthalmos or other eye symptoms, but

gave striking results in other directions: the tachycardia was greatly reduced, there was a rapid increase in weight, and the lymphocytosis fell from forty to ten per cent. The same procedure has been carried out by other surgeons in a number of characteristic cases; in all of these the effect upon the general condition of the patient was unequivocally beneficial.

Halsted's own experience has taught him that, while from the viewpoint of the research worker thyroidectomy and thymectomy should not be combined, the finding of an enlarged thymus in a patient from whom one lobe of the thyroid had been excised, renders thymectomy necessary. He also urges that radium and the x rays may elucidate the whole question, the blood in cases of Graves's disease treated with x rays having shown remarkably little mononucleosis (Klose), while Klose, Arella, Heincke, Peters, and others have shown that under the influence of x rays, the thymus rapidly underwent involution, so rapidly in fact as to cause the use of x rays to be absolutely contraindicated in children.

SYPHILIS OF THE LUNG.

In dealing with serious respiratory affections, pulmonary syphilis ought to be taken into diagnostic consideration, though it is to be feared that this is commonly not done; the condition probably occurs more frequently than is generally supposed. The symptoms are most apt to resemble those of tuberculosis, and too often, on account of this similarity, the latter is taken as the diagnosis, and the real nature of the case entirely lost sight of. The patient fails to respond to the treatment, and a life is lost which might possibly have been saved if appropriate and energetic antisyphilitic measures had been resorted to.

Pulmonary syphilis, which is properly regarded as a late manifestation of the disease, is described (von Zeissl, Raphael) as occurring mainly in two forms, the diffuse and the circumscribed. The diffused deposits are found along the bronchi and their ramifications, and from them result peribronchial infiltrations, the retraction of which subsequently occludes the tubes and produces localized collapse of the lung. The circumscribed form occurs as gumma nodes, varying greatly in size, which are found imbedded in the pulmonary tissue. These gummata may undergo absorption, fatty degeneration, caseation, or softening and suppuration; but, in any event, callous cicatrices of connective tissue always remain. The diffused and circumscribed forms are pathologically alike, and differ only as

regards location. As to the diagnosis, especially when a history of syphilis and visible evidences of the disease are lacking, a positive Wassermann reaction is, obviously, of great value; so are the continued absence of tubercle bacilli from the sputum and the practical test of antisyphilitic treatment. J. K. Fowler, who has reported five cases of, so called syphilitic phthisis, one with recovery and four with death and autopsy, regards the following characteristics as essential: First, the case must be complete—that is, the symptoms observed during life must be considered in connection with the lesions discovered post mortem; second, the evidence of syphilitic infection must be undoubted; third, repeated examinations of the sputum must have been made, and tubercle bacilli have been invariably absent; fourth, positive syphilitic lesions must be found in other organs.

One of the most remarkable cases was reported by Roussel in the *JOURNAL* for September 27, 1913. The patient, a young negress, suffered from cough, expectoration, fever, chills, profuse sweats, and marked loss of weight. For weeks the temperature reached 106° F. and over, though at times it fell as low as 92° F. The breathing was hurried, and percussion showed scattered but distinct areas of dullness over both sides, though the apices remained clear. The expectoration was mucopurulent and offensive, and on one occasion slightly tinged with blood. Notwithstanding two negative von Pirquet tests and numerous negative examinations of the sputum, acute miliary tuberculosis appeared to be the most probable diagnosis, and for six weeks the patient's life was entirely despaired of. She had strenuously denied the possibility of venereal disease, but at the end of that time there developed a gumma on one of the ribs and, simultaneously, a synovitis of the extensor tendons of the wrist. She was at once placed on vigorous antisyphilitic treatment, immediate and striking improvement set in, and in a short time she was discharged entirely cured, so far as any sign or symptom of pulmonary trouble was concerned; a result which, it is safe to say, could not have followed in any disease other than syphilis. A somewhat similar case, though not of such desperate character, which occurred in a male patient at the Montefiore Home and Hospital, in this city, has recently been reported by Joseph Blinder (*Medical Record*, August 22, 1914). Before admission, the case was diagnosed by competent clinicians as one of pulmonary tuberculosis, and for a time afterward it was considered as such; but the history of a chancre, a positive Wassermann reaction, and a gumma of the liver (as shown by the x ray), as well as negative sputum

and failure to improve under ordinary dietetic and hygienic regimen, led to the diagnosis of pulmonary syphilis, and this appeared to be confirmed by the rapid recovery of the patient after antisyphilitic treatment was instituted. These two cases of cure are all the more gratifying from the fact that hitherto the condition, owing to its true nature not being recognized or to delay in employing specific treatment until too late, has usually terminated fatally.

THE TEETH OF AN ARMY.

In discussing the teeth of an army, we are not indulging in any martial figure of speech; we are simply recalling the very literal sufferings of the English soldiers in the South African campaign from lack of attention to their teeth, as noted in the *British Medical Journal* for August 22, 1914. That journal observes editorially that, complying with a suggestion of the British Dental Association, the director general of the army medical service has gratefully accepted the services of many volunteer dentists to put the dentures of recruits in order; this action will restore to the list of acceptable recruits many who would otherwise have been rejected. It is hoped now to arrange for dentists to be attached to base hospitals and hospital ships, both in England and abroad. Men in uniform, reservists, and would be recruits are admitted for free treatment, either by extraction or filling, to the National Dental Hospital in London, where a volunteer corps of dental surgeons and students is at work. It has been considered advisable not to worry the war office for help just yet, as a public spirited benefactor has supplied funds for fillings, and the dental volunteers supply their own hand instruments and engines. As our contemporary remarks, since an army travels on its stomach, it seems well that this organ should be protected by good teeth.

EMETINE IN AMEBIASIS.

The address on emetine in amebiasis made at the recent Aberdeen meeting of the British Medical Association by Professor Llewellyn Phillips, of Cairo, is published in the *Journal of Tropical Medicine and Hygiene* for August 15, 1914. Professor Llewellyn made a plea for a much more prolonged use of emetine than has been customary, three weeks or more; it should be combined with small doses of a suitable aperient. Emetine readily destroys the amebic or active stages of the parasite, but has no effect on the cysts; hence the patient remains a carrier and a source of danger to others, while he himself is liable to complications and relapses. The following line of treatment is suggested: Hypodermic injection of emetine for ten days or longer, succeeded by its oral administration. This is to be followed by subsequent courses of injections, at increasing intervals, combined with frequent doses of calomel and thymol. No case is cured until repeated examinations fail to disclose *Entamoeba histolytica* in the stools.

THE FOOD VALUE OF PRESERVES.

It is reported that an embargo has been laid by the British government on the export of the marmalade and jams for the manufacture of which Great Britain is famous. When properly made, these preserves contain fifty per cent. of pure sugar and have, therefore, a high food value which has only lately been recognized; not only are they a palatable addition to the ration, but sugar is a muscle food and is now known to possess marked energy producing qualities, as proved by experiments with the ergograph. Sugar is probably not converted directly into fat, but rather spares the body fat and part of that ingested with the food (Hutchison). The jams are undoubtedly being saved for use in the army, where they will be highly appreciated and consumed with advantage.

News Items.

Changes of Address.—Dr. Joseph W. Goldsmith, to 339 Lafayette Avenue, Brooklyn, N. Y.

Dr. Charles I. Loeb, to 2595 Bedford Avenue, Brooklyn, N. Y.

A State Hospital at Little Rock, Ark.—It is reported that a movement is on foot to establish a State general hospital at Little Rock, Ark., which will be under the supervision of the medical department of the University of Arkansas.

Endowment for Dalhousie University, Halifax.—Announcement is made that Dr. D. A. Campbell, of Halifax, has promised to give \$60,000 to Dalhousie University to endow a chair of anatomy, as a memorial to his son, the late Dr. George Campbell.

Gift Offered to the University of Georgia.—Dr. William J. Young, of Barnwell, S. C., has offered, under certain conditions, a gift of \$25,000 to the medical department of the University of Georgia, to be used as an endowment fund for the medical college library. The matter has been referred to the trustees for this acceptance.

The University of Kansas.—Plans are being made for the erection of an additional laboratory wing to the school of medicine of the University of Kansas, an appropriation of \$25,000 having been made for that purpose. A recent report of the Bell Memorial Hospital, which is controlled by the university, shows a hospital attendance for the year ending June 30, 1914, forty per cent. greater than for the previous year; the dispensary shows an increase in attendance greater than 100 per cent.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, September 14th, Samaritan Hospital Medical Society; Tuesday, September 15th, West Branch of the Philadelphia County Medical Society; Wednesday, September 16th, Mount Sinai Hospital Clinical Society; Thursday, September 17th, Northeast Branch of the Philadelphia County Medical Society; Friday, September 18th, Southeast and Kensington Branches of the Philadelphia County Medical Society.

Hospital Interns.—Persons upon whom the degree M. D. has been conferred by a legally recognized medical school are permitted to engage in the practice of medicine in institutions, but they must confine their activities to the wards of the hospitals with which they are connected. They must register at the office of the Bureau of Records of the Department of Health in the borough in which their institution is located, and submit satisfactory evidence that they have obtained the degree of M. D. Any of the following are accepted as satisfactory evidence: 1. License from another State; 2, a diploma from a recognized medical school; 3, a letter from the dean of a recognized medical school stating that the degree of M. D. has been conferred upon the applicant after the completion of the required course.

Physicians' Signatures Registered at the Department of Health.—In order to prevent the practice of unqualified healers, the law provides that physicians desiring to practise in the State of New York must have secured a license from the State Board of Regents, and have recorded this license at the office of the county clerk in the county in which the physician intends to practise.

In the city of New York, in addition to these requirements, it is mandatory for physicians practising within the city limits to register at the office of the Bureau of Records of the Department of Health, in the borough in which they intend to practise. To do this, the physician must present his license or the county clerk's certificate.

American Hospital Association.—At the annual meeting of this association, held recently in St. Paul, Minn., the following officers were elected to serve for the ensuing year: President, Dr. William O. Mann, of Boston, superintendent of the Massachusetts Homeopathic Hospital; first vice-president, Dr. A. B. Ancker, of St. Paul, superintendent of the City Hospital; second vice-president, Dr. W. W. Kenny, superintendent of the Victoria General Hospital, Halifax, Nova Scotia; third vice-president, Miss Ida M. Barrett, superintendent of the Grand Rapids Hospital, Mich.; secretary, Dr. H. A. Boyce, of Kingston, Ont., superintendent of the General Hospital (reelected); treasurer, Mr. Asa Bacon, superintendent of the Presbyterian Hospital, Chicago (reelected).

To Study the Causes of Bovine Tuberculosis.—A State commission has been appointed by Governor Glynn to undertake the scientific study of the causes of bovine tuberculosis and its economic and health effects upon the State. Among the members of the commission are Dr. Theobald Smith, director of the newly organized division of animal pathology of the Rockefeller Institute for Medical Research; Dr. Hermann M. Biggs, State health commissioner; Dr. Linsly R. Williams, deputy commissioner of health; Dr. Philip Van Ingen, of the New York Milk Commission; Dr. Henry L. K. Shaw, professor of children's diseases, Albany Medical College, and Professor Veranus A. Moore, dean of the New York State Veterinary College, Cornell University.

Mortality in New York.—The mortality during the past week was considerably above that of the week previous, the death rate jumping over one half a point per 1,000. Compared with the corresponding week of last year, the most notable feature was the large increase in deaths from tuberculosis, violence, and from causes other than those generally styled prominent. The increased mortality from pulmonary tuberculosis was distributed among all the boroughs, each borough showing a considerable increase; the cause was probably the high temperature on several days. There were 25 more deaths from violence, each borough showing an increase, the greatest being in the Borough of Brooklyn. Typhoid fever showed an increase of 13 deaths over the figures for the corresponding week of 1913.

The mortality for the first thirty-six weeks of this year was 14.05 per 1,000 of the population against a rate of 14.33 for the corresponding period in 1913, a decrease of 0.28.

The Medical Faculty of the University of Arkansas.—The following changes have been made in the faculty of the medical department of the University of Arkansas: Dr. A. C. Shipp, of Indiana University, appointed professor of pathology and bacteriology, vice Dr. Joseph D. Aronson, resigned; Dr. D. A. Rhinehart, formerly a member of the faculty of Indiana University, associate professor of anatomy (full time); Dr. Charles E. Oates, laboratory instructor in chemistry (additional full time); Dr. O. A. Carruth, associate professor of obstetrics (additional); Dr. Thomas H. Cates, Dr. W. T. McCurry, Dr. C. N. Pate, and Dr. E. M. Hudson, assistants in eye, ear, nose, and throat work; Hon. R. L. Floyd, assistant lecturer on medical jurisprudence; Dr. G. H. Sciaroni, assistant in the bacteriological laboratory; Dr. Shelby Atkinson, lecturer in clinical medicine; Dr. E. F. Buckley, lecturer in oral hygiene; Dr. A. B. Coon, instructor in anesthetics; Dr. Stanley M. Gates, assistant in surgical pathology; Dr. Ida J. Brooks, lecturer on social hygiene; Dr. C. S. Pettus, lecturer on ethics and medical history; Dr. E. O. Day, assistant in materia medica, vice Dr. A. K. Wayman; Dr. M. D. Ogden, professor of gynecology, vice Dr. C. R. Shinault.

News of the Medical Schools.—Dr. D. A. K. Steele has been appointed senior dean and head of the department of surgery in the College of Medicine of the University of Illinois. It was largely through Doctor Steele's efforts that the College of Physicians and Surgeons became an integral part of the university as its permanent medical department. Doctor Steele's appointment is a well merited tribute to his successful efforts in supporting and upbuilding the college for more than thirty years.

More Effective Supervision of Typhoid Fever in New York.—Hereafter all cases of typhoid fever reported in the borough of the Bronx will be investigated and kept under observation by the district nurses of the Bureau of Infectious Diseases of the bureau of health. Should this plan, which is in the nature of an experiment, prove successful, it will be extended throughout the city. In every case assigned to her, the district nurse will be expected promptly to secure epidemiological data called for on the department's history card; she also learns what persons are exposed to infection and how many of these would accept immunization. In every case the attending physician will be requested to telephone, either to permit the department of health to immunize the exposed individuals, or to do so himself, the department offering to furnish the necessary culture free of charge. Cases in which a trained nurse is in attendance, and patient has separate room and bed, may be at once classed as "observation" and not revisited.

Changes in the Medical Faculty of Creighton University.—The following changes in the faculty of the medical department of Creighton University, Omaha, have been announced: Dr. A. A. Spoor, of the department of pathology, becomes resident physician and pathologist to St. Joseph's Hospital, the teaching hospital of the institution; Dr. H. L. Connett, of the department of anatomy, has been appointed assistant professor of pathology; Dr. R. B. Shaw, of Freeport, Ill., has been appointed assistant professor of anatomy, to succeed Doctor Connett; Dr. Claude T. Uren, of the University of Michigan, becomes instructor in otolaryngology; Dr. Warren Y. Thompson, of Chicago, has been appointed instructor in medicine; Dr. H. L. Akin, of Omaha, has been elected professor of gastroenterology; Dr. J. E. Uridel becomes demonstrator in anatomy, with the title of assistant in anatomy; Dr. J. W. Duncan has been appointed assistant in genitourinary diseases and syphilis; Dr. R. B. Tubbs, of Council Bluffs, Iowa, becomes assistant in pediatrics; Dr. A. K. Detweiler, of Omaha, has been appointed professor of clinical therapeutics; Dr. Mary Strong has been promoted to the position of clinical professor of obstetrics.

Personal.—Dr. Charles F. Sanborn, superintendent of the Cincinnati City Hospital, has tendered his resignation, to take effect November 1st. It is said that Dr. A. C. Bachmeyer, superintendent of the tuberculosis sanatorium, will succeed him. Doctor Sanborn and Dr. Walter E. List, assistant superintendent of the hospital, will be made superintendents of the sanatorium.

Dr. Jacob Parsons Schäffer, formerly professor of anatomy at Yale University, has accepted the chair of anatomy at Jefferson Medical College, Philadelphia, and also takes charge of the Daniel Baugh Institute of Anatomy and Biology.

Dr. T. R. Maxfield, of 855 President Street, Brooklyn, who has been very ill for the past two or three weeks, is reported to be convalescent.

Dr. Jesse B. Stark, of 158 Eagle Street, Brooklyn, recently returned from an extended trip to the Pacific Coast.

Dr. Lucetta Morden, of 145 Milton Street, Brooklyn, has opened an office at 255 West Ninety-fifth Street, Manhattan.

Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, has been appointed director of the Military Hospital at Lyons, throughout the war.

Dr. O. C. Gruner, assistant professor of pathology at McGill University, has resigned and returned to his home in England.

Dr. Edward A. Shumway succeeds Dr. G. E. DeSchweinitz as visiting ophthalmic surgeon at Philadelphia General Hospital, the latter, on resigning, becoming consulting ophthalmologist to that institution.

Dr. Ralph H. Major, former instructor in pathology at Leland Stanford Junior University, has accepted the chair of pathology in the School of Medicine of the University of Kansas, succeeding Dr. T. Harris Boughton.

Pith of Progressive Literature.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

July 10, 1914.

Recovery from Lesions of the Central Nervous System.—Max Rothmann analyzes the experimental work on this question and many carefully studied observations on man and summarizes his conclusions in the following statements and illustrations: 1. Recovery may take place through an altered function of the remaining uninjured portions of the involved centres. For example; flexion of the fingers after destruction of the finger and hand region of the cortical arm centre through action of the shoulder and elbow region. 2. Recovery of functions normally situated bilaterally through increased activity of the remaining centre in the other hemisphere. Example; restitution of the different forms of aphasia after left sided lesions through development of the corresponding right sided centres. 3. Recovery through compensatory action of portions of the brain which normally function synergistically with the destroyed centres. Example; the action of the centres for the extremities in the cerebrum for the destroyed centres in the cerebellum. 4. Recovery through secondary development of the phylogenetically older subcortical centres after destruction of the phylogenetically younger centres or paths. Examples; the activity of decerebrate animals; restitution in hemiplegia. 5. Recovery through the action of centres in the other cerebral hemisphere by means of commissural fibres. Examples; Porter's experiment, the action of one medullary respiratory centre for the other through the commissural fibres in the fourth cervical segment; the action of one arm region for the other by way of the associated movements through the action of the commissural fibres in the region of the phylogenetically old cerebral centres. To what extent recovery can be prognosticated on the strength of these findings has not been determined, but an application of the knowledge gained by such a study should be of value for future prognosis.

Adsorption Phenomena in the Abderhalden Reaction.—Albrecht Peiper found that the addition of barium sulphate or of infusorial earth had no influence on the reaction. On the other hand the addition of starch greatly increased the reaction, while kaolin had only a slight effect. The addition of starch in solution is much more effective than in bulk, and the action is more pronounced in the case of serum which is active than in inactivated serum. It was found, further, that the addition of starch solution to the test serum alone in the absence of organ tissue also gave a positive ninhydrin test. This confirms the similar observation made by Friedmann and Schoenfeld, and the explanation is believed to be that the starch displaces from the serum certain substances which are capable of reacting to the ninhydrin in a typical manner. It is also possible that the starch alters the fermentative processes much as colloidal metals are known to do.

Chemotherapy in Cancer.—F. Pentimalli tested most of the agents reputed to have specific effects

on cancer cells. In corroboration of von Wassermann, he found that the gamma rays had relatively little effect on the breast cancer of mice, even when they were brought to bear on emulsions of the tumor cells in Ringer's solution. These tumors cannot be used for comparative observations when the results are to be transferred to man. Compounds of selenium, and the many other chemical substances mentioned in the literature, failed to give any significant results in even a single case. "The favorable results of other investigators are dependent upon either unrecognizable differences in the composition of the otherwise similar chemical preparations, or in certain differences in the tumors such as early necrosis, the influence of trauma, autoimmunization." In the course of these chemotherapeutic studies of some tumors, it was observed that colloidal bismuth was a specific poison to the kidneys and a direct irritant to the hemopoietic tissues.

Phenolphthalein Test for Occult Blood.—Hans Schirokauer states that the reagents alone in this test will, under certain conditions, give a reaction similar to that given by blood, and that the test cannot be recommended. In the next paper, Boas, the originator of the test, seeks to explain away the observation of Schirokauer, but is forced to admit that there are certain conditions under which there may be some confusion on account of the development of a color in the reagents in the absence of blood which is closely similar to that produced by blood.

Flatfoot and Tuberculosis.—Syring records observations which tend to show that tuberculosis of the foot not infrequently begins with symptoms which are similar to those of flatfoot. Tuberculosis is especially to be suspected when the symptoms of flatfoot are unilateral, or when they come on after a traumatism.

Hemostasis with Coagulen.—G. Hotz found coagulen of great value in the prophylaxis of severe hemorrhage in operations where mechanical hemostasis was difficult, and also in therapy of diseases associated with internal hemorrhages, such as pulmonary tuberculosis, gastric ulcer, etc. He found that its local application would check bleeding from wounds, but he advises the use of the ligature or suture wherever practicable in preference.

July 23, 1914.

Culture of Rabies Virus.—R. Kraus and B. Barbará employed the method devised by Noguchi, in which the medium consists largely of ascitic fluid, and have been able to confirm the presence in such cultures of the bodies described by Noguchi. They found that these bodies were more readily stained by the method of Heidenhain than by Giemsa's stain. Contrary to Noguchi's observations the authors were unable to produce rabies in their animals by inoculation of these cultures, though some of the animals died with symptoms which might be ascribed to the pneumonic form of the disease. In further experiments, using the culture medium without the addition of the virus, the authors were able to demonstrate the presence of the same bodies as were found when the virus was

added, and they believe that this observation, together with the fact that the cultures failed to produce the disease in animals, throws considerable doubt on the specific nature of the bodies present. They believe, however, that further experiments must be made before the findings of Noguchi can be fully controverted.

Vital Staining with Acid Dyes.—Herbert M. Evans and Werner Schulemann set out to test Ehrlich's theory of the affinity of dyes through the presence in the dye stuff molecule of a specific receptor group. They made observations on about 600 different chemical compounds. They obtained vital staining with dyes of the most heterogeneous receptors and of the most widely different chemical constitution, while, on the other hand, many dyes with similar receptor groups differed widely in their biological behavior, some not staining the tissues at all. The side chain theory failed entirely in these experiments, and there was no evidence that chemical reactions, in Ehrlich's sense, took place between the so called receptors of the acid dyes and the living cells. On the contrary, the experiments showed that the distribution of acid dyes in the animal body was dependent upon the physical condition of the solution. A change in the physical condition of the solution of a dye which had failed to stain the tissues often produced beautiful vital staining. The dyes here considered were found to come under the description of semicolloids. Briefly summarizing their results, the authors state that the large anions of the electrolytic solutions of acid dyes, the submicroscopic molecular aggregates of semicolloidal solutions, the ultramicroscopic aggregates, colloidal metals, suspended gross particles, bacteria, and even cells, are all taken up by those cells which stain vitally, and in precisely the same manner. Differences exist only in the spread of substances from the site of injection, the spread being more or less proportionate to the diffusibility of the substance, ranging from general distribution through the body to staining limited to the site of injection. The process of taking up of these substances is analogous to phagocytosis. The theory of lipid solubility does not hold for the dyes used, for practically all of them were insoluble in lipoids. Metachromatic staining is due to the precipitation and alteration of the physical condition of the dye stuff by the colloids of the cell.

Agglutination Titers in Infectious Diseases.—Carl Klieneberger observes that there are few instances in the literature which indicate very high titers for agglutination, and none approaching those obtained in animals. This is due to the fact that agglutination is tested as a clinical diagnostic procedure only. If tests are made to determine the actual titer, it will be found to be very high in many conditions. Klieneberger reports agglutination in typhoid running from dilutions of one in 640 to one in 163,840; in paratyphoid as high as one in 81,920; in pyocyanus infection one in 40,960; in infection with *Proteus vulgaris* up to one in 2,560. These high agglutinations are often present for only a short period during the individual infection, but they are indicative of the capability of response on the part of the host.

Rosenbach's Tuberculin.—Adolf Mayer treated thirty-one patients with this preparation, all with cases of pulmonary tuberculosis. Nine were cured, eighteen improved, one died, and three showed no effect. He found the tuberculin to be far less toxic than Koch's preparation and much more easily adjusted as to dose.

An Early Symptom of Pernicious Anemia.—Heinrich Stern cites literature and three cases to show that the occurrence of transitory recurrent ex-cori-ation of the tongue and alveolar mucosa is one of the earliest symptoms of pernicious anemia, appearing before the blood gives positive indication of the nature of the ailment.

Investigations of the Abderhalden Reaction.—L. Nieszytko made his tests on guineapigs, some of which were immunized to different portions of human brain. He summarizes his observations by saying that occasionally different ferments may be produced against different portions of the brain tissue, but whether similar ferments are produced in disease requires further study. The degree of the specificity of the ferments depends upon the purity of the albumin obtained from the part used, and also partly upon the rapidity of absorption of the albumin. Failure on repeated sensitization to increase the amount of ferment throws doubt upon the reputed identity of the ferments and the amboceptors.

The Tanning of Ligaments.—M. Katzenstein dilates upon the importance of laxity of ligaments and joint capsules in the production of deformity, particularly that of flat foot. He finds that the injection, under local anesthesia, of half to one c. c. of four per cent. formalin solution into the lax ligaments is followed by lasting increase in the supportive power of the affected ligaments, and often by complete cure of the deformity or flat foot. Immediately after the injection the part should be immobilized in a plaster splint for a week or more in a position to keep the ligaments involved in a state of minimum tension.

PRESSE MÉDICALE.

August 1, 1914.

Paralysis of the Quadriceps Extensor.—Ducroquet describes the proper method of diagnosing paralysis of the quadriceps extensor. The patient sits on a table and is required to extend, if possible, the knee. Where but slight power is believed to remain in the muscle, a more definite idea of its condition can be obtained by having the patient extend the knee while lying on his side. In overcoming the functional difficulties resulting from quadriceps paralysis, the best that can be done is to use an apparatus consisting of two lateral metallic braces, hinged at the knee and ankle joints and united by two or three rings extending around the limb. Below, the braces are connected with a metallic sole on the patient's shoe. Fastened to the braces anteriorly is an elastic support constituting an artificial muscle. To prevent undue pressure on the patella, a small metallic bridge is fastened to the splint at this point. The presence of this artificial muscle makes up for the lack of actual muscular power in such movements as walking upstairs

and during the period of oscillation of the limb in walking on the level. Surgical treatment consists in attaching the insertions of the tensor fasciæ femoris and sartorius muscles, with these muscles somewhat stretched, to the lateral aspects of the patellar tendon.

Treatment of Fractures in the Extremities with Overlapping of the Fragments.—Hrand Hantcher describes a corrective apparatus consisting of two adjustable steel rings connected by three rods provided with a thread. Rotation of any or all of these rods alters the distance between the rings, and permits of applying powerful extension to overcome overlapping of the bony fragments. Angular displacement is corrected by rotating one of the rods more than the other two. The steel rings are applied over a plaster cast, cut transversely at the level of the fracture. Correction of the displacement is effected under x ray control. The apparatus is left in position from twelve to forty-eight hours, after which, the fragments being found in good position under the x rays, a ring of plaster is applied in the interval between the two portions of the cast previously in use, thus restoring the continuity of the latter. Where, during the treatment, pain has been complained of at points of contact of the cast with the limb, the cast is improperly applied, and should be renewed.

Auscultatory Signs of Complete Dissociation of the Auricle and Ventricle.—G. Clarac and C. Pezzi assert that auscultation is sufficient for the making of a diagnosis of complete auriculoventricular dissociation. The findings strongly suggestive of the condition, whether noted alone or collectively, are a systolic murmur heard at both the mitral and tricuspid areas; inconspicuous auricular sounds disseminated through the period of diastole, and an occasional accentuation of the first sound. The last finding is the most significant of the three.

SEMAINE MÉDICALE.

July 21, 1914

Treatment of Empyema.—R. de Bovis discusses drainage of the pleural cavity after pleurotomy. The incision must be made as far down on the chest as possible—generally in the ninth intercostal space—and should encroach slightly on the dorsal region and not be exclusively on the lateral aspect. Opinions as to drainage by aspiration and by the "open door" method are diverse; it would seem that complete exclusion of air from the pleura is not an actual necessity in these cases. The author has even tried in three cases to dispense with tubes, gauze wicks, etc., merely applying an external dressing to the pleurotomy wound. In two non-tuberculous cases recovery took place in three to five weeks; in the third, a tuberculous case, results were not so satisfactory. It was noted that in cases thus treated pus and false membrane escaped with great freedom. The absence of all foreign bodies in the pleura removes the danger of ascending infection through tubing; the entrance of germs is hindered by the dressing, which acts as a filter, and by the valvelike condition of the soft tissues of the chest wall, which are drawn against the convex surface of the diaphragm during inspiration, thus

practically preventing the entrance of air. If granulation, in the absence of tube drainage, threatens to close the opening too soon, the latter can readily be enlarged with two fingers under ethyl bromide anesthesia. The chief requisite in this method of treatment is a low incision.

Undescended Cecum and Appendicitis.—F. Lejars calls attention to the fact that in cases with undescended cecum, the appendix may assume most peculiar positions, for example, kinked, rolled around the termination of the ileum, etc. Such abnormal positions are capable of causing appendicular pain without actual appendicitis. In operating in cases with undescended cecum, one must be prepared to carry out a diligent search for the appendix and to experience difficulty in liberating it; hence the advisability of making a rather long incision in such instances.

LANCET

August 22, 1914.

Diagnostic Value of Complement Fixation in Tuberculosis.—James McIntosh, Paul Fildes, and J. A. D. Radcliffe cite the literature, revealing great diversity of results. The greatest difficulty is preparation of the antigen used; the present paper deals with the results obtained with a special antigen and a somewhat modified technic. The technic is similar to that devised by McIntosh and Fildes for the Wassermann reaction. Both sheep and ox corpuscles were used as indicators, the latter being preferable with serums which are found to contain a large proportion of normal amboceptor for sheep corpuscles. The time for fixation to take place was extended to an hour and a half. The most suitable antigen was determined by a series of experiments, and was found to consist of a freshly made emulsion of living tubercle bacilli of the human type. Only certain strains were found to be suitable, chiefly on cultural grounds, and with regard to the mechanical factor of ready emulsification. The organism was grown on Dorset's egg medium, and saline solution was used for the emulsion. The emulsion was made so as to contain one gram of moist bacilli in fifty c. c. of saline. It was usually found that about 0.05 c. c. of this emulsion was required for each test. The strength of complement fixation is feeble in tuberculosis, and various measures were tried to enhance it, but none was found which did not at the same time introduce nonspecific elements. This method was tried on serums from eighty-five pathologically certain cases. Forty-three cases of phthisis in this group gave positive results in 76.6 per cent.; twenty-six cases of surgical tuberculosis, excluding that of the glands, gave 80.7 per cent. of positive results; and sixteen glandular cases gave only 37.5 per cent. of positive reactions. In a group of eighteen clinically certain cases of phthisis there were 55.5 per cent. of positive reactions and forty-two surgical cases of the same class gave 71.4 per cent. positive. Only eighteen cases gave positive reactions in a group of tentative cases comprising seventy-four individuals. The control cases were taken at random and numbered eighty-seven, of which only three reacted positively. Two of the positive reactions were in leprosy cases, and the

third in a case of Addison's disease. "In the face of these controls the reaction must be regarded as being highly specific." The authors say that, "Even though our experience with this reaction is not very great, it is possible to draw certain conclusions with regard to its value. The reaction is specific in that a positive result indicates tuberculosis with certain group exceptions." Practically everybody has, or has had, tuberculosis, but, "the lesion must be of considerable dimensions before the reaction can be detected. A caseous bronchial gland will not give a positive reaction; indeed, the common affections of the cervical glands will usually yield a negative result. On the whole, we have come to the conclusion that a lesion in order to give a positive result must be of such dimensions as to constitute 'disease,' and require the intervention of the physician or surgeon. We look upon the positive reaction, therefore, as indicating 'active tuberculosis.'" This reaction is therefore of more value than the ordinary tuberculin tests which merely reveal the fact that a patient has become hypersensitive to the tubercle by reason of having at some time harbored it in his body—Radcliffe deals with the test in sanatorium practice. His technic was slightly different from that already described, but not materially so. He examined serums from fifty-two healthy persons on 187 occasions with a constantly negative result. In a series of 467 cases of pulmonary tuberculosis with bacilli in the sputum, the reaction was found to be positive in 404, or 86.5 per cent. In forty-seven cases suspected of tuberculosis, but with opsonic indices opposing this diagnosis, there was only one which reacted at all positively to the complement fixation, and this very weakly. Eight cases of other diseases, at first suspected of being tuberculous, all gave negative reactions. Other antigens were experimented with, but the results were found to be relatively very unsatisfactory.

Sepsis in the Diagnosis of Syphilis.—Edred M. Corner says that many cases of syphilis are not recognized in private practice among the better classes of people because the lesions are not septic as is the rule with the lower and less cleanly classes. It is from the cases among the lower classes in the hospitals and clinics that the physician learns the features of syphilitic lesions, but he is not taught the very great modifying influence which is exerted upon them by the presence of secondary infections, hence he is unprepared to recognize the specific nature of a noninfected lesion. Even the textbooks all describe as typical only those lesions which owe much of their physical character to the presence of septic infection. The results of this bad teaching are that the disease is often not suspected; treatment is, therefore, not given when it would be of the greatest value. A great source for the spread of the disease remains in the community without being suspected; and the disease often is allowed to progress to the production of tabes or general paralysis among the best citizens. Many children are born with hereditary syphilis in families of citizens who should be giving the best to the community in the way of future citizens. Corner does not merely content himself with the statement of the case as it stands, but he cites a number of actual illustrations to support his belief.

BOSTON MEDICAL AND SURGICAL JOURNAL.

August 27, 1914.

Dispensary or Outpatient Department.—

Michael M. Davis, Jr., discusses the part played by the dispensary as a medical soup kitchen, as a feeder for hospital wards and for medical teaching, the result of which has been that the dispensary has been merely secondary in medical work. The development of modern medicine has created specialists, and the best medical work can only be done as team work of specialists. The work of specialists demands such elaborate equipment, and their team work requires so much time that it is impracticable, on a basis of private practice, except for the wealthy. Dispensary organization, as now developed, is applicable not only to help the poor, but to provide medical service for those who can pay reasonable fees. In no other way can the best medical service be made available to the people as a whole. The organization of self supporting dispensaries, on a business though not a merely commercial basis, is thus called for in the near future. The dispensary has a special medical field of its own, including a large group of important diseases and many others in their early stages. It is also peculiarly adapted for preventive work. The dispensary and hospital are interdependent; the hospital is the centre for advancing medical knowledge and medical education in its community; the dispensary is a centre in which medical knowledge is to be applied for the benefit of the largest proportion of the population. The dispensary feeds hospital wards, follows up discharged patients, thus promoting hospital efficiency, and forestalls the need of hospital service by detecting and curing illness before it requires bed care, thus promoting economy of hospital service. Criticism of inefficient dispensary work is wholesome. The number of dispensaries in the United States has increased from about 100 in 1900 to over 700 in 1914, and the standards of its service must correspondingly advance.

An Analysis of One Hundred Cases Studied in Connection with the Municipal Criminal Courts of Boston.—V. V. Anderson says that a careful study of offenders brings to light special defects and peculiarities and leads us away from the old concepts of the Lombrosian school, from the born criminal, to the recognition of the same types as are found in the noncriminal class. The difference is one of degree and not of kind; of a quantitative, rather than a qualitative character. "Some are vicious, some are stupid, some are brutal, some are excitable, some are lazy, some are careless, some are vehement, some are dull," but none seem born criminals.

Diagnosis and Treatment of Early Pulmonary Tuberculosis.—John B. Hawes, 2d, says that there are two grave mistakes which any physician may make in the diagnosis of early pulmonary tuberculosis. The first, and more important is putting off making a diagnosis until too late, the second is making a diagnosis on insufficient evidence. The chief factors that lead to delay in making a positive diagnosis and instituting treatment are given as: 1. Waiting for a positive sputum. 2. Disregard of the fact that hemorrhage from the

mouth almost always means pulmonary tuberculosis. 3. Failure to note and give due weight to constitutional signs and symptoms, such as fever and rapid pulse, unexplained loss of weight, loss of strength and energy, undue fatigue and ease of tire. 4. Failure to take a careful history. 5. Unwillingness to make a definite diagnosis for fear of losing the patient, or of making a mistake. 6. Being in too much of a hurry. The chief factors in making the other mistake are: 1. Failure to remember that in young adults particularly extensive signs in the lungs without constitutional signs or symptoms are often not of tuberculous origin. 2. Disregard of the fact that in children processes due to either pneumonia or influenza may cause consolidation, produce symptoms and run a course resembling a tuberculous process in every detail. 3. Ignorance or forgetfulness of the fact that exophthalmic goitre often closely resembles incipient phthisis. 4. Forgetting that pulmonary syphilis is not so rare as is commonly supposed. 5. Failure to bear in mind that it is perfectly possible for a person to lose weight and strength, become weak and anemic, and even acquire a cough and suffer a fever, without these being due to tuberculosis. Under treatment he says that he classifies patients in his own mind as follows: 1. Those who will get well anyway, with or without treatment. 2. Those who are going to do badly despite every effort that can be made to save them. 3. Those who need only a comparatively slight change or improvement in their method of living in order to make an apparent cure. 4. Those who should go to a sanatorium, or should at least take rigorous and aggressive treatment for a long period of time in order to get well. Unfortunately patients belonging to the first class cannot be picked out beforehand, so it should never be assumed that any given patient belongs to it. Two or three months at a sanatorium never cured a case, the real cure comes after months or years of careful living, and if the patient cannot or will not profit by the lessons he may learn at the sanatorium his case may as well be given up.

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August 29, 1914.

The Medical Treatment of Chronic Intestinal Stasis, by W. A. Bastedo.—This paper was abstracted in our issue for July 4th, page 46.

Convergence Insufficiency, by Alexander Duane.—This paper was abstracted in our issue for July 4th, page 55.

Summary of Research Studies in Psoriasis, by J. F. Schamberg, A. I. Ringer, G. W. Raiziss, and J. A. Kelmer.—This paper was abstracted in our issue for July 4th, page 52.

Radium: Its Use and Limitations in Skin Diseases, by F. K. Simpson.—This paper was abstracted in our issue for July 4th, page 52.

Radium and the Röntgen Rays in Radiotherapy; Their Uses and Limitations, by W. S. Newcomet.—This paper was abstracted in our issue for July 4th, page 46.

The Place of the Röntgen Ray in Therapeutics, by G. C. Johnston.—This paper was abstracted in our issue for July 4th, page 46.

Epithelioma of the Lids, by Carl Fisher.—This paper was abstracted in our issue for July 4th, page 54.

A Study of Three Hundred Cases of Appendicitis, with Special Reference to Pelvic Complications, by Archibald Maclaren.—This paper was abstracted in our issue for June 27th, page 1308.

Has the Last Word Been Spoken Concerning Appendicitis? by J. E. Moore.—This paper was abstracted in our issue for June 27th, page 1309.

The Relation of Pathological Conditions in the Nose and Throat to the Origin and Treatment of Hypothyroidism, by S. P. Beebe.—This paper was abstracted in our issue for July 4th, page 53.

White Spot Disease.—G. M. MacKee and F. Wise state that the essential lesion in this affection is a small white spot. The color may be snow white, ivory white, bluish white, etc. The lesion may vary in size from a pinhead to a dime. They may be isolated, sparse, and widely scattered, or they may be numerous, grouped, and confluent. The general picture is that of scleroderma, and the disease is a special form or type of scleroderma which can be differentiated, both clinically and histologically, from other affections with white lesions. Lichen planus sclerosus and atrophicus and lichen albus, although giving rise to white lesions, have nothing in common with white spot disease. The unclassified cases of white spot disease, such as those of Westberg, Johnson and Sherwell, and Hazen, belong to the scleroderma group and, therefore, are true examples of white spot disease. The discrepancies in histological and clinical findings are due to the fact that the studies were made at different times with respect to the evolution of the disease.

Standardization of Surgery.—R. L. Dickinson outlines the progress already made in the direction of standards and coordination, and points out the way in which an individual surgeon or service may begin to try certain of the advanced methods adopted in the management of industries. Some are new adjustments of "function" (responsibilities and duties) clarified, charted, defined; regular instruction, such as drill in technic and manual dexterity and correct form; practice in team work; the printing on instruction cards of the best standard practice covering all ordinary acts and activities; constant inspection by some one delegated to this duty; records of successes and errors, like a ball player's fielding average or a government office tally of character of work done; promotion by rating; and, finally, a series of studies, undertaken as in the other mechanical crafts, by measurement of motion, speed, fatigue, and efficiency.

Twelfth Annual Summary of Fourth of July Injuries.—This report presents statistics of deaths and injuries resulting throughout the country from the celebration of Independence Day, 1914, and concludes with the following words: In spite of the slightly reduced number of tetanus cases this year, the returns are somewhat discouraging. The increased number of killed and wounded indicates a relaxation in the enforcement of the ordinances which were so ably enforced two years ago. Instead of a relaxation of restrictive measures, the use of fireworks in the celebration of

the Fourth of July should be strictly prohibited. To kill outright forty persons, and to wound and maim 1,466 others, is not a very fitting token of our thankfulness for the Declaration of Independence, signed over a hundred years ago. Is it not, rather, an acknowledgment that in this country rowdyism cannot be restrained, or that the only way we can show our patriotism is by riot and murder? The results of two years ago show plainly that these evils can be entirely done away with. It is hoped that city officials will continue their prohibitive measures until this desirable end is attained.

MEDICAL RECORD.

August 29, 1914.

Intestinal Intoxication.—H. Eppinger and J. Gutman state that bases originate during the decomposition and putrefaction of organic matter and that differentiated aminoacid bases are produced by bacteria in pure culture form, suggesting that poisons discovered by them in the intestinal canal originate in bacterial activity. This presumption was further strengthened by the recent discoveries of Mellanby and Twost. Demands from the clinic and the bacteriological laboratory for practical applications of these important discoveries, the authors say, are numerous. Should it be definitely proved that many of the bases are of vital importance to the economy, such proof would constitute additional evidence of the symbiosis of bacteria and the animal body. They also considered this question from another point of view; whether these bases originating in the intestinal canal, and having properties similar to the hormones of the secretory system, are not substances distributed to the organism to exert their influence upon the vegetative system. Experimental pathology has already utilized this principle by employing histamin to antagonize adrenaline. It may also be assumed that histamin is not the only base formed in the intestines, but that numerous others originate there. At present the authors believe that they have been able to prove, with reasonable certainty, the presence under pathological as well as physiological conditions of poisonous aminoacid bases, and, to a certain degree, their importance. If these bases really do play such an important role we must ascribe to the intestinal canal the powerful effect of a gland with internal secretion upon the general circulation. They desire not to assume over or under function of the intestinal organs; what they wish is to emphasize the fact that aminoacid bases do exist in the lower bowel, and that their elimination is brought about in the feces.

Rational Use of the Vaccines.—S. R. Blatteis emphasizes the following facts: Autogenous vaccines or bacterins are the only ones to be used in order to comply with the scientific theoretical conception and experimental evidence. Stock vaccines, to be of any use whatever, must be of that organism which has the fewest number of strains. Stock vaccines should be polyvalent, and should be used only for chronic or subacute local infections. Mixed vaccines are to be used only when a mixed infection has been bacteriologically proved to be present, or tangible evidence is

at hand to lead one to suspect its presence. Not only is the indiscriminate use of mixed vaccines unscientific and useless, but harm results from their use, for the reason that tissue cells have a limited capacity to react to stimuli, chemical, electrical, or biological. In bacterial infections the stimulus is the specific organism or its toxin; tissue cells react to this stimulus by producing specific antibodies; the larger the amount of specific antibodies the cell is made to produce by a vaccine, the greater is its therapeutic efficiency. If, however, instead of reacting to the specific organism alone, the cell is called upon to divide its reacting capacity in the production of antibodies to two, four, six, or even more varieties of organisms, the ability of the cell to manufacture the specific antibody is reduced, at least, in direct proportion to the number of nonspecific organisms contained in the vaccine. If the principles upon which the use of vaccines depends are to be observed, it is manifestly illogical, and, to say the least, bad therapeutics, to employ this agent in a manner diametrically opposed to its basic principles.

A Plea for More Care in the Treatment of Follicular Tonsillitis.—W. Lapat says that, if we regard the tonsil as a port of entrance for various infections, even when the tonsil itself does not show any special changes, surely much greater are the chances for a systemic infection when we have a pathological condition, as in follicular tonsillitis. For some time past he has been laying much stress on the importance of the early and active local treatment of this disease, looking upon it as a local infection for the first few hours. A number of cases which he has seen early, he has been able to abort. He employs hydrogen peroxide, on a cotton applicator, to remove the patches; then, with another applicator, he inserts into the crypts a solution of tincture of iodine five per cent. stronger than the official tincture—taking care that none of it flows into the pharynx. These applications are made twice a day on the first two days, and at the same time the patient uses an ichthyol spray every two hours. The general treatment should be carried out as in any other acute infection.

LANCET-CLINIC.

August 29, 1914.

What May Be Revealed by an Inspection of the Body.—Mix considers it important to observe the condition of the skin. Attention should be paid to its general nutrition, color, and the amount of perspiration. An excess of perspiration is found in cases of dyspnea, whether cardiac or pulmonary, and an excessively dry skin is found in chronic interstitial nephritis and diabetes. A pallor of the skin which is lasting and which comes on slowly usually indicates a blood condition such as leucemia or anemia, either primary or secondary. A mild degree of cyanosis usually means an involvement of the heart or lungs. Tumors of the air passages, edema of the larynx, and diphtheria are other causes of cyanosis. Scars on the surface of the body should always be looked for, especially on the forehead, forearm, in the neck and on the legs. A white, thin, papery scar usually means syphilitic

infection. Edema of the skin is either of cardiac or renal origin. Localized edema may escape detection, as in chronic subphrenic abscess. In myxedema, the skin will not wrinkle when lifted—it can be picked up *en masse*. In making a regional examination of the patient, the forehead often shows the scars of syphilis or epilepsy. The face may show the oncoming of acromegaly, myxedema, paralysis agitans or exophthalmic goitre. The eyes and pupils help greatly in the diagnosis of such conditions as nephritis, trichinosis, tabes, general paresis, cerebral tumor, and aneurysm. Ocular motions are also of considerable importance. Ptosis, in seventy per cent. of the cases, is due to cerebral syphilis. Double vision and nystagmus are significant symptoms. In the nose, dry blood crusts are seen in cases of hemophilia and leucemia. Excessive cyanosis of the lips is seen in people taking large doses of the coal-tar products. In examining the mouth and tongue, tremor and patches should be looked for. In the neck, enlarged cervical glands are seen in syphilis, tuberculosis, Hodgkin's disease and leucemia. A thorough examination of the thyroid gland should be made in all cases. The arms should be examined for paralysis, atrophy, contractures, and edemas. The hands and finger tips are held to diagnose such conditions as exophthalmic goitre, in which the hand is moist and warm; also a weak heart, in which the hands are cold and dry. The clubbed finger tips indicate a chronic lung condition, usually the presence of a bronchiectatic cavity. The curvatures of the back should receive attention; also any tumors in this region, which may be due to an aneurysm or a perinephritic abscess. The chest, in its examination, presents different types, and rickets, emphysema and pulmonary tuberculosis may be strongly suspected from observation alone. A diminished respiratory excursion on one side usually means an old pleurisy having a tuberculous basis. Litten's sign, which is the presence of a flitting shadow occurring at the end of inspiration over the ninth and tenth intercostal spaces, particularly on the left side, is proof that the lower part of the pleural cavity is sound.

Trismus.—Hoppe describes this condition as a real spasm of the muscles supplied by the fifth nerve. Both the tonic and clonic forms are noted. A firm closure of the jaw, with contraction of the masseter and temporal muscles, results. It is seen in tetanus, tetanic meningitis, or some organic bulbar lesion. Functionally it occurs by way of autosuggestion in hysteria and neurasthenia; also in the form of a tic. It is observed in generalized tetany and, as a reflex spasm, in diseases of the mouth, ulcerated teeth, periostitis of the jaw bones, and irritative ulcers of the posterior part of the mouth. The prognosis of functional reflex trismus is good and the spasm disappears with the removal of the cause. The treatment resolves itself into the finding of some irritating lesion and removing it. If there is an irritating ulcer, silver nitrate should be applied. Usually liquid food can be taken; if not, feeding through the nose must be resorted to. Symptomatic treatment may be carried out by the administration of bromides and chloral, but is usually not necessary. If inflammation of the maxillary

joint is the cause, local application of heat and internal administration of salicylate of sodium are the remedies. Tongue spasms are usually seen in neuropathic individuals and more especially in hysteria. They may be clonic or tonic; unilateral or bilateral. Duration of the spasms is from half a minute to a minute, and they may not recur for weeks or months. Prognosis is good. If they occur in connection with spasm of the orbicularis oris look for cortical origin. Potassium iodide helps in these cases. Spasms of the muscles of the trunk and extremities are seen most frequently in the feet and calves. Etiological factors are neuropathic disposition, intoxications, chronic alcoholism, lead poisoning, diabetes, and exhaustion. Prognosis varies with the cause, but on the whole it is good.

AMERICAN JOURNAL OF TROPICAL DISEASES AND PREVENTIVE MEDICINE.

July, 1914.

Plague in Havana.—Aristides Agramonte describes the measures employed against the spread of the disease in the epidemics of 1912 and 1913. In destroying the infection, it was soon found that sulphur fumigation was inefficient; infected rats escaped the full effect of the fumes in their burrows. Hydrocyanic acid gas, on the other hand, proved a more reliable muricide and insecticide (for the infected rat fleas), and was employed whenever the sulphur fumes were thought unsuccessful. It was obtained by the action of dilute sulphuric acid upon potassium cyanide, ten to fifteen grams of the latter being used for every ten cubic metres of space. Salient features of the human plague cases were that only males were attacked and that the buboes were almost invariably inguinal or subinguinal and crural, with the axilla only once involved, thus showing probably that the patients were infected at work rather than when in bed. The value of treatment and care at the earliest stage of the disease is emphasized. Patients receiving massive doses of antiplague serum within forty-eight hours of the onset reacted favorably at once, even in the most intense infections even if previously in poor general condition.

Influence of Tropical Residence on the Blood.—W. P. Chamberlain reports observations carried out in about 1,500 presumably healthy adult male residents of the Philippine Islands, including both natives and Americans. The figures obtained as to erythrocyte count and hemoglobin percentage did not indicate an impoverished condition of the blood. A tropical anemia due to the effect of climate probably does not exist. Much of the anemia formerly classed as tropical is due to infections with plasmodia, uncinaria, and leishmania. Tropical pallor is due merely to peripheral vasoconstriction, less blood being required to maintain the proper surface temperature than in colder climates. As to the leucocyte count, the blood of Filipinos showed a total white cell count not exceeding normal limits; a markedly low percentage of polymorphonuclear neutrophils; a high percentage of cells belonging to Arnet's classes I and II, which are believed to be relatively deficient in phagocytic power. Thus, the blood of Filipinos shows

an absolute reduction in efficient phagocytes, suggesting a diminished resistance to some or all infections. Slight deviations in the same direction were met with in the white races in the Philippines.

Trachoma.—M. V. Safford asserts that medical examination of immigrants shows conclusively that a trachoma infection does not always produce the follicular changes and scarring considered characteristic of it. A nondescript chronic conjunctivitis is often found in one member of a family, the others of which show typical trachoma. Even cases showing merely the scarring from a former comparatively mild trachoma process are probably sources of contagion. While the diagnosis in well established typical cases is easy, that in a beginning case or in a long standing atypical one is not. Resistance to palliative treatment is always suspicious, but the first positive evidence consists of firm granulations in the lids, always first to be found in the superior cul-de-sac. Swelling of the lids may temporarily mask granulations. Demonstrable granulations may be expected to appear within two or three weeks of the initial conjunctivitis, but in one of the author's cases they did not appear until five months of an apparently mild conjunctival reaction which resisted constant treatment. Distinction between beginning trachomatous granulations and innocuous follicular conjunctivitis, usually a concomitant of adenoids in children, is at times difficult. Soft, transparent follicles are always to be seen in the beginning trachoma after acute inflammation and swelling of the lid have partly subsided, but often the diagnosis can be made only upon waiting to see if some of the follicles tend to grow harder or break down and cicatrize, in which event trachoma exists. Microscopic demonstration of the pneumococcus or other bacteria known to cause conjunctivitis renders the absence of trachoma reasonably certain.

ANNALS OF OPHTHALMOLOGY

July, 1914.

Papillary Iritis Following an Injection of Salvarsan.—Clarence Loeb reports a case of syphilitic infection which a year before had been treated with mercury followed by an injection of salvarsan. Four months after this injection, typical syphilitic iritis supervened. The dose of salvarsan administered is not given, and it is difficult to determine from the history of the case whether it had anything to do with the subsequent iritis.

Therapeutics of Ocular Syphilis.—William F. Hardy writes: It is to be regretted that the idea is common among laymen that one or two doses of salvarsan positively cure and protect against syphilis. This notion, fostered by charlatans, and by some of the less conscientious of the profession, may in the future lead to much harm through a false sense of security and the loss of many eyes, which might have been saved by a thorough and vigilant therapy.

Salvarsan and the Eye.—John Green, Jr., says that salvarsan is of most use in acute syphilitic troubles that threaten the integrity of the eye. Ocu-

lar lesions appearing after salvarsan injection should probably be regarded as a further manifestation of syphilis, and treated by more salvarsan and mercury. In chronic cases the drug does not do nearly so much good. It does not appear to have any poisonous effect on any of the tissues of the eye. There is certainly no ground for the belief that salvarsan causes atrophy of the optic nerve through a direct toxic effect.

JOURNAL OF INFECTIOUS DISEASES.

July, 1914.

An Attempt to Transmit Poliomyelitis by the Bite of *Lyperosia irritans*.—As poliomyelitis has been transmitted from monkey to monkey through the bite of *Stomoxys calcitrans*, Francis tried similar experiments with *Lyperosia irritans*, a blood-sucking fly. Infected flies were allowed to bite rhesus monkeys. In no instance did the monkeys manifest the disease.

Toxins of Intestinal Obstruction.—Gurd reports several experiments to determine the nature of factors which underlie fatal termination in cases of obstruction of the intestinal tract. It seems evident that under certain circumstances of occlusion of the gastrointestinal tract, reflex or toxic vomiting may be so marked as to lead to the death of the affected animal as the result of the consequent withdrawal of water from the tissues. There is also produced in closed loops of intestine a toxic substance which rapidly leads to the death of the animal, and which acts chiefly through inducing extreme splanchnic congestion. Gurd determined that venous stasis was as potent as occlusion of the lumen in the development of a poisonous substance in the intestinal mucosa. Since the mucosa itself appears to contain a greater content of the toxic principle than does the content of the lumen, it would appear that the substance responsible for the intoxicating symptoms is the result of tissue autolysis rather than a bacterial product.

Relation of Septic Sore Throat to Infected Milk.—As a result of field investigations, Capps and Davis call attention to the possibility of a wide spread milk contamination, giving rise to small epidemics of septic sore throat, through a free exchange of bottles with a dairy where the milk was infected.

Experimental Bovine Mastitis Produced with Hemolytic Streptococci of Human Origin.—Davis and Capps, in investigating the Chicago epidemic of septic sore throat, found that on a number of farms sore throat occurred in the milkers, and mastitis appeared in the cows; in some instances the sore throat appeared first, and in other instances the mastitis preceded the sore throat infections. This brought up the question whether or not it is possible for milkers suffering with sore throat to infect the teats or udders of cows by contaminated hands or otherwise during the process of milking. The matter of the susceptibility of the cow to human streptococci was also involved. As a result of their experiments they conclude that hemolytic streptococci of human origin may cause mastitis lasting for several weeks in the cows. These organisms may gain entrance through an

abraded or injured surface of the teat. It appears possible, therefore, for mastitis in cows to be produced by an infection from the milker whose hands are contaminated perhaps from a sore throat.

Sanitation of Swimming Pools.—Mannheimer reviews the literature on the subject and then reports on conditions as he found them in New York city. It has been found that the diseases communicable from pools are of three types, intestinal, eye and ear, and venereal. Inasmuch as typhoid fever carriers are comparatively common, the danger of such contamination is not remote. The most satisfactory method for the purification of the water is the use of calcium hypochlorite, in amounts controlled by appropriate tests, in conjunction with filtration.

Quinine Treatment of Rabies.—Cummings reports experiments on rabbits conducted for the purpose of determining the value of quinine as a treatment for rabies. He found that the quinine failed as a preventive measure against extremely small doses of virus. Consequently we cannot expect favorable results from quinine after symptoms of hydrophobia have appeared.

SURGERY, GYNECOLOGY AND OBSTETRICS.

July, 1914.

Function of the Periosteum.—J. E. Moore and J. F. Corbett from studies of animals draw the following conclusions: Cutting the nutrient artery prevents the formation of the subperiosteal bridge. As the nutrient artery supplies medullary bone, and as the periosteum is left intact when the artery is cut, it is assumed that the medullary bone is responsible for the subperiosteal bridge. The subperiosteal bridge may fill in the gaps left in the periosteum, therefore it is not absolutely dependent upon that structure even as a place of refuge. The subperiosteal bridge is more marked where it receives osteoblasts from two sources rather than one. Fascia is a substitute for periosteum. In heterotopic transplants, no subperiosteal bone could be produced by irritation. This is somewhat surprising in that the heterotopic experiments were conducted upon rabbits. Old scars in these animals frequently contain true bone, and the periosteal device of Schepelmann begets bone in the peritoneal cavity. At the present day the periosteum is disregarded. The present day surgeon may be comparatively indifferent to the periosteum when operating upon bone. If it is convenient he preserves it, because the conservation of tissue is always good surgery, but if it is not convenient, he does not hesitate to sacrifice it, knowing that it is not an essential element in the healing of bone.

Pathology and Treatment of Chronic Leucorrhea.—A. H. Curtis makes the following deductions: 1. Care of the general health, free excretion, and treatment of pelvic complications which predispose to mild local infection, must not be overlooked in the care of chronic leucorrhea. 2. Bacteriological examinations can ordinarily be dispensed with. In unusual cases dilatation for drainage, possibly aided by topical applications, is logical treatment. 3. Curettage of the uterine cavity, douches, and tampons are probably harmful. 4. Glands of the cer-

vix which produce excessive mucous secretion should be excised, destroyed by cautery, or otherwise rendered inactive. 5. Purulent discharges as a rule originate in the lower genital tract; bacteria of low pathogenicity, chiefly anaerobes, evidently play an active part in their production. Autogenous vaccines decrease general malaise and backache. When aided by correction of associated pathological conditions their influence upon chronic purulent discharges is beneficial. A large number of patients are helped only so long as vaccines continue to be administered, a smaller number are permanently improved, and a fair percentage appear to be cured. 6. Powder treatment exerts a favorable influence, but has a limited value only. Yeast seems not to have distinct advantages over other forms of powder treatment. Irritating discharges are absorbed by the powder, whereby the tissues are given opportunity to regain their normal resistance. If the tissues are incapable of return to normal while kept dry through use of powder, recurrence of the discharge may be expected with discontinuance of treatment. 7. Specific treatment which produces the best results, consists in the continued use of autogenous vaccines and dry cleansing of the vagina, together with applications of powder. Local treatment with iodine or other drugs is a possible source of help.

Proceedings of Societies.

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

Fifth Annual Meeting, Held in London, England, July 27 to August 1, 1914.

The President, Dr. JOHN B. MURPHY, of Chicago, in the Chair.

(Concluded from page 494.)

EVENING SESSION, JULY 31ST.

Carcinoma of the Breast.—Dr. WILLIAM L. RODMAN, of Philadelphia, said that twenty years ago the frequency of sarcoma had been overestimated. Doctor Bloodgood had found that at the Johns Hopkins Hospital sarcomata constituted only 1.5 per cent. of breast tumors. During the past ten years a great deal more attention had been paid to chronic fibrous and glandular hyperplasia, the result of abnormal involution of the breast, which had often been mistaken for cancer. This condition was common, especially about the menopause. Since the age of occurrence was almost identical with that of cancer, it was important to differentiate the two lesions. The following were the main points of difference: Chronic fibrous hyperplasia was frequently bilateral, whereas only two per cent. of breast cancers were bilateral. Early cancer was not painful, whereas abnormal involution was always painful. The pain was at its worst just before each menstrual period, and enlarged superficial veins were then seen over the breast. These were also seen in sarcoma, but not in carcinoma. Twenty per cent. of cancer of the breast occurred between twenty and forty years of age. Unlike benign neoplasms, cancer soon became

fixed by infiltration, though the amount of the fixation might be slight at first and only to be detected by careful examination. If there was atrophy of the superficial fascia, however small, or dimpling of the skin, however slight, the chances were that carcinoma was present, that is, unless chronic mastitis had previously existed. Comparison of the two breasts was of great importance in diagnosis, but retraction of the nipple had been given too much attention. There was a difference in the retraction of the nipple in carcinoma and in benign growths. In cancer the nipple, in addition to being retracted, was infiltrated, fixed, and immobile, while in benign growths, there was mobility and no fixation of the nipple.

The differentiation of benign from malignant cysts was even more difficult than in the case of solid tumors. Thick granular discharge from the nipple was strongly suggestive of carcinoma, and so were serous or sanguinolent discharges. The latter, however, might be seen in abnormal involution, even long before carcinomatous change had supervened, for this condition was very prone to undergo malignant degeneration. Pure blood from the nipple nearly always meant papillary cyst adenoma, which also was often subject to malignant change. Clinically, diagnosis was extremely difficult and the only safe way was the employment of frozen sections examined at the time of operation. The chance of mistake in the examination of a frozen fresh section was actually less than in that of fixed tissues.

Mr. SAMPSON HANDLEY, of London, did not agree with Doctor Rodman on all points. For instance, cancer of the breast was not always a fixed tumor, nor did the skin always dimple over it. He believed in the value of frozen sections as a means of diagnosis, but pointed out that pathologists as good as those with whom Doctor Rodman worked, were rare. Mr. Handley's investigations tended to show that the embolic theory of cancer dissemination was true for the axillary glands, but that other metastatic deposits were due to permeation, which was the true method of growth and dissemination of cancer of the breast. The reason why permeation so long escaped observation, was that it was at first a fugitive process.

Intestinal Stasis.—Sir BERKELEY MOYNIHAN, of Leeds, while admitting that the membrane's veils or webs which were believed to be the main causes of the delay in the passage of the intestinal contents, were frequently present, he was inclined to doubt the origin and bearing of these bands. He believed confidently that they were congenital. In 1899, he published an account of the dissection of a large number of fetuses and infants in whom these membranes were found. However, the bands found at the hepatic and splenic flexures of the colon were seldom congenital; about the origin of these he agreed with Sir Arbuthnot Lane. Yet Moynihan was disposed to doubt whether these bands were responsible for intestinal delay and obstruction, seeing that the gut was generally not hypertrophied as it should be if some obstruction existed. Delay undoubtedly occurred in the typical case of intestinal intoxication, not from obstruction by the bands, but from incapacity of the enfeebled intestine to empty itself. There was a type of individual recognizable

at sight, who might be said to be suffering from Lane's disease. He described the type and thought that it presented really cases for surgical treatment, although early cases could be greatly helped by massage and paraffin. As to the form of operation for the relief or cure of these symptoms, ileosigmoidostomy nearly always resulted in regurgitation along the colon to the cecum. Anastomosis was of no use, for it was impossible to prevent this regurgitation. In true intestinal stasis removal of part of the intestine should be practised. The lower end of the ileum, the cecum, and the ascending colon were the parts which it was best to remove. It was wiser not to do a short circuiting operation, but to take out these parts only. What were the diseases affected by intestinal stasis and what were the relations of intestinal stasis to gastric and duodenal ulcer and cholelithiasis? He believed that the cause lay more in the appendix than in intestinal stasis; therefore, when surgical treatment was directed to these diseases, the surgeon was exceeding his duty to his patient if he dealt with anything beyond the demonstrable lesions of the case. He allowed that rheumatoid arthritis might be improved beyond the wildest expectation by abdominal operative measures, but it had to be remembered that most of these cases were not benefited by operative measures intended to prevent intestinal stasis. The same held good of tuberculosis joints. He could not go so far as the enthusiasts who held that almost all the diseases that afflicted patients treated by the surgeon, as well as many of those who were still for the present in charge of physicians, were amenable to surgery directed to the intestines. The evidence at present brought forward in support of these views was not convincing to him, but at the same time he was eager to examine all new evidence bearing on the subject.

Sir BERTRAND DAWSON, of London, explained that the phrase "intestinal stasis" might be employed in two different senses; one signifying the actual delay in the passage of the intestinal contents, and the other indicating the clinical picture of the results of such stasis. The use of bismuth meals showed that many persons suffered from delayed iliac movement without any of the symptoms attributed to this condition. The large intestine was the main factor in the production of the symptoms of intestinal stasis and the best results from colectomy were seen when the large bowel was definitely affected. However, the colon must not be regarded as a useless organ which was just as well removed as left. Aside, too, from the mortality of colectomy, which was considerable, it was often followed by persistent and severe bowel derangement. Moreover, the intestines were also easily affected after colectomy by changes of temperature and by fatigue. The situation as regarded colectomy was that the operation was distinguished by brilliant successes and just as striking failures. The failures were not due to any fault of technic, but only went to show that critical selection of cases was necessary. When an appendix was removed and the symptoms continued, at all events no harm had been done to the patient. A gastroenterostomy which was unsuccessful could be undone, but a colectomy founded on mistaken diagnosis could never be undone, while a further reason

for careful selection of cases was the fact that they did not yet know the full effects of colectomy on the future nutrition of the patient.

Dr. JOSEPH C. BLOODGOOD, of Baltimore, said that more facts were needed in the consideration of the subject. The appendix had been removed in many cases in which the symptoms had not been cured. In gallbladder disease, again, acute or chronic, with or without gallstones, there had been failure to cure the symptoms, by drainage of the gallbladder, removal of the stones, or by removal of the gallbladder. During the past twenty-five years, 700 cases of a like character had been treated in the Johns Hopkins Hospital and so far only three of them had returned with symptoms referable to the colon. In order to analyze cases at the Johns Hopkins Hospital, the cases of colon disease had been divided into five groups. In one of these groups in which clinically the symptoms had been those of intestinal stasis, the patients had been relieved by the proper treatment of nasopharyngeal and sinus infections. In the second group, abdominal operations had been performed. The third group included those in which adhesions had been found, whether embryonic or acquired. The results of operations for division of the adhesions, though good, had not been so good as those in similar cases from operations of a different type. The fourth group included the terminal cases. He was not able to convince himself that sidetracking was the operation of choice, though it might be that of necessity. He paid a high tribute to the work of Sir Arbuthnot Lane, and said that he and done an inestimable amount of good in directing and concentrating the attention of the medical and surgical profession, on the condition now known as intestinal stasis.

Sir Arbuthnot Lane remarked that he had nothing whatever to add to what he had said over and over again on intestinal stasis. If his views were correct, they must triumph, if otherwise, they would not survive.

The Results of Operation, Laryngofissure, for Intrinsic Cancer of the Larynx.—Professor E. SCHMIEGELOW, of Copenhagen, Denmark, in the Division of Surgical Specialties, on July 28th, said that surgical treatment of intralaryngeal cancer gave exceedingly good results, especially when these were compared with those obtainable by surgical treatment of cancer in other internal organs. He wished to express his opinion that the whole of their present knowledge of the diagnosis and treatment of this disease was founded on the works of Semon and Butlin, who, toward the end of last century, entirely revolutionized their views with regard to the malignancy of intralaryngeal cancer. Before their day the surgical treatment of the disease had always been regarded as almost hopeless, but Semon showed them that the chief reason of this was that the disease was always diagnosed too late, so that it was too far advanced to give any good operative result. Having further learned that intralaryngeal cancer in the great majority of cases appeared as a primary cancer of the vocal cord, and therefore soon caused hoarseness, they had thus the means of recognizing the disease at an early stage of its development, while still limited to the vocal cord, and so a means of a probable radical cure by removing the diseased vocal cord through a laryngofissure. The operation was

always performed under general anesthesia. Professor Schmiegelow began with morphine-ether and made a low tracheotomy. Hahn's tampon cannula was introduced and the narcosis was continued with chloroform. The thyroid cartilage having been divided and the interior of the larynx opened, he filled the larynx with sterilized gauze introduced from below through the split larynx, in order to prevent the saliva from descending and interfering with the scene of action. According to Semon, the larynx was packed with gauze soaked in a ten per cent. solution of cocaine, to which Schmiegelow added a few drops of a one per mille solution of adrenaline in order to make the mucous membrane of the larynx anesthetic and bloodless. Then the neoplasm, together with the whole diseased vocal cord, was removed by means of a knife and scissors. Formerly after all the diseased area had been removed and the bleeding stopped, the larynx was filled with a tampon of iodoform gauze, but after Butlin had taught them to give up tamponading and to close the thyrotomy wound at once, the results of the operation had been much better. The patients were now able to swallow on the day of operation, and could leave their beds a few days later. This was of the greatest importance in preventing complications in the lungs, especially in elderly people. Thyrotomy could be performed in only thirty-three of his cases treated up to 1912. The result of these thirty-three thyrotomies was that twenty-eight patients survived the operation, while five died from pneumonia, due chiefly to postoperative hemorrhage. Among the twenty-eight patients, recurrence took place in ten cases, while eighteen patients were alive and well. These eighteen had the carcinoma entirely limited to the vocal cord, and the diagnosis was made at an early period of the disease, with only two exceptions. The functional result was exceedingly good in all cases. The voice was strong, generally sonorous, but in a few cases hoarse.

Sir ST. CLAIR THOMPSON thought it obvious that both the public and medical profession in Denmark were more alert in discerning the conditions which could be relieved by operation than they were in England. This was shown by the number of opportunities which Professor Schmiegelow had had. In England it frequently happened that a patient was hoarse perhaps for a year before seeking the aid of a throat specialist. He was in the habit of following the teaching and technic of Professor Schmiegelow entirely and preferred general anesthesia and preliminary tracheotomy. In no case did thyrotomy reveal any error of diagnosis, although a preliminary microscopic examination of a removed portion was available in only six instances.

Congenital Obstruction of the Postnasal Orifice.—Dr. CHARLES W. RICHARDSON, of Washington, D. C., said that the occurrence of this condition was described by many writers as a very infrequent form of nasal deformity, but he had reached the conclusion that it was one of the most frequent types of congenital malformation in the nasal chambers. The number of observed cases in children and adults had greatly increased during the past twenty years, while the number of cases in the newly born had not increased in like proportion, owing to the fact that the condition was unrecognized or wrongfully classified as asphyxia neonatorum. This form of deformity

affected the female more frequently than the male, and the relative frequency of the bilateral to the unilateral form was in the proportion of three to one.

Dr. DUNDAS GRANT, of London, said that the condition, especially when bilateral, was rare; possibly it passed unobserved, and the cases were included among those of asphyxia neonatorum. Commenting on the reference made by the former speaker to the asymmetry of the face which ought to follow congenital occlusion of one choana, he could only say that when the late Mr. Cresswell and he looked for the atrophy in their two cases, they found that any trace of it which existed was on the wrong side.

Surgery of the Cleft Palate.—Dr. GEORGE J. V. BROWN, of Milwaukee, said (Thursday, July 30th) that all operations should be directed to the attainment of three objects: 1. To covering the gap; 2, to obtaining speech; and, 3, to improving general health. Consequently surgeons should be warned: 1. To do no correcting method where natural physiological development would obviate its need; 2, to destroy nothing that might be required in such development; and, 3, to do no more than was required at each step. Accordingly he condemned destruction of the premaxilla and was critical in regard to compression of the maxillæ. He held that the operation should begin with closure of the lip as early as the first day, to be followed by closure of the hard palate, and lastly of the soft palate, completing the case in one and a half to two years.

Factors of Safety in Cleft Palate Surgery.—Dr. JOSEPH RILUS EASTMAN, of Indianapolis, said that in the Langenbeck or similar flap operations there would be much less likelihood of separation of the wound margins and consequent failure of union of the mattress coaptation sutures, after being reinforced by a continuous relaxation suture passing round the free edge of the anterior palatine arch. General anesthesia was never of much value in cleft palate surgery, and with the present development of local anesthesia, might be said to answer no valuable purpose. In extensive operations, the swallowing of more or less blood was almost unavoidable. No matter what position was used or what precautions were taken, some blood was usually drawn into the stomach during the repair of cleft palate. After an extensive palate operation, the blood was sometimes discharged in vomitus or passed off by the bowel. The presence of the blood in the stomach of an infant or small child was not infrequently productive of serious disturbances of metabolism. The symptoms arose usually very soon after the deglutition of the blood, sometimes within a few hours. The absorption of the pyrogenic constituents of a large quantity of blood quickly induced a high fever. Through observing infants after cleft palate operation, it had occurred to him that the degree of fever varied directly according to the severity and duration of the operation, that is, the more blood swallowed, the greater the pyrexia. In palate surgery, as in other surgery, much depended upon the selection of the appropriate operation for the single case in hand. There was little doubt that the failure to choose the proper operation for the specific case was more often culpable than any of the other recognized causes of failure. There were so many varieties of cleft palate that there could never be a single opera-

tion which would apply in all cases. In many cases of narrow cleft palate combined with high cathedral arch, it was not difficult to coaptate the edges precisely and without tension after separation of the mucoperiosteum from the hard palate. In cases of high palatal arch, therefore, if the cleft palate was not too wide, it was useless to make paralyzing incisions for the relief of tension, for the two halves of the loosened mucoperiosteal palate would fall together like the two halves of a cantilever drawbridge, and might be sutured without tension if the soft palate was quite completely separated from the hard palate at the posterior border of the latter. In cases in which the hard palate was almost horizontal, with associated widening of the alveolar arch, the compression method advocated by Brophy was not to be disregarded, provided the case was seen during the first few months. He had found few cases in which the compression method had been of value, and in those few instances had been obliged to follow it with a flapping operation after Lane, Langenbeck, or Davies-Colley. He had not been able to prevent a slight turning inward of the alveolar processes in any case, even when the root of the zygoma had been partially or completely chiselled away in order to secure a high application of the plates. Nevertheless it would be a mistake to say that the Brophy plan of compression was without value. The deformities of cleft palate varied very greatly. Many surgeons had denied Brophy's statement that a large percentage of cases of cleft palate were associated with widening of the alveolar arch. However, only one whose observation embraced every cleft palate everywhere could say that this associated abnormal widening of the alveolar arch was never present. Now and then, it was found in association with a flat or nearly horizontal hard palate and complete wide cleft, and in such a case Brophy's plan of compression might with good reason precede a flap operation. In such instances Brophy's apparatus of silver wire and lead plates might with some advantage be replaced by malleable iron wire and plates with soft rubber pads. The rubber lying between the aluminum plate and the alveolar process minimizes trauma and exerted a constant elastic pressure. Malleable iron wire was so much stronger than silver wire that its value was much greater when considerable force was required.

It was an old and quite generally accepted view that to operate for cleft palate on a child under the age of three months, was unwise. This was, as Sir Arbuthnot Lane had said, a matter of tradition. It might with reason be contended that under ordinary conditions cleft palate should be operated upon within the first week after birth. The rule to operate early, however, should not apply to infants which were in a general sense so far below the normal that even a slight surgical procedure must be attended with great risk. Dr. G. V. Brown, who counselled in favor of a reasonable delay to the end that the operation could not be done with the proper assurance of safety, did not deny the advantage of early operation, if conditions were favorable.

Dr. TRUMAN W. BROPHY, of Chicago, insisted that the gap at birth was only potential; the normal amount of tissue was there and should be used immediately to close what is in effect a wound. He argued that by lead plate compression and tension

wiring, perfect speech was produced, and in support of this assertion, he showed three patients on whom he had operated for different conditions and at different ages, the excellent results being demonstrated by their delivery of recitations.

Sir W. ARBUTHNOT LANE could only assert for his procedure perfect simplicity. Impressed by the danger of following a teaching that was so universally accepted as procrastination for four years, he decided to close the cleft in the lips and hard palates of infants at the earliest possible moment. In a month or so he closed the cleft in the soft palate. His mode of operation was based on restoring to the infant at the earliest possible opportunity the proper chances for development of the bones of the face.

Mr. JAMES BERRY, of London, believed that the operation by median suture was the only one which would restore the palate to its natural condition. The age at which he preferred to operate was the earliest at which the cleft could be satisfactorily closed by median suture. Narrow clefts, especially if limited to the soft palate, could be operated upon with advantage by this method within the first few months of life. The common, single or double complete cleft, associated with harelip, should be treated by closure of the harelip in earliest infancy, the operation on the palate being postponed until the second or sometimes the third year. He had never recommended postponement of operation to any later period. At and soon after birth the cleft was usually very wide and the palatine arch low. If any median operation was attempted at this period, it would usually fail unless preceded by the wiring operation of Brophy, which he thought too dangerous to be generally employed. The reason for postponing the palate operation for a year or two, was that after suture of the harelip, the cleft in the palate underwent rapid spontaneous narrowing, and the development of the alveoli made the arch higher. He entirely agreed with Sir Arbuthnot Lane with regard to the simplicity of his turnover operation and also with the statement that most mothers of cleft palate babies were exceedingly anxious that operation should be performed as early as possible. With respect to results so far as subsequent speech was concerned, the advocates of the turnover operation had never brought forward any proof that the ultimate outcome of such turnover operations was successful. He had shown many patients who had been successfully operated upon by the Langenbeck method, and thought that exact information as to the subsequent results of their operations should be brought forward by the advocates of the turnover flap operation in early infancy. He criticised the supporters of this method because they did not publish long series of consecutive cases giving actual afterresults, as he had himself done on several occasions with regard to his own operations. As for lateral incisions, he used this form of operation less frequently by far than formerly, as he found that the wide mattress stitch in the soft palate similar to that employed by Brophy, often rendered them unnecessary. The most difficult cleft to close satisfactorily was that in which a very wide cleft involved all the rest of the palate and had a rounded anterior end. In such cases, as a rule, he closed the

soft palate at some period during the early part of the second year, and, if necessary, postponed operation upon the hard palate for months, at the end of which time the opening would be found much narrower.

Mr. PERCY LEGG, of London, reminded the audience that, while the securing of good speech should be the great aim of all procedures, speech could become good only by careful education.

Letters to the Editors.

AUTOGALACTOTHERAPY?

NEW YORK, September 6, 1914.

To the Editors:

Having read Dr. Charles H. Duncan's article, Autolactotherapy, in your esteemed JOURNAL for September 5th, I beg leave to suggest to the author to change this hybrid name into an all Greek term, "autogalactotherapy."

A. ROSE, M. D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Bakteriologische Untersuchungen der Genitalsekrete der nichtschwangeren und nichtpuerperalen Frau vom Kindes- bis ins Greisenalter unter physiologischen und gynäkologischen-pathologischen Verhältnissen. Von Dr. MAUNU AF HEURLIN, Assistenzarzt der Klinik, fr. Assistenzarzt an der Universitäts-Frauenklinik in Helsingfors. Mit 4 Tafeln und 15 Tabellen. Berlin: S. Karger, 1914. Pp. iv-226.

Doctor Huerlin, in the space of about one hundred pages, very thoroughly presents his work on the bacteriological investigation of the secretions of the female genital tract. He gives minute details concerning the technic and lays much stress upon a strict adherence to them. The organisms first dealt with are the facultative anaerobics, cocci, and bacilli; then the true anaerobics. The last one hundred pages are devoted to case reviews and to a chapter in which the conclusions are given. Concerning the reaction of the genital secretion, it was found to be alkaline until about puberty, when it becomes acid, finally becoming alkaline in old age. In regard to the fever following childbirth, Heurlin believes it to be due in many cases to the presence of anaerobic bacteria within the uterus, organisms that were present already in the vagina in large numbers and not those that entered after delivery nor as a result of intragenital manipulation.

Leitfaden der Säuglingskrankheiten. Für Studierende und Aerzte. Von Dr. WALTER BIRK, Privatdozenten für Kinderheilkunde an der Universität Kiel. Mit 25 Abbildungen im Text. Bonn: A. Marcus & E. Webers, 1914.

To read a book, not too long and yet adequate, on the difficult subject of the diseases of nurslings, is an agreeable exercise of the mind. In this little treatise we find an insistence upon all that is finely practical, not always captured and defined in larger textbooks. Examples of what we mean are the descriptions of the signs of rickets, of congenital syphilis, of spasmophilia, etc. We like the absence of confusing details in these pictures. The treatment of infants artificially has a keen point. We can hardly think of a more difficult and delicate task than to feed such children wisely. Doctor Birk writes on this subject with the coolness of an expert; he avoids extremes which we find in current views of infant feeding. In a word, the book reveals judgment. We think, however, that the hypodermic use of medicines is too frequently recommended. The matter is well arranged and printed.

Bakteriologische Untersuchungen des Keimgehaltes im Genitalkanale der fiebernden Wöchnerinnen mit Berücksichtigung der Gesamtmorbidität im Laufe eines Jahres. Von Dr. MAUNU AF HEURLIN, Assistenzarzt der Klinik. Mit 3 Tafeln und 17 Tabellen (244 Fieberkurven). Berlin: S. Karger, 1914. Pp. vii-618.

Doctor Heurlin gives a very extensive review of work done by him in his bacteriological investigations of the bacterial flora of the genital tract, during the puerperium, of infected women. The first fifty pages are devoted to a presentation of the methods employed, while 130 take up in detail the characteristics of the different types of organisms found. The following 400 pages consist of a grouping of the fever cases according to the variety of bacteria present. The final thirty pages are the most interesting, as they contain the conclusions drawn from this study of 2,152 cases of infected women. This monograph contains a certain amount of information, but not in a form that is readily available. In a book of 615 pages a table of contents cannot supply the lack of an index.

Recent Studies of Tuberculosis. Medical Symposium Series, No. 3. A Reprint of Articles Published in the Interstate Medical Journal. St. Louis: Interstate Medical Journal Company, 1914. Pp. 299. (Price \$1.50.)

The *Interstate Medical Journal* has collected in one handy volume the admirable series of papers on tuberculosis recently contributed to its columns by specialists here and abroad. There are numerous illustrations, the frontispiece being the beautiful portrait of Francis Thompson from the drawing by the Hon. Neville Lytton.

A Synopsis of Surgery. By ERNEST W. HEY GROVES, M.S., M.D., B.Sc. (Lond.), F.R.C.S. (Eng.), Surgeon to the Bristol General Hospital; Consulting Surgeon to the Cosham Hospital; Lecturer on Surgery at Bristol University. Fourth Edition. Revised and Illustrated. New York: William Wood & Co., 1914. Pp. x-599. (Price, \$3.25.)

We have several times reviewed previous editions of this excellent work, almost an ideal handbook for the student in its completeness and with its various helps to the memory by the use of differently faced type. It will doubtless continue to be as valuable to students as it has always been. As an Englishman, Doctor Groves prefers chloroform to ether, and there are other slight variations from American practice which the student will detect for himself.

Interclinical Notes.

All the magazines whose forms were not locked before August 1st, gave a large part of their space to the great war. This is natural. War is the supreme human phenomenon; it supersedes all other interests, eating, drinking, barter, even love making. If anyone enters upon war with regret, he does not mention it. It practically puts a stop to the advance of medical science in Europe, except, perhaps, as regards the treatment of wounds; possibly also that of plagues. Why may not the Russians bring in some Asiatic disease to which western Europeans have not become immune?

* * *

War is to the race what a spree is to the individual. Sprees are of various kinds; but if they are to be done away with, substitutes must be found. Professor Münsterberg and H. G. Wells have suggested substitutes for war; the former thinks that mining and work in the construction of steel skyscrapers—which includes throwing red hot bolts through the air from man to man—would furnish sufficient excitement; Wells suggests two years' work in certain corps of the army, with the miners and sappers or with the air fleet. The latter paradox is explained by the theory that an army composed of such daredevils would make war either altogether unlikely, or extremely short.

* * *

The sanest proposal to end war seems to be that of H. G. Wells, who advises the strictest prohibition of the manufacture of arms or explosives except by the governments themselves. The profits of these trades are enormous and tempting. Mr. Wells would have the most careful investigation made and a license issued, if all was satisfactory,

to anyone desiring to own a firearm of any description or an ounce of any explosive. His deeply thoughtful and admirable letters appear, in New York, in the *World*. We have frequently paid tribute to Mr. Wells as an original and a daring modern thinker.

* * *

"Albert Edwards" has been writing the story of the war for the past four weeks for the *Outlook*; he narrates facts, and apparently does not indulge in theories. A German born American, in the issue for August 22d, tells how every German child is taught that a Russian is a bear and a Frenchman a fox, an Englishman, of "perfidious Albion," a heaven knows what, lying in wait for Germany. Similar teaching in England, France, and Russia would explain nicely part of the present conflict. In the same issue Theodore Roosevelt, in one of the wisest papers he ever penned, tells of the safest foreign policy for this country to pursue.

* * *

Arnold Bennett (*New York Times*, September 6th) believes that the "clumsy arrogance" of the German aristocrat will be resented in time by the private soldier to the detriment of his battle winning abilities; this would be a strong argument, perhaps, if it were not for the arrogance, perhaps not clumsy, but well marked nevertheless, to which Mr. Bennett is curiously blind, i. e., that of the British aristocrat, to say nothing of that of the Russian. We are growing here a small imitation of the British kind. Is a boy who goes through a private boarding school in New England and then spends four years in a costly dormitory of a large university, a real American? There is a pleasing reverse side to this picture; in no other army and navy of the world is there so much real comradeship and genuine *bonhomie* as between officers and men when off duty in the American services. Discipline, sharp but acceptable, is resumed with the uniforms.

Meetings of Local Medical Societies.

MONDAY, September 14th.—Roswell Park Medical Club, Buffalo; Williamsburgh Medical Society.

TUESDAY, September 15th.—Tompkins County Medical Society; Tri-Professional Medical Society of New York (annual); Binghamton Academy of Medicine (annual); Syracuse Academy of Medicine; Ogdensburgh Medical Association (annual); Oswego Academy of Medicine; Medical Society of the County of Westchester.

WEDNESDAY, September 16th.—Medico-Legal Society, New York; Buffalo Medical Club.

THURSDAY, September 17th.—Auburn City Medical Society; Geneva Medical Society; Æsculapian Club of Buffalo; New York Celtic Medical Society.

FRIDAY, September 18th.—Mount Vernon Medical Society.

Official News.

United States Public Health Service Intelligence:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending August 26, 1914:

Carter, H. R., Senior Surgeon. Leave of absence for fifteen days from August 23, 1914, amended to read "twenty days' leave of absence from August 13, 1914."

Clark, T., Surgeon. Directed, at the request of the Commissioner General of Immigration, to examine alien boy undergoing treatment in Garfield Hospital, to ascertain his condition. **Guiteras, G. M.**, Surgeon. Granted fifteen days' leave of absence to be taken when duties of station will permit. **Magruder, G. M.**, Surgeon. Granted fifteen days' leave of absence from August 23, 1914. **Stimpson, W. G.**, Assistant Surgeon General. Granted fifteen days' leave of absence at such times as it can be conveniently taken, beginning August 24, 1914. **Townsend, J. G.**, Assistant Surgeon. Directed to proceed to Chelsea, Mass., and report to the medical officer in charge of the Marine Hospital for temporary duty during the absence of Passed Assistant Surgeon G. L. Collins. **Vogel, C. W.**, Surgeon. Directed to

proceed to Philadelphia for conference with health authorities with reference to organization of campaign against rodents. **Waller**, C. E., Assistant Surgeon. Detailed as a member of the Revenue Cutter Service retiring board to meet at Baltimore, Md., by direction of the Secretary of the Treasury, *vice* Surgeon J. T. Burkhalter, relieved.

Promotions.

Passed Assistant Surgeons Arthur M. Stimson, William C. Rucker, Richard H. Creel, Ruel E. Ebersole, and John W. Trask promoted and commissioned surgeons in the Public Health Service.

Assistant Surgeons Richard A. Kearny, Warren F. Draper, Julian M. Gillespie, and Lewis R. Thompson promoted and commissioned passed assistant surgeons in the Public Health Service.

Dr. Clarence H. Waring, Dr. George A. Wheeler, Dr. Thomas F. Keating, Dr. Henry C. Yarbrough, and Dr. Roland E. Wyrme commissioned as assistant surgeons in the Public Health Service.

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending September 2, 1914:

Burkhalter, J. T., Surgeon. Granted fourteen days' additional leave of absence from August 27, 1914. **Goldberger**, Joseph, Surgeon. Directed to proceed to Morris Plains, N. J., to collect data relating to diets and their influence on pellagra or scurvy in the State hospital. **Grimm**, R. M., Passed Assistant Surgeon. Detailed, at the request of State health authorities, to deliver addresses on typhoid fever before the Southwestern Medical Society, at Corning, Ia., September 10, 1914, and Polk County Medical Society, at Des Moines, Ia., September 11, 1914. **Gwyn**, M. K., Surgeon. Granted two months' additional leave of absence on account of sickness, from August 25, 1914. **Kolb**, Lawrence, Passed Assistant Surgeon. Directed to proceed to Fort Monroe, Va., and take temporary charge of the Cape Charles Quarantine Station during the absence of Acting Assistant Surgeon W. B. MacCaffry on leave. **Schereschewsky**, J. W., Surgeon. Directed to report at Bureau for conference relative to investigation of garment workers' trade. **Smith**, H. F., Assistant Surgeon. Directed to proceed to Ellis Island, N. Y., and report to the Chief Medical Officer for temporary duty. **Tarbett**, R. E., Sanitary Engineer. Authorized to attend a meeting of the Central States Water Works Association, to be held at Wheeling, W. Va., August 25 to 27, 1914. **White**, M. J., Surgeon. Granted two months' leave of absence from August 2, 1914. **Willetts**, D. G., Technical Assistant. Directed to proceed to Atlanta, Ga., for the purpose of inquiring into the case of a former employee of the Georgia State Sanitarium, now suffering from pellagra, and thus secure epidemiologic data having a bearing on present studies of pellagra. **Wilson**, Assistant Surgeon. Directed to proceed to Lexington, Ky., and report to Surgeon John McMullen for duty in the prevention of trachoma.

Boards Convened.

Board of medical officers convened to meet at Galveston, Tex., for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Surgeon L. P. H. Bahrenburg, chairman; Acting Assistant Surgeon D. P. Wall, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending September 5, 1914:

Clark, F. E., First Lieutenant, Medical Reserve Corps. Has been ordered to active duty, with station at Fort Ethan Allen, Vermont. **Foster**, C. L., Captain, Medical Corps. Will take temporary charge of medical supply depot, St. Louis, Mo., during the absence of Lieutenant Colonel Thomas U. Raymond, Medical Corps. **Hammond**, J. F., First Lieutenant, Medical Corps. Granted two months' leave of absence. **Kennedy**, Charles P., First Lieutenant, Medical Reserve Corps. Resigned his commission in that corps, August 27, 1914. **Magee**, J. C., Captain, Medical Corps. Has been granted

fifteen days' leave of absence. **Mitchell**, Leopold, First Lieutenant, Medical Corps. Ordered to Fort Baker, California, for duty by September 1, 1914. **Nichols**, H. J., Captain, Medical Corps. Relieved from duty at the Army Medical School, Washington, D. C., about November 15th, and ordered to Letterman General Hospital, Presidio of San Francisco, Cal., for duty. **Persons**, E. E., Major, Medical Corps. Reports his arrival at Vera Cruz, Mexico, for duty as assistant director of public health. **Raymond**, Thomas U., Lieutenant Colonel, Medical Corps. Granted one month's leave of absence. **Reasoner**, M. A., Captain, Medical Corps. Relieved from duty at the Rockefeller Institute, New York, about September 15, 1914, and ordered to duty at the Army Medical School, Washington, D. C. **Speissegger**, C. A., First Lieutenant, Medical Reserve Corps. Ordered to active duty in the Medical Reserve Corps, with station at Fort Moultrie, South Carolina.

Births, Marriages, and Deaths.

Married.

Cummings—Day.—In Rockland, Mass., on Tuesday, September 1st, Dr. Dana F. Cummings and Mrs. Blanche R. Day. **Friedmann—Greenburger**.—In Atlantic City, N. J., on Sunday, August 30th, Dr. Samuel Friedmann and Miss Ethel Greenburger. **Hartwell—Gile**.—In MacMahan, Me., on Wednesday, September 2d, Dr. John B. Hartwell and Miss Miriam R. Gile. **Hatch—Noera**.—In Boston, Mass., on Wednesday, September 2d, Dr. Royal Hatch, of Wellesley, and Miss Edith Frances Noera. **Smillie—Anderson**.—In Denver, Col., on Wednesday, September 2d, Dr. Wilson G. Smillie and Miss Faye Anderson.

Died.

Bacon.—In Lockport, Ill., on Tuesday, August 25th, Dr. Charles H. Bacon, aged eighty years. **Day**.—In Prospect, Ky., on Wednesday, August 26th, Dr. J. A. Day, aged twenty-seven years. **Flack**.—In Chicago, Ill., on Wednesday, August 26th, Dr. William D. Flack, of Farmington, Ill., aged thirty-one years. **Ford**.—In Wilmington, N. C., on Wednesday, August 26th, Dr. Cornelius Townsend Ford, of Mullins, S. C., aged eighty years. **Gouinlock**.—In Warsaw, N. Y., on Monday, August 31st, Dr. William C. Gouinlock, aged seventy years. **Grindle**.—In New York, on Wednesday, September 2d, Dr. John W. Grindle, aged sixty years. **Hottenstein**.—In Kutztown, Pa., on Wednesday, August 19th, Dr. Edward Hottenstein, aged eighty-three years. **Hudson**.—In Conway, Ark., on Monday, August 24th, Dr. G. W. Hudson, aged seventy years. **Montgomery**.—In Chicago, Ill., on Monday, August 24th, Dr. Liston Homer Montgomery, aged sixty-six years. **Nagle**.—In Allentown, Pa., on Friday, August 28th, Dr. Thomas S. Nagle, aged sixty-seven years. **Nye**.—In Mound, Mich., on Sunday, August 30th, Dr. William F. Nye, aged sixty-three years. **O'Brien**.—In Rockport, Mass., on Sunday, August 30th, Dr. Owen St. Clair O'Brien, aged eighty-one years. **Redlich**.—In Chicago, Ill., on Sunday, August 30th, Dr. Henry Redlich, aged eighty-two years. **Riordan**.—In Toronto, Ontario, on Saturday, August 29th, Dr. Bruce L. Riordan, aged fifty-five years. **Rowland**.—In Boston, Mass., on Friday, July 17th, Dr. Oliver J. Rowland, of Houston, Texas, aged thirty-eight years. **Sanderson**.—In Worcester, Mass., on Friday, August 28th, Dr. James H. Sanderson, aged forty-seven years. **Schwendener**.—In Milwaukee, Wis., on Sunday, August 30th, Dr. John Schwendener, aged sixty-seven years. **Sheldon**.—In Salt Lake City, Utah, on Saturday, August 22d, Dr. Andrew C. Sheldon, aged seventy-five years. **Snyder**.—In Seneca, Kansas, on Sunday, August 23d, Dr. Alvin Snyder, aged sixty-six years. **Umstad**.—In Norriston, Pa., on Wednesday, August 26th, Dr. John R. Umstad, aged fifty-eight years. **Van Tine**.—In Brooklyn, N. Y., on Wednesday, September 2d, Dr. Margaret H. Van Tine, aged eighty-six years. **Walker**.—In Belton, Mo., on Wednesday, August 26th, Dr. Richard P. Walker, aged fifty-four years. **Weaver**.—In Fulton, Arkansas, on Saturday, August 29th, Dr. S. J. Weaver, aged forty years.

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WHOLE No. 1867.

Original Communications.

HEMOPHILIA AND HEMOPHILIAC ARTHRITIS.*

BY MARCELINO HERRERA VEGAS, M. D.,

Buenos Aires, Argentina,

Adjunct Professor of Surgery; Surgeon, Children's Ward, Clinical Hospital.

I speak today of a child who occupies bed 31 in the children's surgical ward and who is an old friend of yours, since he has previously been here through accidents well worthy of our attention, and which have great importance in the diagnosis of the disease from which he suffers, as you will perceive when you hear his clinical history.

CASE. Our case concerns a boy, aged seven years, Eleodore T., who entered the hospital August 23, 1912. His father is healthy; the mother as a child, suffered from profuse hemorrhages produced by the slightest injury. A sister made a little wound in her gum with a pair of scissors and died from hemorrhage. Another sister was taken to San Roque Hospital for a traumatic affection of the knee, and died on the table from hemorrhage during the operation. He has four brothers all healthy. The child himself has always been healthy. When three years old he fell and wounded the frenum of the tongue with his teeth, suffering extensive loss of blood. Shortly afterward he again wounded his tongue by another fall and such an alarming hemorrhage arose that he was brought to the hospital. He was given injections of fresh serum and Witte's peptone. About a year ago he once more hurt himself in the occipital region of the scalp. The wound was sutured and a few days after, a little exudate appeared, but without excessive hemorrhage. As recently as two months ago he suffered still another fall bruising the left knee which swelled up in a very short time, but without causing any pain or limp.

Examination. The boy is well developed, subcutaneous tissue very scarce, the mucous membranes very pale, superficial glands palpable. The left knee is of globular shape, the increase in size being more apparent on the inside without reaching to the popliteal space; capsule distended especially the subfemoral bursa. The swelling of the joint is divided into two symmetrical halves by the tendo patellæ. Local temperature normal, the consistence is elastic and there is a very marked floating patella; active and passive movements are normal. The knee is tender under pressure; there is no muscular atrophy. The skin over the swelling is normal, the knee showing a slight outward inclination. Under more severe pressure two painful points are noted, one on each side of the tendo patellæ. Radiographs taken in front and profile show nothing abnormal about the bones, except a distention of the capsule of the joint. In view of the antecedents and symptoms of the patient, on September 1, 1912, 15 c. c. of fresh rabbit serum were prescribed in subcutaneous injection. On the following day the temperature was 37° C., with general prostration and vomiting. These symptoms disappeared the day after.

*Lecture to the students of the final year in medicine at the Clinical Hospital.

September 6, 1912, the swelling of the knee was half the size and the pain felt in the first days of admission had disappeared. A second injection of 7 c. c. of fresh serum was made and he was kept in bed with a compression bandage.

September 22, 1912, the swelling and other symptoms had practically disappeared.

October 12, 1912, the knee again became globular and the synovial capsule had distended. Movements of the knee practically normal, there was no spontaneous pain, only when the femoral condyles or the internal tubercle of the tibia were pressed; there was also a painful spot in front of the fibula. The examination of the blood gave the following results: Red cells, 3,900,000; white cells, 17,000—proportion one to 169. Hemoglobin, 65; transitionals, 2.37 per cent.; polynuclear cells, sixty-two per cent.; eosinophile cells, 1.66 per cent. Red cells normal. The blood from a vein in the flexure of the elbow coagulated in two hours and five minutes at normal temperature.

October 20, 1912, the right knee swells directly at a slight blow and the capsule becomes distended, elastic, and painful, which pain increases under pressure. Slight diminution in movement of extension of the leg. An ecchymosis is seen on the anterior part of the right knee.

October 24, 1912, a subcutaneous injection of 12 c. c. of fresh rabbit serum made and a compression bandage is put on.

October 29, 1912, the effusion has nearly disappeared. There is neither spontaneous nor induced pain.

November 4, 1912, the hemarthrosis has totally gone down and only a thickening of the capsule is felt.

November 11, 1912, a slight new trauma appeared in the left knee, producing a new hemarthrosis with the same characteristics as before—15 c. c. of fresh rabbit serum were injected. A week later the hemorrhage had ceased.

December 14, 1912, the patient was discharged, cured.

As you see, what particularly attracts our attention in the history of this case, is that his mother, whenever she suffered a slight traumatism, had profuse hemorrhages and that two of his younger sisters died of hemorrhage, one from a wound inflicted in the gum with a pair of scissors and the other from an operation upon her knee, made through an error in diagnosis.

Now, our patient, when three years old, fell and wounded his tongue with his teeth, producing a very severe hemorrhage, and this happened again within a very short time under similar circumstances. Finally he was brought to us with his left knee swollen and assuming a globular shape, the result of a slight blow. Considering the personal and hereditary antecedents, there is no doubt that our patient is affected with hemophilia, and this lesion in the joint is no more than the localization of this diathesis, as the ancients called it, in the knee.

The diagnosis of hemophilia in the case of our patient is simple, since other hemorrhagic diseases are present under other conditions. For example, scurvy, which appears in adults or children, and is also called infantile scurvy or Barlow's disease,

produces hemorrhage, but this cachexia is due to wrong feeding and is cured by an appropriate diet. We find nothing of this in the history of our patient. Purpura hæmorrhagica, Werloff's disease, the eruptive hemorrhagic fevers, the melena of newborn infants, yellow fever, are acute hemorrhagic diseases that mean either death or recovery. No after-propensity to hemorrhages is left. The chief characteristic of leucemia is a notable and permanent increase of the white cells. In view of these facts, you can see that our case is a typical one of hemophilia, and this is well borne out by the hereditary characteristics, personal details, and the coagulability of his blood, which is notably retarded in comparison with normal blood. You already know that this disease, the name of which is incorrect as regards its etymology (*αἷμα*, blood; *φιλία*, friendship), is called in Teutonic and Anglo-Saxon countries "Blutern or bleeders."

It was only in the later years of the eleventh century that the Arabian physician, Abul-Kasis, told us for the first time of patients who died of hemorrhage following slight wounds. Subsequently, Fabricius of Hilden is worthy of remark (1600). In England a treatise upon hemophilia appeared in 1872, written by Wickham Legg (1).

In France the first important work we owe to Lebert (2), and in Germany, Grandidier (3) gives us an important work upon this curious disease, which he calls the most hereditary of all hereditary diseases, *die erblichste aller erblichen Krankheiten*.

In our country, we have three theses upon this subject contributed by Luis F. Cuelli (4), Loruso (5), and Pasalacqua (6).

This peculiar affection is characterized by hereditary or congenital disposition to hemorrhages, but it is sometimes acquired. The subjects affected bleed for no reason or without appreciable cause, and ecchymosis results from the least blow. This the French call by the picturesque term of *bleu*.

Two etiological features characterize hemophilia; first its hereditary and family character, and, second, its geographical site.

Family diseases are characterized by the way they generally attack different members of one family and show in all the afflicted persons identical forms and evolution. Hemophilia is a typical family disease and consists, as we have seen, of the fact that from the slightest causes the patients suffer from hemorrhages, sometimes so uncontrollable as to end in death.

As Weill admits, hemophilia can be familial or sporadic, but it specially attacks the male sex; for example, out of 780 hemophiliacs, Dunn gives 717 males, that is a proportion of one to eleven; other writers give a greater proportion, one to thirteen.

The son of a hemophiliac does not transmit the disease to his children. The daughter, although herself untainted, does transmit the disease to her sons, but not to her daughters. Moreover, the disease may skip several generations. Eichorst, speaking of heredity in hemophilia, says: "If we wish to prevent the propagation of this disease it is necessary to prevent the marriage of women belonging to hemophiliac families." There is no need for one to dwell upon the celebrated hemophiliac family of

Mampel, of Heidelberg, which Lossen (7) studied through four generations and in which none of the women were tainted, while the proportion among the men was thirty-three per cent. The proportion is, for some, too high, and in studying the statistics of other writers who have devoted themselves to this affection, we find that men are attacked ten times oftener than women.

The geographical distribution gives it another interesting character, since it appears chiefly in the Northern countries. Geographically it extends in Europe from the forty-third to the sixtieth degree of latitude, and in North America from the thirty-third to the forty-fifth. The majority of cases are found in Germany, England, and the United States. Germany figures with forty-eight per cent. of the total, England with eighteen per cent., Switzerland with nine per cent., and France with 8.5 per cent., which shows its predilection for the Anglo-Saxon races. Sometimes it is endemic within certain localities, as, for example, the cases of Vieli of fifteen or twenty hemophiliacs in a village of the Rhetic Alps.

The majority of hemophiliacs die in the early years of life. According to Little, sixty per cent. die before the age of eight years, and only those who attain to twenty-two years can be considered as cured. Grandidier quotes cases at sixty, sixty-five, and seventy years of age, but these are rare exceptions. Hygiene has very little influence upon this hemorrhagic disease; poor and rich equally are attacked; and also those whose diet is correct and those whose diet is improper. Moreover, as Giutrac has noted, hemophilia sometimes coincides with convulsive neuroses (hysteria, epilepsy, etc.).

The hemophiliac bleeds, as we have seen, without apparent reason, and even without cause. The hemorrhages that are most frequently seen in these patients are epistaxis (eighty-four per cent.) buccal, intestinal hemoptysis, hematuria, hemorrhage from the ear, and metrorrhagia. Beside spontaneous hemorrhages, we must bear in mind traumatism such as those subsequent to vaccination or extraction of teeth. The characteristic of these hemorrhages is that they are capillary and *en nappe*, oozing, to use the word of the English authors, like a sponge that is compressed between the fingers.

Virchow refers to a notable case of a woman who died of hemorrhage on her wedding night. In others, although this is rare, it appears in women under the form of metrorrhagia. There are even cases of girls who died at the first monthly period. Eichorst mentions a case in which the menstrual hemorrhage lasted fourteen months, and Kehler insists upon the seriousness of pregnancy, which is sometimes interrupted by a fatal hemorrhage. In this country hemophiliac metrorrhagia has been studied by Luis F. Cuelli in his *Inaugural Thesis*. The loss of blood varies in amount. Cases have been cited in which two litres have escaped on the day following the extraction of a tooth, and others in which death has been nearly instantaneous. In others the hemorrhage has lasted for twenty-two days (Hay Roberts), one month (whole), and forty-four hours only, ending in death, as in a case mentioned by Emery.

Subcutaneous or muscular ecchymoses or hematomas have been observed, in which the loss of blood may be so great that the patient presents the symptoms of an internal hemorrhage. A curious localization has been seen by Charves and Speroni (8). It was a case of a tumor, the size of a child's head, which occupied the iliac fossa with other smaller ones, adhering to the bone. Froelich (9), of Nancy, cites a case where he removed a similar tumor from the external iliac fossa. These tumors are characterized by the rapidity of their formation and are sometimes accompanied by a temperature similar to that of a diffuse phlegmon, but they hardly ever suppurate and are absorbed without leaving traces. In some rare cases they are infiltrated with calcium salts as in a case cited by Trelat.

Khantz (10), of Vienna, has noted an interesting case of a narrowing of the intestine from submucous hematomas in a hemophiliac. This was a case of a man, twenty-four years old, with a dull, painful tumor situated in the left subumbilical region. The rectovesical pouch was distended and painful. An enema brought out a liquid tinged with blood. The case was diagnosed as intestinal invagination and an operation was performed. A dark red intestinal coil was exposed fifteen cm. long and full of coagulated blood. There were also various hematomas in the intestinal wall. In view of this, it was thought to be hemorrhagic infarction of mesenteric origin (through the obliteration of the vessels) or hemophilia. The patient died twenty-four hours after the operation. Post mortem, the walls of the aorta and the bloodvessels were found to be very thin. In the tissues and serous membranes was an effusion of blood. The intestinal coil was the site of submucous hematoma. The diameter of the intestine was lessened by the thickening of its walls. Considering the permeability of the mesenteric vessels, a hemophilic origin was admitted.

Hemophilia is manifested, though rarely, under the form of acute exophthalmos, produced by voluminous orbital effusion of blood which is difficult to distinguish from the acute exophthalmos produced by intracystic hemorrhages in the congenital serous cysts of the orbit, as in a case observed and diagnosed by me, and in which I operated with satisfactory results, and presented afterward before the Sociedad Médica Argentina (11).

Before entering upon the study of the blood in hemophilia, I must say something of the process of normal coagulation. You know that fibrin, which constitutes the coagulum, does not exist in plasma, and is due to a ferment (fibrin ferment) that acts upon an albuminoid substance (fibrinogen) dissolved in the plasma and separated in the presence of calcium salts into precipitated fibrin and the fibrinoglobulin of Hammarsten which remains in solution. This ferment of the fibrin is produced by the white cells in the state of proferment and completed, according to Morawitz, by kinase (thrombo-kinase) produced in the walls of the vessels, perhaps also in other tissues (11), especially in the liver, which appears to be the principal place of formation of fibrinogen, because the destruction or removal of this organ lowers the quantity of

fibrinogen in the blood and makes it incoagulable, as Doyen and Nolf have proved.

Weill (12), who has devoted himself to the study of blood in hemophilia, has noted that it coagulates slowly; while normal blood coagulates in eight to ten minutes, it takes twenty-five to thirty minutes and more in hemophiliacs. There are two main theories to explain these hemorrhagic tendencies in hemophilia: 1. That based upon an especial fragility of the vascular walls; 2, that based on the difficult coagulation of the blood, whether due to a diminution or lack of the ferments which produce coagulation.

It was Magnus Huss who insisted upon some alteration of the small vessels. The muscular coat of the smaller arteries may be attenuated, partly destroyed, infiltrated at some points with fat, rendering them more fragile and less contractile. But, whence comes this lesion, and why is it localized in the smaller arteries? We do not know.

The second theory is based, 1, upon the retardation of the coagulation of hemophiliac blood, and, 2, upon the appearance, elasticity, and firmness of the coagulum. This retardation is due, not to the lack of fibrin or calcium salts, but to the lack of the ferment of coagulation (thrombin or its generators).

Now we know from experience of Weill (12) and Sahli (13) that the addition of a few drops of fresh serum¹ produces a normal coagulation of such blood, and so, if we do not neglect the state of the walls of the vessels as ascertained by histological examination, the second theory seems to be the more acceptable. Some people, founding their ideas on the fact that umbilical hemorrhages of newly born infants are not fatal until fifteen days after birth, have thought that the maternal blood had some anti-hemophiliac substance that prevents hemorrhage in infants for some days after separation from the mother. Seeing that this substance exists only in women, it is believed that its origin is in the ovary, and although it is paradoxical, we know that hemophilia shows itself, by preference, in males. On the other hand, the ovarian function is exaggerated in hemophilic women (premature period, which lasts a considerable time), and moreover it has been seen that at the cessation of menstruation, there is a tendency to hemorrhage. Nasse gives us an observation on a grandmother, daughter, and granddaughter, all hemophiliacs, two of whom died from menorrhagia.

Regarding the progress of this peculiar disease, we can say that it is variable, not always corresponding to a unique type, but rather presenting diverse types or degrees that have been excellently described by Dunn, who distinguishes the three following forms: 1. A serious form, characterized by profuse hemorrhage and arthritis; 2, a less severe form, characterized by hemorrhage into the mucous membranes and by subcutaneous ecchymosis, a form which can be cured at puberty; 3, a slight form (occurring only in women), characterized by ecchymosis and menorrhagia.

The localization in the joint in the case under consideration calls upon us to pause and consider, since it is the principal point of this lecture. I

¹The serum after fifteen or twenty days loses its properties.

thought it better, however, to say a few words about hemophilia in general before entering upon this main theme. You must know that this localization, called by the Germans *Blutergelenk*, was for a long time confounded with gout, hence its other name of *Gichtgelenk*. Wachsmuth (1840) does not distinguish it from articular rheumatism and calls it *pseudorrheumatismus* or *Rheumatismus spurius*. In 1860, some surgeons were inclined to think the origin was in the blood, and Richard Volkmann, in his book upon diseases of the bones and joints, admits that scurvy and hemophilia can be localized in the joints. Lossen agrees when he says *die Blutergelenke als durch Blutung in den Synovialsack entstandene Störungen*. Koenig (14), to whom we owe the most complete study of hemophilic arthritis, based upon eight personal observations, divides the disease into three periods: 1. Effusion of blood in the joint having the appearance of a hemarthrosis; the patient in this stage can be cured. 2. A new effusion of blood occurs, producing a panarthrosis with all the characteristics of a tuberculous joint (*Hydrops tuberculosus fibrinosus*, Koenig). 3. In this period contractures, ankylosis, and deformity of the articular extremities of the bones are present through regressive metamorphosis, and so we can sum up these periods as Koenig does: 1. The period of hemorrhage (*Hämarthron der Blutern*); 2, inflammation (*Panarthritus in Blutergelenk*); and, 3, regression, which leads to permanent deformities of the joint (*Das kontrakte Blutergelenk*).

The effusion of blood in the joint appears suddenly, as in traumatic hemarthrosis; sometimes there is periarticular, subcutaneous ecchymosis, which may be accompanied by fever (38° to 39° C.), due, as Broca has demonstrated, to the resorption of the effused blood. Though at times it is confined to one joint, hemophilia usually attacks different joints simultaneously, this occurring in twenty-eight out of thirty-two cases. Usually the first degree of the lesion of the joint is not noticed, and one first perceives it in its more advanced second stage, characterized by effusion and synovial thickening, which, as we have seen, is easily mistaken for tuberculous arthritis. Koenig exemplifies this in his history of two cases in which he operated, believing them to be affected by this localization of Koch's bacillus, both patients dying shortly afterward. You have already heard how a brother of our patient also died on the operating table in the San Roque Hospital under exactly similar circumstances. The famous German surgeon, with a courage that does him honor, has admitted his error and has insisted upon the necessity of making a most careful diagnosis in order to avoid these deplorable mistakes.

In 1880, a child of thirteen years was brought to his consulting rooms—the son of a father who had died of consumption. Six months previously his left knee had swollen, remaining flexed and in slight genu valgum; later his left foot, and finally the right knee became similarly affected. Koenig thought it a tuberculous arthritis and performed an arthrotomy. The patient died on the third day from hemorrhage. In the same year he observed the second case, which took the same

course. This was a boy of eight years, whose left knee and elbow had been swollen for three months. Koenig again made an arthrotomy, and ten days later this patient died also of hemorrhage.

It is from the experience of these two mishaps that this famous surgeon advises us in diagnosing this disease always to bear in mind, first, the history; second, that it occurs in young people and anemic males; third, that it is produced spontaneously; and, fourth, it is painless, the movements being retained and when localized in a joint, growing steadily worse.

The pathological anatomy of hemophilic arthritis has been thoroughly established by Koenig (15), based upon the autopsies of these three patients operated upon by him through faulty diagnosis. We cannot, then, do better than cite the admirable description given by this great surgeon:

At the beginning of the effusion only liquid blood is found, afterward partly discolored coagulums appear, some floating in the liquid, others sticking to the capsule. The capsule is thickened (*sukulent*, to employ his own expression) impregnated with blood pigment, and therefore colored. In some places fibrinous deposits are noticed, not only in the capsule, but in some parts of the cartilaginous surface, at times extending from one side to the other in the anterior surface. Here and there are seen fringes of a brown color. The appearance of the cartilage is altered, for it is divided into fibres and seems to have lost its substance within well marked limits. In the second period, which resembles *Hydrops tuberculosus fibrinosus*, more marked alterations are noted.

If there is no fresh hemorrhage, the effusion is not purely of blood, but serosanguineous or entirely serous slightly tinged with brown. The aspect of the joint when opened is very characteristic, showing a great quantity of floating synovial fringes of a brown color. Liusner observed in an autopsy at this stage an exaggerated vascularization of the synovial fringes.

Koenig tells us of one of his specimens where the synovial membrane was thickened and looked as if it were covered with moss. In water the fringes, brown in color and very slender, were seen to float, intermingling like the strands of a Medusa's head. The whole of the synovial membrane presented changes of color from gray to brown and reddish brown. The surface of the cartilage also was altered. It had lost its sheen and was a dirty brown red or brownish gray. At certain points the fibrous masses have pushed in the cartilage and have a tendency to transform themselves into connective tissue, being the forerunners of the articular synechias. The alteration consists in the loss of substance in maplike patches of different sizes, which penetrate to different depths in the cartilage down to the surface of the bone, occurring principally where the fibrous deposits are. As in arthritis deformans there was no alteration in the edge of the cartilage.

Histologically, the fringes show on their surface a rich granular pigment of blood, as in the depths where there are many vessels. There is also blood pigment where the cartilage has lost its substance. The effusion, except during the occurrence of subsequent effusions, which frequently happen, suffers regressive metamorphosis, which produces rigidity of the joint, either by cicatricial retraction or mechanical effects upon the limb.

The joint becomes empty and the cartilages are eroded in places and partly or wholly stick to one

another. In this period the thickening of the extremities of the joint is shown. These arthritides are soon cured and leave no abscesses or fistulas. We also see frequently a thickening of the synovial membrane and difficulty in the movements of the joint. The femoral condyles are thickened, the knee tends to be flexed, and there is retraction of the tendons of the popliteal space. The tibia is partially dislocated behind, the foot is placed in equinism, and there is a more or less appreciable genu valgum.

Radiography is most important in the diagnosis of hemophilic arthritis, as it permits a distinction from the tuberculous forms with which this disease has often been confounded. The skiagram shows, as Gocht has noted, the irregular edges in hemophilic arthritis, in place of the clean and well defined edge of the normal bone, and also thickening especially localized in the periosteum or the soft parts.

As regards the frequency with which hemophilia attacks the joints, the general opinion is that the knee is most apt to suffer, secondly the hip, next the elbow, then the fingers, the wrist, and last the ankle. The prognosis of hemophilic arthritis is variable. The acute form is nearly always cured without leaving any traces; the same thing can be said of the subacute form, but not of the chronic form in which ankylosis and deformities of the joint present an obstacle to movements and walking. A complication which one ought to bear in mind and which sometimes accompanies hemophilic arthritis is the production of osteoma. Broca (16) cites a case in which a hemophilic arthritis of the elbow was followed by the production of an osteoma of the brachialis anticus (myositis ossificans).

What can we do when confronted with a hemophilia localized in the joint? Well, there are two things to be done, one, local treatment of the joint, and the other direct action against the cause, i. e., hemophilia. Complete rest in bed, compression of the affected limb in order to assist the resorption of the effusion, and cold compresses on the joint are generally advised. We must not forget to warn the patient's family that a stiff joint may remain in the second stage of the lesion. In the case of deformity of the joint in chronic cases, it will be necessary to straighten the bent limb by continual extension or by some apparatus that will allow the patient to walk.

Regarding the treatment of hemophilia itself, numberless remedies have been proposed for their hemostatic value, for example, the lemonades, citric, tartaric, and sulphuric acids, but their action is practically nil.

Reverdin (17) in one case used with good results, sulphate of sodium in small repeated doses (0.1 gram every two hours). Knorr's antipyrin in powder has been used locally, also cocaine in strong solution, one to ten and one to five, perchloride of iron, oxygenated water, acetate of lead, and ergotin in draught or subcutaneous injection, one grain and more a day.

Samuel Lane has also practised transfusion of blood. Others have tried artificial serum (five to ten per cent.), calcium chloride in a draught one to two grams a day, and adrenaline, applied both locally and internally. Gelatin, introduced into

hemostatic therapeutics by Carnot in 1896, has undoubtedly a great hemostatic and coagulating power. The injection in itself is practically painless, but it is accompanied by a slight and unimportant fever. Apparently this substance acts directly upon the leucocytes, producing hypersecretion of plasma and at the same time a marked leucocytosis. These injections involve at first some danger of tetanus, but this can be avoided by sterilizing them at a temperature of 100° C., up to which they do not lose their hemostatic power.

Some physicians have used with good results the peptone in injection recommended by Witte:

℞ Witte's peptone, ...5 grams;
Sodium chloride, ...0.5 gram;
Distilled water, ...100 grams.

Sterilize in autoclave at 120° C. for one quarter hour; inject ten to twenty c. c.

But better than all of these remedies is the action of fresh serums. For example, antidiphtheritic serum has been tried with success, and this has the advantage of being obtainable anywhere and being easy to handle, but, on the other hand, often it is not fresh, when its action is inefficacious.

Now we have seen that Weill in experiments made *in vitro* with fresh rabbit serum, obtained remarkable results in the coagulation of hemophilic blood. Putting a certain quantity of hemophilic blood in a test tube and adding some drops of fresh serum, he produced normal coagulation. Later he applied this result to patients with marvelous success. This can be proved experimentally by making rabbits hemophilic with injections of peptone or hirudin, the active principle of the leech. Among ourselves we have Pasalacqua, who has written a thesis upon hemophilic serotherapy (1908). For adults he has employed doses of fifteen c. c. of fresh serum, injected into the veins, or doses of thirty c. c. for subcutaneous injections; another injection may be made two days later. For children, the doses should be half this quantity. He advises us not to use the ox serum, which has caused complications, such as high fever, vomiting, chills, and cyanosis, and advocates fresh rabbit serum taken aseptically from the carotid artery.

This is the remedy which we have successfully employed in the case of our patient, as you have learned from his clinical history. Nolf and Herry have noted that the extract of organs (spleen, lymphatic gland, thymus) acts locally in a more effective manner against hemorrhage, but its application must be immediate, since the extract decomposes very soon, thus losing its hemostatic properties. Trembour, of Jena, observed, after injection of serum into hemophiliacs, a considerable leucocytosis of neutrophile polynuclears and lymphocytes, and admits that its favorable action is due to leucocytosis. The leucocytic ferments intervened to increase the coagulability of the blood. The modification which serotherapy gives to the blood liquid is noted twenty-four hours after the injection, and the coagulating action lasts about a month. The coagulating action of serum is also local. Broca stopped a hemorrhage of the gum and one finger by local application of serum. Weill's treatment is therefore the best since, although it does not actually cure hemophilia, it prevents, and up to a certain

point, cures one of the most serious symptoms—hemorrhage.

A final consideration before we finish: Can we operate in hemophiliac cases? You have seen that Koenig lost two patients, believing them to be affected with tuberculous lesions of the joint. Pincet, of Lyon, lost a patient through merely applying the Paquelin cautery, and Dahlgren (18), of Upsala, also lost two hemophiliacs two days after operating upon them for urgent appendicitis. Now, I believe that we may always operate, even in urgent cases upon hemophiliacs, preparing the ground beforehand as is done in cases of diabetes. Therefore, before beginning an operation in a suspected case, we should make several injections of fresh serum which, as we have learned, take effect within twenty-four hours; this rapidity of action allows us, in the majority of instances, to operate even in emergency cases. Therefore, in cases of appendicitis, strangulated hernia, etc., we ought to prepare the patient beforehand with injections of fresh serum, and thereby avoid the serious complications which operating in hemophiliac cases may involve.

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PAINS ANOMALOUSLY DISTRIBUTED IN CARDIOVASCULAR DISEASE.*

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It is a well known fact that precordial pain, whether persistent or paroxysmal, is likely to become a disturbing and distressing factor to the minds of most patients. When these pains persist without a pathological substratum, and are associated with palpitation or any subjective symptom referable to the heart, autosuggestion soon makes the patient exceedingly wretched. In some, these anomalous pains with few cardiac symptoms depend upon anemic and hysterical conditions. In other cases, rheumatic and gouty conditions give rise to painful subjective symptoms; in all these the nervous element is in the ascendant. "Nervous cases" are not as frequent as has been supposed. Pain

which persists in the precordial region, which is associated with irregularity of the heart, with rapid pulse or occasional shortness of breath, even without convincing physical signs, requires close watching and will ultimately be found dependent upon some abnormality of the heart, either of its musculature or of its arterial or nerve supply. We must look with suspicion upon precordial pain associated with palpitation, *without prominence of the eye*, with marked or little change in the thyroid, with or without the Graefe symptom, for we are becoming more and more convinced that these symptoms are due to atypical Graves's disease, and that many of these cases remain unrecognized. In the early and late stages of exophthalmic goitre, often with changes in the musculature of the heart, precordial pain may be present and needs to be correctly interpreted.

The writer wishes still further to emphasize the frequency with which pain in any of the anterior thoracic regions, usually in the precordial, is associated with myocardial weakness and degeneration, at a period often preceding by many weeks the positive and other subjective symptoms of this serious condition. Embryonal heart sounds in the adult, with associated dyspnea and pain, are always suspicious of degenerative changes in the heart muscle associated with vascular anomalies. Nothnagel wisely asks the question, "Why do not these so called dry pleurisies, rheumatisms, and neuralgic affections occur as often on the right as on the left side? Why not posteriorly?" We cannot possibly ignore the cardiac origin of many vague and unexplained pains. The end often proves that our fears were well grounded. Valvular lesions are by no means free from precordial and referred pains. Nothnagel's statistics of 483 valvular diseases of the heart furnish interesting data. He found the following proportion of painful cases:

In aortic insufficiency	60	per cent.
In aortic insufficiency with stenosis.....	68	per cent.
In aortic stenosis alone	40	per cent.
In aortic and mitral insufficiency.....	18	per cent.
In mitral insufficiency	7.66	per cent.
In mitral insufficiency with stenosis.....	17	per cent.

These figures do not vary materially from those which we might furnish. In aortic insufficiency, the force with which the heart strikes the chest wall often adds an element of discomfort referred to the intercostal and pectoral muscles. The character of the pains with valvular lesions varies materially. At times the pains are severe, burning, boring, tearing, or even pulling, or there is a persistent pressure as if a weight was resting on the sternum. Painful tremor referred to the heart is not infrequent. In some cases there are areas of hyperesthesia. Sée (2, p. 389) says there is a "cardiac stitch" in the side as positive as the "stitch of pneumonia."

Irregular and intermittent hearts with cardiac tumult are frequently associated with pain, either in the region of the heart or at a distance. This pain often increases as hypertrophy of the organ progresses. Sudden, severe, and alarming pain in the precordium, occasionally in the neck, accompanies each intermission in some cases and makes the patient conscious of a halting heart. An annoy-

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ing complication in these cases is nervous dyspepsia with associated gastrectasia. Pain in these cases may often be paroxysmal and severe and is likely to be associated with great faintness. The pain does not radiate as in angina pectoris, there is less pang and fear of impending danger, but it is likely to cause more lasting depression, though less fear of recurrence.

The failure to interpret the meaning of anomalous pains with symptoms of so called cardiac neurosis, intermission, arrhythmia, occasional accentuation of the aortic second sound, with at times the presence of an aortic systolic murmur, has resulted in many sudden deaths. There is a class of cases in which the blood pressure is normal, there is pain in the precordium, anemia with numbness, vertigo, a sense of weight rather than pain in the region of the heart, no murmur, a small pulse and a rapid heart during a long period, then dyspnea, aggravated by movement of the arms in which there is myocardial degeneration. The diagnosis is not made until the disease is far advanced, unless one is alert. Some cases with the heart muscle degenerated, may show high blood pressure even in their terminal stages. In these conditions the early diagnosis is all important; they remind one of the truth of Stokes's dictum "that the key of the heart must always be found in the heart muscle." The memory of this great clinician as well as that of Skoda we shall always revere for their insistence upon a thorough study of the vital and physiological functions of the heart muscle and their emphasis on the fact that we can conclude as to the strength or weakness of this organ only after a thorough study of its musculature. There is a class of myocardial degeneration associated with slight degenerative changes of a sclerotic nature in the smaller arteries of the heart, in which there are transitory dilations of the left ventricle, giving rise to evanescent systolic murmurs. These may be associated with severe precordial distress at times, particularly if of specific origin. As the tone of the heart improves, the pains yield, the dilatation and the murmurs disappear. When these cases occur in young subjects, they are of either toxic or specific origin. If not relieved they lead to marked muscular insufficiency and frequent attacks of angina pectoris, and are often associated with aortic disease. In hysterical young women we frequently have complaint of painful pulsation referred to the abdominal aorta in the epigastrium. Sometimes there are vague neuralgic pains radiating from this point. In a number of these cases a systolic bruit is heard over the pulsating area, which may lead the inexperienced to diagnosticate abdominal aneurysm. In most of these cases, the tense abdominal wall with the pancreas and stomach overlying the aorta, simulate a tumor. However, the absence of expansile lateral pulsation and the bruit posteriorly must always argue against the presence of aneurysm. In none of these cases have patients complained of pain radiating into the back, nor have I been able to find a spot of local tenderness posteriorly. Partial rupture of the heart may be associated with marked sensory symptoms—pain particularly.

CASE I. A man, aged sixty-six years, previously well, was suddenly seized with excruciating precordial pain with

fear of impending death. When seen he was in collapse, but rallied. Pulse small, 130, respirations 40, temperature 97.2° F. Ten days later, the patient died with similar symptoms, but greater anemia, in collapse. The post mortem examination showed a heart in which there was a partial rupture of the left ventricle anteriorly almost through the myocardium, with an organized blood clot and a small but complete rupture of a dilated thin heart, also in the left ventricle, which caused death. Arteriosclerosis was general. The first pain was undoubtedly coincident with the partial rupture ten days before the end.

CASE II. Man, aged about sixty-four years, suffering from cardiac dyspnea; while in attendance, he was suddenly seized with severe agonizing pain in the region of the heart, with great fear. He died within ten minutes after the beginning of this dreadful suffering. The post mortem examination showed advanced degeneration of the heart muscle, which was thin and dilated, with partial rupture of the left ventricle anteriorly. The heart muscle at this point held a large blood clot.

CASE III. Woman, aged seventy years, another interesting experience with heart rupture, occurring while I was attending her for gallstone colic. Suddenly, as the pain of the colic began to yield to morphine hypodermically, she complained of excruciating pain in the region of the heart. In five minutes she expired. The post mortem examination showed rupture of a fatty left ventricle anteriorly, the heart wall unusually thin, indeed like tissue paper. A large amount of blood filled the pericardium. A gallstone was held in the cystic duct.

Pain referred to the thorax with dyspnea, with or without physical signs, aggravated by movement of the arms upward, may be considered to be of cardiac origin in most cases, particularly if such movement increases dyspnea at the same time. As experience grows and exact methods lead to more accurate conclusions, we hear less of pseudoangina. It would be easy for me to count on the fingers of two hands the cases originally diagnosticated as pseudoangina in my practice and on the fingers of one hand the cases in which that diagnosis was not ultimately changed to other more probable conditions. Rasch's (3) conclusions that pseudoangiosclerosis is always associated with dyspnea, and his dependence upon an almost normal blood pressure, are fallacious.

Systematic blood pressure study in almost all cases, has convinced me that arteriosclerosis is not always associated with high systolic blood pressure, and that the teaching of Allbutt which was controverted by many, is positively correct. While in the majority of cases, arteriosclerosis is a condition with high blood pressure, the exceptions are of sufficient frequency to demand consideration in diagnosis. Stengel (4) and others have subscribed to this fact.

Most of my cases of so called pseudoangina, not neuroses, proved ultimately, if in young subjects, to be due to cardiac syphilis with arterial and consecutive myocardial degeneration; in older subjects, to true angina dependent upon coronary changes. Sée (2), in discussing this subject, says that it is as ridiculous to speak of a pseudoangina, which must of necessity include a possible pseudosclerosis, as to consider gallstones and pseudogallstones. All of the factors which have been mentioned by writers as causing the pains and symptoms of pseudoangina pectoris, including gout, diabetes, and alcohol, may be considered leading factors in the causation of sclerotic arterial change. Anomalous thoracic pains, therefore, even in subjects who have used tobacco excessively, with normal or high blood

pressure, simulating angina pectoris, are not to be lightly regarded, for in most cases there is a grave basis in pathological change.

The following is an interesting and important group, demanding consideration:

1. Cases in which arterial changes are mainly limited to the abdominal vessels with sensory symptoms referred to the abdomen, associated with marked digestive disturbances. This condition Ortner (5) has named *dyspragia intermittens angio-sclerotica intestinalis*.

2. Cases which simulate those above mentioned, in which there is so called subdiaphragmatic angina pectoris due to coronary disease, without marked changes within the abdomen, either in the organs or in their nutrient vessels.

3. Cases in which there are associated changes of a sclerotic nature in the coronaries and abdominal vessels, causing both thoracic and abdominal symptoms.

1. An abstract of the clinical history with post mortem examination of a case, must serve to illustrate:

CASE IV. Five years ago a woman, aged sixty-four years, prematurely old, had symptoms which had been diagnosticated as gastralgia. Her digestion had always been good, she had never suffered from gallstones, never had sensory symptoms referable to the upper abdominal regions. The pain was not persistent, but recurred in paroxysms, was aggravated by the taking of indigestible foods, and usually also by walking after a hearty meal. There was a great deal of flatulence, the intestines were abnormally distended, the bowels constipated, the odor of the stool was foul and characteristic, the pulse showed high tension, the second aortic sound was accentuated, left ventricle hypertrophied. There never had been an attack resembling angina pectoris, only pang, which became severe and alarming, was associated with the abdominal pain. These pains finally increased in severity and frequency. Her suffering was as acute as any I have ever seen with true angina. She died suddenly after one of these attacks, of cerebral hemorrhage. The post mortem examination showed changes, both macroscopic and microscopic, of advanced arterial sclerosis, involving the superior mesenteric artery and its branches. There were changes in the celiac axis of a sclerotic nature. The arteries were most narrowed at their origin. The smaller twigs were blocked. In many of the vessels within the abdomen, there were plaques of lime deposits. The coronaries were open and not materially changed. The heart was moderately enlarged.

I have at the present time a woman under observation, who undoubtedly has this condition, whose pains are aggravated by walking up hill, or on exercising after taking food, who at times has abdominal angina during the night which becomes alarming and which is persistently associated with all of the symptoms of gastrointestinal indigestion mentioned in the case already cited. The blood pressure is uniformly high. Pal's (6) experiments on animals prove that contraction of the intestinal vessels gives rise to conditions corresponding exactly to those found in man with changes in the lumen of the vessels of sclerotic nature. We are learning more and more of the symptoms due to changes in the smaller arteries within the abdomen, from clinical and pathological study, for these cases are not infrequent and may be strongly suspected during life.

That there are cases of angina pectoris simulating the condition just considered there can be no doubt. These have been considered by some under the head

of subdiaphragmatic angina. In these cases the symptoms referable to the digestive organs are fewer. The pains are more likely to radiate upward toward the sternum, are provoked by excitement, walking, full meals, and strain of any kind; particularly mental unrest. These are not associated with characteristic foul odored stools. Aortic lesions and the usual pathological conditions of ordinary angina are positive. Blood pressure is usually, but not always high. Too much importance must not be given to this fact. It is not uncommon in this class of cases to find attacks provoked by straining at stool or even by ordinary exertion during defecation. In two cases seen within the past year, attacks of angina pectoris were provoked by defecation, and one of the patients died in a typical attack which began as a subdiaphragmatic angina, but ended with all of the painful symptoms of typical angina pectoris.

During the past ten years, I have gathered the records of a number of cases in which there were attacks of both abdominal and coronary angina and in which the symptoms of one or the other condition were often in the ascendancy. In some, the pain began in the abdomen, but was finally associated with characteristic radiation into the cervical and brachial plexuses. In those cases in which we had post mortem examinations, there were changes due to arterial sclerosis of the abdominal vessels; the coronaries and the heart muscle were also involved. In one of these cases the early pain in the individual attacks was localized in both shoulder joints.

It is all important to recognize the presence of arterial sclerosis of the smaller abdominal vessels during life, for the fact has been pretty thoroughly established by the Leipsic school that these changes are largely responsible for ultimate change in the heart. It has always seemed to me that Nothnagel's (8) characterization of pains due to vascular disease as "vascular cramp" or "spasm" is particularly happy. These cases have been compared with intermittent claudication. There can be no doubt of the fact that, under some conditions where the lumen of arteries is constricted, spasm is frequent, a true ischemia follows. Consecutive symptoms are largely dependent upon the resulting anemia. One of the most convincing arguments in favor of this origin of angina, whether abdominal or thoracic, is found in Ortner's article in which he makes a strong plea for this theory. He cites a case reported by Wagenmann (7) in which a man sixty-three years of age with far reaching arteriosclerosis, during two months showed symptoms of paroxysmal blindness in his right eye. This recurred at intervals of from two to four days and severe attacks alternated with some of milder character. At times, vision was lost only during a few moments. At other times, the blindness persisted almost an hour. There were no evidences of glaucoma, inflammation, or other disease. During one of these attacks, Wagenmann was present and able to make an ophthalmoscopic examination. He found total amaurosis and loss of reflex of the right pupil. The arteries of the background were transformed into threadlike shining yellow strands. Normal pulsation had ceased. The veins resembled threadlike

red strings. Pressure on the eye did not cause arterial pulse. This condition continued during ten minutes, when Wagenmann was again able to recognize the filling of the arteries and the consecutive dilatation of the veins. With this phenomenon, the patient's vision was restored. In other words, the circulation during the attack was positively inhibited. It is not at all unlikely that in the cases to which I refer, with grave arterial change, the anomalous pains are associated with what might be considered a true ischemia.

The subject to which I have called attention is so broad and complex that it cannot be fully or satisfactorily considered within my space limit. My object has been to call attention to clinical experiences, believing that these serve to show how costly they may be if not properly interpreted. The unguarded diagnostician is strongly tempted to reach conclusions based upon sensory symptoms that are many times misleading because distant from the seat of actual disease. Let us always give the greater value in diagnosis to physical signs, which, properly interpreted, cannot mislead us; at the same time, we are not to lose our balance by one sided reasoning. The philosopher emperor, Antoninus, wisely said: "There is in man, that is in the reason, the intelligence, a superior faculty which, if it is exercised, rules all the rest."

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FAYETTE PARK.

THE TREATMENT OF CANCER BY ELECTRICAL METHODS.

With and Without Surgery and Radium.

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General Memorial Hospital.)

The electrical methods employed in the following series of cases were deep Röntgen therapy, fulguration (De Keating Hartt), desiccation (Clark), and diathermia (Nagelschmidt). These therapeutic agencies were combined with surgery, radium, toxins, and vaccines when such adjuvants were indicated. The results obtained were due, not so much to any originality of methods as to the correlation of very excellent methods which have already been described, but are little understood and seldom used by the profession at large. Inasmuch as we have been treating these cases only during the past eighteen months, sufficient time has not elapsed to warrant any final statement concerning the successful cases, other than that they are now symptomatically well.

For our purposes malignant lesions may be divided into three classes, i. e., those in the first, second, and third degrees of malignancy.

I. THE FIRST DEGREE OF MALIGNANCY.

(a) Cases having superficial skin lesions tending to extend out from the skin rather than into the underlying structures. (b) Those which do not extend more than one cm. beneath the skin. These are characterized by slow growth, long duration, and a tendency not to metastasize early.

Histological characteristics. Growths of this class of malignancy in our series showed the histological formation of papillary epithelioma, basal celled epithelioma, mycosis fungoides, and pre-epithelial keratoses.

Prognosis. The prognosis of such cases treated by the foregoing methods is 100 per cent. good. They can be cured by physical methods, without surgery, pain, hemorrhage, opening up the lymph channels, danger of infection, implantation of malignant cells, or hospital confinement, and with the best cosmetic results.

Therapeutic methods. These cases should not be treated by cutting operations. The physical methods indicated in the order of their preference are:



Before treatment. FIG. 1. After treatment.
First Degree of Malignancy.
Superficial epithelioma of the nose. Complete recovery under massive röntgenotherapy.

(a) Massive doses of Röntgen rays; (b) desiccation; (c) radium; (d) destructive caustics, provided the more expensive equipments are not available.

If improperly treated or neglected, these cases may develop into cases of the second or third degree of malignancy.

2. THE SECOND DEGREE OF MALIGNANCY.

(a) Those operable tumors which tend to extend rapidly into the deeper structures, are characterized by rapid growth and tend to metastasize early. Carcinomata of the breast and operable sarcomata are very good examples of this class.

Histological characteristics. Growths of this class of malignancy in our series of cases showed the histological formation of basal celled epithelioma, and alveolar and medullary carcinoma of the breast.

Therapeutic methods. This class of cases should be treated by the following program: (a) Preopera-

tive massive doses of Röntgen rays; (b) thorough radical operation; (c) fulguration at the time of operation; (d) postoperative deep röntgenotherapy or radiotherapy. By the use of these adjuvants to



Before treatment. FIG. 2. After treatment.

First Degree of Malignancy.

Case of mycosis fungoides, in which the lesion on the right temporal region was treated by surgical removal and skin grafting. The lesion on the left temporal region was treated by massive röntgenotherapy. The lesions on the cheeks and neck were treated by desiccation. The best cosmetic results were obtained by radium, desiccation, and massive röntgenotherapy. When the second photograph was taken, the patient was still under treatment. The mycosis lesions have all disappeared since that time.

surgical treatment, the percentage of recovery in this class of patients has been materially improved.

3. THE THIRD DEGREE OF MALIGNANCY.

Inoperable superficial and deep malignant conditions.

Prognosis. These patients as a rule cannot be cured by any method of treatment and are undesirable subjects, as the ultimate prognosis is 100 per cent. bad.

Therapeutic methods. The symptoms can usually be improved by electrical methods and radium. The foregoing division of all cancers into three

classes of malignancy, is valuable for determining both the prognosis and the treatment. Cases of the first degree of malignancy *can* be cured; cases of the second degree of malignancy *may* be cured; cases of the third degree of malignancy *cannot* be cured. Much time may be lost in cases of the second and third degree of malignancy and the patient's life endangered if one is deceived by the well known superficial healing properties of radium as well as of the x rays. The fact that lesions of the second degree of malignancy appear at first to improve under treatment indicated only for cases of the first degree, gives a false sense of security and results only in therapeutic procrastination.

Of the first degree of malignancy we had thirteen cases, nine of which have been symptomatically cured under massive doses of x ray, four of which are symptomatically cured with radium, and one of which has been symptomatically cured under the



Before treatment. FIG. 4. After treatment.

Third Degree of Malignancy.

Case of primary lymphosarcoma of the tonsil, involving the cervical glands. Treated at first by toxins with slight if any improvement. Within forty-eight hours after the first massive dose of deep röntgenotherapy, the size of the tumor had diminished fifty per cent. Under the combined treatment of toxins and x rays, patient steadily improved to the condition shown in the after treatment illustration. He subsequently relapsed and failed to respond to any treatment. This is commonly the history in cases of lymphosarcomata, Hodgkin's disease, leucemia, and allied conditions, i. e., marked primary improvement progressing often to apparent recovery, but, as a rule, these patients die sooner or later of the condition despite all changes in the technic, including raying of the long bones. In this class of cases every effort should be put forward to make permanent the initial good results.

combined treatment of massive doses of x ray and radium.

Of the second degree of malignancy, we had a total of ten cases, four of epithelioma of the skin and six of carcinomata of the breast, all treated by a combination of massive doses of x ray, radical operation, and fulguration, followed by massive doses of x ray or radium. Three of these patients are still under treatment, five have been discharged symptomatically cured, and two have discontinued treatment. All of those patients who have continued the treatment are symptomatically well, although sufficient time has not elapsed to warrant the statement that they have been completely cured.

In the third degree of malignancy we had 116



Before treatment. FIG. 3. After treatment.

Second Degree of Malignancy.

Case of epithelioma of the nose in a patient suffering from extensive lupus (nonulcerative). The tumor developed on the nose after a local treatment of the lupus with carbon dioxide snow. The epithelioma was removed surgically, the base fulgurated (De Keating Hartt), followed by massive röntgenotherapy. The lupus was treated by massive röntgenotherapy, the resistant edges being controlled by desiccation (Clark). An artificial nose has since been fitted and the patient makes a very presentable appearance.

cases, divided into groups according to the accompanying table:

Diagnosis.	No. of cases.	Symp'y well.	Im-proved.	Unim-proved.	Dead.
Epithelioma	21	0	4	10	8
Carcinoma of breast.....	22	1	3	9	6
Lymphosarcoma.....	11	1	4	3	3
Round celled sarcoma.....	2	0	0	2	0
Spindle celled sarcoma.....	9	1	3	3	1
Chondrosarcoma	1	1	1	0	0
Melanosarcoma	2	0	0	1	0
Miscellaneous sarcomata	7	0	3	3	0
Hodgkin's disease	5	2	3	0	2
Chronic lymphatic leucemia.....	1	0	1	0	0
Carcinoma of uterus.....	10	0	2	2	2
Miscellaneous tumors	25	0	0	5	15
	116	6	24	38	37
Percentage	..	5.8	20.	32.2	32.

INTERNAL TUMORS.

The only hope for the relief of internal growths is to diagnose them in their incipency. By the proper use of the Röntgen rays, a positive or negative diagnosis of carcinoma or ulcer of the gastro-

palliative effects possible for external tumors of the second and third degrees of malignancy, so that they may be regarded as actually remedial. 3. The diagnosis and early surgical removal of ulcer bear-

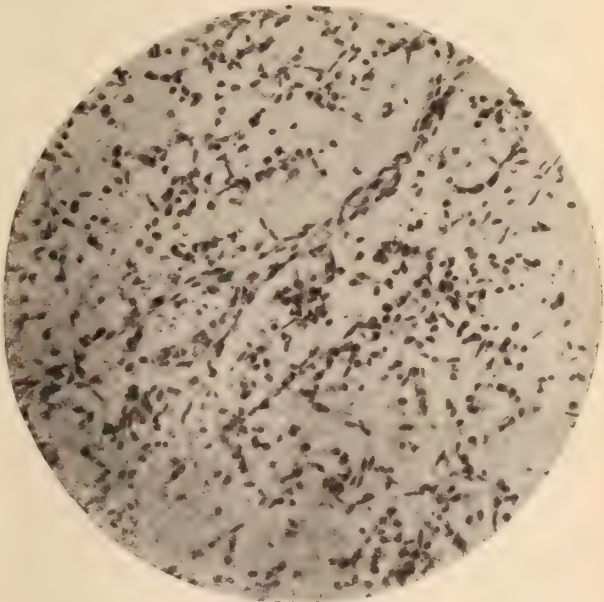


FIG. 5b.—Photomicrograph of conditions shown in Fig. 5a.



Before treatment. FIG. 5a. Photomicrograph.

Third Degree of Malignancy. Case of myxolymphosarcoma. Extensive tumor of the right thigh and large mass, filling half of the abdomen on the left side. It was impossible to remove all the tumor tissue from the thigh at operation, and no surgical removal of the abdominal mass was attempted. Postoperative deep Röntgen therapy caused the complete disappearance of all evidence of both the tumor masses so that the patient is today symptomatically well.

intestinal tract can be made in the earliest stages of the involvement. Furthermore, its size, shape, and position can be determined, painlessly and without shock or danger. This accurate information affords an opportunity for the early and successful removal by surgical operation of the cancer or ulcer bearing area, reducing, moreover, the time required for surgical examination and operation and consequently the amount of shock entailed, so that the percentage of recoveries after surgical removal is increased.

The problem of handling malignancy today resolves itself, therefore, into: 1. The proper treatment of external cases of the first degree of malignancy, lest they develop into cases of the second and third degree of malignancy. 2. Increasing the

ing areas and malignant conditions of the gastrointestinal tract in their incipency.

CONCLUSIONS.

1. Incipient surface cancers can be cured (a) if superficial—by physical methods; (b) if deep—by physical methods and surgery.

2. The physical methods employed include massive x ray doses, desiccation (Clark), fulguration (De Keating Hartt), diathermia (Nagelschmidt), and radium.

3. Beginning cancer of the gastrointestinal tract can be diagnosed with accuracy by recently improved x ray methods.

4. Advanced cancer either internal or external cannot be cured.

5. The successes herein reported are due not to the discovery of any one new factor, but rather to the combined application of the best and most efficient electrophysical technic, both in early diagnosis and prompt treatment. The results of which, if permanent, are invaluable.

6. The methods herein advocated are very costly.

7. If this work is to be continued, sufficient money must be raised to carry it on. This means, for institutions proper endowment; for individuals, the establishment of adequate fees.

I wish to thank Dr. James Douglas, Dr. James Ewing, and Dr. Lewis Gregory Cole, without whose cooperation and inspiration this work would



FIG. 5c.—Condition after treatment.

have been impossible. I am grateful to the members of the commission and the staff of the General Memorial Hospital for their cooperation, and particularly to Dr. Samuel Brown and my assistants in the electrophysical department for their faithful and painstaking work.

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AN INTERESTING CASE OF HERMAPHRODITISM.

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Reviewing the literature carefully, I have been unable to find an abnormality which just parallels the one herein described. Hermaphroditism is found in varied degrees so far as external evidence is concerned. Its influence upon the body economy varies with the degree. So far as external evidence is concerned, this case is in no wise atypical from the average hermaphrodite. Vaginal formation was of a degree to warrant the patient in question being classed among the weaker sex. She had been socially trained and dressed as a female.

CASE. Miss E., referred by Dr. G. S. Bailey, of Hillsboro, N. H., aged twenty-seven years, single, housekeeper. Family history, negative and unimportant. Past history, usual diseases of childhood. Birth normal; no severe ill-

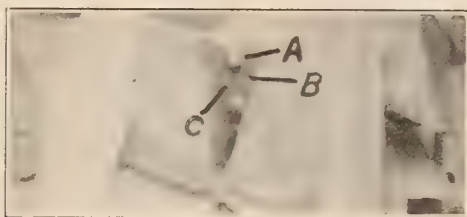


FIG. 1.—Perineal view at time of operation. A, penis; B, labia; C, introitus.

nesses or accidents. Next to the oldest of ten children, none of the others similarly formed. She was very bright up to seven years of age, when she had an attack of epilepsy. This recurred weekly up to ten years of age, when menstruation became established. At this time the epileptic attacks seemed to have been severe, occurring oftener and continuing longer. From that time to the present date, these attacks have come with more or less regularity, varying from one to three a week. Following each attack she would be weak and prostrated. Since seven years of age her mentality has not developed as in normal individuals.

Present illness was merely a continuation of the epileptic

attacks. She was sent in by Doctor Bailey for the express purpose of having a hysterectomy, with the hope that such a procedure would forestall, or at least ameliorate the psychical condition.

Physical examination: Features partly masculine. Voice masculine. Skin coarse, eyebrows heavy, hair coarse and wiry. Shoulders, chest, arms, forearms, and hands masculine to a marked degree. Heart and lungs negative. Abdominal organs negative. Mammary glands not well developed. Abdominal wall muscular, thighs large, and pelvis broad and flaring. No enlarged glands or ascites. The labia were of normal conformation and size. Where the clitoris is normally located, was suspended a fully developed penis such as is ordinary in a boy of eight or ten years.

The introitus was the size to admit two fingers fairly easily. The hymen was intact.

Ocular examination with the speculum was impossible without an anesthetic. Under ether, the vagina was found to be shallow and infantile. There was no cervix uteri. The os was merely an aperture in the vault of the vagina. This aperture seemed to pierce an area of indurated or thickened tissue, apparently an attempt at cervix formation.

Bimanual examination revealed an oval mass in place of a uterus. The tubes and ovaries were not well felt. The condition of affairs was fully explained to the family. They desired an operation as recommended by Doctor Bailey, namely a panhysterectomy and resection of the penis. No promises were made as to prognosis of the epilepsy. The purpose of the operation, however, was to see what influence such a procedure would have upon her economy. She certainly could not be made more miserable by such a procedure.

Operation at the Notre Dame hospital, May, 1914. The clitoris or penis was resected and the base made flat by suturing. Following this a suprapubic panhysterectomy was done, all raw surfaces were covered over, and the wound was closed in the usual manner.

Macroscopical examination revealed a perfectly globe shaped formation for the uterus; no cervix existed. This body was the size of a large peach. The tubes were of normal size, length, and form. The left ovary was the size of a small hen's egg. It bore multiple cysts. The right ovary was of normal size and consistence. Attached to this ovary was a firm, pearly white mass the size of a big walnut; this was incised and revealed a structure resembling testicular tissue. Microscopical examination of this confirmed the suspected existence of a third gland, namely, a testicle, well formed and complete.

The patient made an uneventful recovery. During the convalescence of three weeks she had three epileptic attacks. During this period, beside the ordinary tonic and supporting medication, corpus luteum extract was given in five grain doses four times a day.

She was discharged and returned home to Doctor Bailey's care at the end of this period. At this time she was feeling quite well. Since her discharge Doctor Bailey reports that she has had an

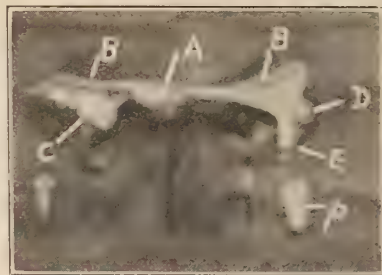


FIG. 2.—Specimen en masse after removal. A, uterus (note globular shape, no cervix); B, normal tubes; C, left ovary (multiple cystic degeneration); D, right ovary (normal size); E, testicle (attached beneath right ovary); F, resected penis.

occasional attack, possibly less severe than previous ones. Just what benefit she will derive from the procedure time alone can tell. Certainly proper supervision as to hygiene, diet, etc., may give us some hope for a clearer future.

The particular oddity of this case resides in the well formed testicle in close proximity to the right ovary. In this feature, the writer believes the case to be unique, as a review of the literature has not revealed similar cases. It would be of extreme interest to hear of other cases, which possibly have not been reported.

967 ELM STREET.

EFFICIENCY AND THE QUALITY OF LIFE.*

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Baltimore.

For many generations a very just criticism of the scientific type of mind has been its tendency to dabble too much with detail and rather to shun a more philosophical consideration of the natural or unnatural conditions which promote or retard the growth of an individual or race. I have purposely selected a subject which in a narrow sense is not, strictly speaking, a medical one. From a broad standpoint, however, it must greatly concern the physicians of the future on whose labor, instruction, and influence the fate of many life problems must necessarily depend.

I ask the pardon of those who will object to the rather pessimistic point of view taken and justify myself merely by the statement that no life progress is possible in a community where everyone is satisfied with the conditions. I certainly am not, and for this reason have repeated, by way of emphasis, one or two statements made in a former paper, believing honestly that they are suggestions which have proved of some value to a few people. A biologist once said that the human race owed its very origin to a discontent. Certain monkeys, tired of climbing trees, determined to walk erect. He was speaking in jest, but his words contained a fundamental truth, which has been illustrated throughout all ages.

I have selected as the title of my paper Efficiency and the Quality of Life, firmly believing that the first attribute is dependent almost entirely on the second. Thus Dr. Samuel Johnson (*Irene*, Act 3, scene 6) cautions us to

Reflect that life like every blessing
Derives its value from its use alone.

The great scientist, Sir Oliver Lodge, said truly "that science does not take into account sufficiently the general beauty of things." Natural selection may explain satisfactorily the varying colors of insects and birds, etc., but what about our landscapes, the mountains and valleys with a background of beautiful clouds, the sunset at sea, what is their meaning, what do they stand for, what is their purpose?

Medical men have studied for centuries the various phenomena of life in its many phases, but have too long neglected the problem of life quality,

its protection and propagation, its beauty and the force of its example. Modern eugenics is a vain protest against existing conditions, in which we hope by careful selection to improve our race material. A crusade for wiser marriages, however, is not nearly as important as the education of parents in the principles of mental hygiene. It is also true that we may have the best of materials, yet create nothing, owing to faulty methods of building. We are probably marring (like the landscape by our billposters) our race quality and general efficiency by these signs of the times, the many "isms," the hysterical cults and rattle brain theories of our present day, the result of improper training.

We must, therefore, first protect ourselves, as much as possible, from all these wild leaps in the dark, from all pernicious foreign influences and foolish panaceas, and then determine how we can preserve and cause to develop in our children those qualities which are best for the race. It is only through posterity that we can hope to offset the bad traits we have ourselves acquired, and which we are too prone to excuse, by the adoption of some fallacious idea, in the effort of self justification. Self, that is the keynote to the present situation, it is the moving spirit in practically every modern movement of any importance. I doubt if ever in the world's history the civilized nations have had a greater need of more unselfish living and teaching, of greater patriotism and love of country and home, than at the present time.

Modern civilization has concerned itself too much with present conditions in its attempted cure of all social evils, by education and various forms of philanthropy, and has considered too little posterity and the great responsibility of race regeneration and preservation which comes to us with every intellectual stride forward more and more clearly as the unselfish mission of advanced culture.

We have in life insurance and in bequests to charitable enterprises, etc., undoubted signs of our awakening to this impulse, which the love of our children, our friends, and country has first inaugurated. There is, however, a broader, more humanitarian outlook, braver than any other, because so unselfish, which is the pride in race and which considers above all the quality of human life rather than the conditions of living. The expression of this is exemplified in the courage of the mother who sends her sons to the war, the father who dies for his home, and the fate of the many heroes who so bravely gave up their lives in the recent tragic disasters on land and sea.

It remains for us as exponents of the best schools of science, art, and literature, as those who have had the good fortune to grow up under the most modern and beneficial influences, to endeavor to find out and then teach our brothers how this race quality can best be utilized, augmented, and handed down to the advantage of posterity and not wasted. The very qualities which make a man or woman desirable in a community are often unfortunately those which help to cut short their lives and keep them from giving to posterity that which would be most desirable. Wars too often kill off the flower of a country; epidemics are prone to select the unselfish and neighborly.

*Read before the Baltimore County Medical Association, March 18, 1914.

Our boasted civilization will come to naught, and our philanthropic enterprises in every direction will be futile if we, in the interest of improving the condition of life, neglect to improve the quality of life. This is the great responsibility which rests heavily upon our shoulders today. Unfortunately there is no evidence, according to the eminent English authority, Dr. Havelock Ellis, that the human race has improved much in quality in the last one hundred years; in fact, it is rather otherwise. In his book, *The Problem of Race Regeneration*, he demonstrates that wild philanthropies, often by making people too dependent and by preventing their elimination, which a struggle for existence would necessitate, are actually decreasing the average of human efficiency and lowering the quality of human life. He shows that our increasing population of feeble minded and inefficient is today the great menace of race regeneration. As he puts it, we must concern ourselves less with the "unemployed than the unemployable," the real danger. In the United States today there is about one mental defective to every 184 normal individuals.

When the quality of human life is lowered in a race, how are we able to lift it up to a higher plane? In but one way, the elimination of the unfit as far as posterity is concerned by a number of different methods. By unfit, I mean both mentally and physically unfit. Biology has taught us three great facts regarding life.

1. The offspring can inherit equally from both parents, but the nutrition of the growing life is dependent solely on the mother.

2. Congenital characteristics are easily inherited, whereas the acquired are possibly so, but not as a rule. For instance, a defective child could receive the most careful modern nursing and education, and all the assistance which money could give it throughout its life and yet produce little better progeny than one who was more or less neglected. In spite of all efforts we can do little to better the quality of his life.

3. We know from biology the great law of the survival of the fittest, through the power of natural selection. Should the earth, as an example, gradually cool, in the course of a few years those people who could best stand the cold would survive, and this quality would be handed down to their children.

The earnest contemplation of these three great laws would, I think, give us sufficient argument against some modern tendencies if nothing else was considered. If a child can inherit half its qualities from its mother and is dependent, while an embryo and infant, for all of its nourishment from her body, how important is it that the mother preserve the mental make up and physical qualities which make of her a good mother. Otto Weininger says truly in his book on sex and character "that the external characteristics of an individual do not alone determine his or her sex." Some men are more feminine than certain women, some women more masculine than certain men. No matter how we may try to educate or change them, they will preserve those characteristics and greatly influence the succeeding generations.

By degrees our civilization, which shows so clearly a lessening of human efficiency, is allowing

women with highly developed masculinity to compete with the poorer types of men in many fields of labor. How very glad are these men to have the women work, vote, and support them. An inefficient type of man is generally married by the masculine woman, for the reason that she can afford to marry and will probably have better chances than a more womanly type with such men. History undoubtedly proves that masculine women almost always are attracted to the weaker and effeminate types of men, for instance Sappho, Rosa Bonheur, and George Sand, etc., who are usually not attractive themselves to manly men.

As the efficiency of the men decreases the masculine type of woman will gain the ascendancy. She will earnestly put through a number of ill advised and poorly thought out movements along philanthropic lines, on a par with Christian science, Dowieism, the antivivisection league, etc., supported chiefly by women's influence. She will marry the man of her choice and give to posterity an inferior order of human being, i. e., women too masculine to bear children safely, nourish or rear them properly, and men without the masculine qualities necessary for regeneration, which is only possible when the race is sprung from a normal parentage on both sides.

W. L. George, in an article (*Atlantic Monthly*, December, 1913) written in defence of the feminist cult, goes so far as to state that "there is no sex and that there should not be any sex distinction." Professor William T. Sedgwick (*New York Times*, December 14, 1913) has, in answer to this remarkable doctrine, shown that fortunately this statement would apply only to a minority class, and that women and men differ greatly, even in their embryonic life, and are absolutely suited for certain occupations only. W. H. Mallock, in his lecture on socialism (Public Lecture Bureau of the National Civic Federation, February, 1907) shows pretty clearly the fallacy of the equality of men without even considering them in contrast to women.

Should present day conditions continue, however, one can predict very well what will happen in the future. The real womanly type of woman, God bless her, will become as rare as the masculine type of men. When the men of a race are lowered in their efficiency as aggressive fighting men, the death knell of such a people has already been sounded. This happened long ago to Egypt, Rome, and Greece. The true cause of their downfall was a decline in the quality of their men, hunt as we may for other reasons.

Every American should read Homer Lea's wonderful military book, *The Valor of Ignorance*, which shows only too well the menace now to this country from military inefficiency. The advocates of disarmament and abolition of the military strength of the United States should consider carefully recent statistics before presenting their theories to the ignorant public. In our Spanish-American war fourteen men died from preventable diseases to one killed on the field of battle. In the Japanese-Russian war, one man died of preventable disease to four killed in battle. In other words they were fifty-six times as efficient as we were in avoiding death from preventable diseases. In regard to

illness not resulting in death, we sent 170,000 men to the Spanish-American war, 150,000 of whom became incapacitated for some time in one way or another. Japan sent 1,500,000 to their war, of whom less than 20,000 were incapacitated. In other words, ninety per cent. of our men and only one tenth of one per cent. of the Japanese reported to the field hospitals for preventable illness.

A Japanese officer, when asked what they did to deserters from their army, said he did not know, as no one had ever deserted. In one year about 600 men in our army desert to every 10,000, and these all enlist voluntarily. Enlistment in Japan is compulsory.

From this it can readily be seen that more loss of life results many times over from military inefficiency than the actual loss in battle, and the same can be said of inefficiency in every department of life, the sacrificed usually being of the best element in the nation. Before many decades the Teutonic races will need all of their courage and stamina to hold their ground. May the Almighty help them in their regeneration, for the outlook is very bad. Stewart Chamberlain in his wonderful work, *Foundations of the Nineteenth Century*, shows how important these people are in the world's civilization, what they stand for, what they have done in the past.

More than ever we have need of fighting men in every department of life, and women of the right sort to influence them to do what is right and not, in an ineffectual way, to do the work for them; women who from the cradle to the grave will be the inspiration to mighty effort, and *who* are worth fighting for. It is time that we got back to the true home as an ideal standard of living. Where the manly father is an example to the stalwart sons, and the womanly mother an example to her gifted daughters; where each member of the family has his respective duties well outlined and does them cheerfully and thoroughly. This would mean simpler living and less complex thinking, the only salvation, in my opinion, for the people of these United States.

All men and women carry in their minds, perhaps subconsciously, the image of an ideal home. This is usually small and cosy, on a green meadow with honeysuckle vines, tall trees, and the fragrant aromas from many delightful sources in one's nostrils. The call of a primitive ancestry will not be denied and cannot be entirely obliterated by the intricate mental processes of every day life. Although we must agree with the Hindu philosopher, Rabindranath Tagore, that a world without evil and pain is inconceivable, nevertheless a home, in which has been created an atmosphere of love and mutual respect, comes pretty close, after all, to being an earthly Paradise. A home like this would defy even the machinations of a wily politician, while the men of the family are away toiling for the loved ones. Discord could hardly be sown in such an environment.

But what about the squalid homes of our large cities today, where poverty, ignorance, and discontent go hand in hand? Will families long remain united when the votes and favors of wives and daughters can be bartered for, where material

gain or preferment of some kind would be the price?

The feminist movement will obviously affect two fundamental elements necessary to the regeneration of the human race, the quality of life itself and the home. It is, like so many movements which arise daily, the result of a wave of mental unrest ever spreading over the civilized countries, and produced by the complexity of modern life. Where we once had one standard, we now have a dozen, one friend yesterday, now a thousand (so called), where we knew our own town formerly, we now know many countries. We seek all sensations and worship every idol. The ever burdened brain turns anxiously from one thing to another in the effort to understand and explain its own condition, which often results in the adoption of some cult which the poor, mind weary individual believes to be the panacea for the troubles of the world. Like that Christian who the wise Hindu said "was a man who tried to make every one else do what he never did," he will always try to show the other fellow what really is his duty. We can make life simpler only by living more simply and save posterity by bringing up our children to be better men and women.

You may say that this is all very well in theory, but where is the practical remedy for the present time? We all agree that simple living is desirable, but how can we live simply in these stirring, restless times, in this age of strenuous competition? Simple living is really possible anywhere and is to a great extent subjective. A person often most obscure and unknown leads a more complex mental life than the ruler of a great kingdom, by unnecessary attention to detail and the endeavor to remember too much. What we should forget is as important as what we should remember, as the mind, according to a great anatomist, is capable of assimilating only a certain number of facts, which should therefore be well selected.

Whether we can bring any radical changes about in this generation is very questionable. We can, however, certainly help our children by a better system of education, by bringing them up with more veneration and respect for their elders and a greater pride in race and love of country. With the President of the United States depicted as a pig in *Puck* or *Judge*, with our dearest illusions often made the subject of ridicule by yellow journalism, etc., what wonder that the child should grow up with very few standards or ideals so necessary in life to keep it above the commonplace. Personally, I question the advisability of too plain talks on sex and sexual questions with very young persons, and have seen literature on such subjects by ignorant authors which could only do a great deal of harm.

Zangwill, the playwright, in a recent popular play, speaks of the United States as the "melting pot" for all nations, where different races are thrown into the caldron, melted down, and purified. This is poetic, but not exact; we are in reality the dumping ground for the world's outcasts, mental and physical defectives, the recipient of many vices, diseases, and inefficient people from all corners of the globe, who are helped no doubt by mixing with

a little good Teutonic blood, but with a very detrimental effect on this race as far as posterity is concerned.

Since 1904, over 2,092,746 emigrants have come into New York State, to whom have been added by birth about 1,400,000. T. W. Salmon, in his report to the New York Legislature, February 14, 1912, said that 33,311 insane patients were committed to the State institutions, 8,000 of whom were aliens. In other words, twenty-five per cent. were of foreign origin. These figures did not include mental defectives, such as the feeble minded, idiots, or imbeciles. Following his report, certain radical changes in the laws governing the admission of such emigrants, were suggested by the State Board of Alienists. In San Francisco, according to Dr. M. W. Glover (*Journal A. M. A.*, June 15, 1912), 1,077 aliens from the Orient out of 2,255 admitted from September 23, 1910, to November 30, 1911, showed the ova of that most dreaded parasite, the hookworm, in their stools, a most appalling percentage, which were fortunately excluded by the vigilance of our Public Health Service. A special committee, February 13, 1912, reported to the Society for the Prevention of Cruelty to Children, that there are in New York nearly 7,000 feeble minded children in the schools, and about 10,000 altogether, thirty per cent. of whom are the progeny of aliens or naturalized citizens.

A few years ago statistics showed that to every million of population Germany had less than five murders, England less than nine, and the United States 118. More murders are committed in this country, according to Judge DeCoursey, of Massachusetts, than in any ten other civilized countries, including Russia. There were 900 more murders in 1911 than the year before, and only eighty-six executions. A murderer has three chances to one against being brought to trial, ten chances to one against ever being put into the penitentiary, and eighty chances to one to escape the death penalty. Will poorly trained women on our juries complicate or help out this situation?

Mr. Hoffman, the well known actuary, shows that in 1911 the small cities of the United States, with a population under 250,000, for the first time in the history of the country showed a higher suicide rate than the cities with a greater population, and this increase has been about one half in the past decade. We averaged in our small cities, in the year 1911, 198 suicides to the million inhabitants, and in the large cities 195. We averaged about 15,000 suicides in the United States last year. According to foreign statistics, about three men commit suicide to one woman, but a much larger proportion of women take their lives on account of unsoundness of mind, almost twice as many as the men from this cause, showing a greater nerve weakness under strain. Suicide increases absolutely in proportion to the progress and complexity of civilization, and with insanity, is rapidly growing in our cities, both large and small. There is a great falling off in both these conditions when we compare statistics from the farms and the rural districts with those of the cities.

Well known authorities agree that the three main factors of our unfortunate prominence in these

matters are, first, the reception of so many alien defectives into the country; second, the crowding together of our men and women in the cities; third, the poor bringing up our children are receiving in their homes. We certainly need better fathers and mothers, who will not leave the teaching of their children so much to the schools, a training which Miss E. E. Lynch recently has shown to be such a bad one. Miss Lynch says that our public schools' sole trend is toward but one point, admission to the high school without regard to individual needs or fitness. As only seven out of one hundred ever get to the high school, the training of the other ninety-three is absolutely inadequate and the children are thrown back on their homes for education or must go to work or run wild on the streets. The training of the high school tends toward the college, and yet only five of the seven go to college. Dr. Frank Crane is right when he says every one should be taught a trade.

What is the result? Whether we consider the social evil, the high cost of living, low wages, infant mortality, or suffrage, the root of all these questions goes right back to one consideration, inefficiency; the inefficient girl who cannot run her home properly, please her husband, or care for her baby, and the inefficient boy who has grown up without a trade, intolerant of all discipline, and who will only work when he feels like it for a salary twice as much as he is worth. So much that is good in our country has been corrupted by vicious foreign influences that it is astonishing that we do not have stricter immigration laws. If we could prevent some of our best women from contracting foreign marriages it might also help.

The idea of doubling the illiterate and mentally unfit vote is most repugnant to the investigator along these lines. That such mothers should yearly add to our already heavy burden is intolerable. The women hold that they will purify politics, but what will politics do for them? Does it improve the men? Will they be proof against its contamination? Alas, I fear not when one sees the effect that it has *already* had upon them. Sir Almroth Wright, the distinguished British biologist, says truly "that a sure sign of advanced civilization is the observance of those unwritten laws which every man and little boy knows, namely, that it is wrong to leave another fellow in the lurch, to fight one smaller than one's self, or to strike a woman. The militant suffragist, when she resorts to violence against a policeman or public man, is immoral, because although not perhaps always breaking a statutory law, she is unquestionably breaking an unwritten and unassailable commandment of advanced civilization, which we become aware of the moment we see it violated. In the civilized world there has existed as it were a truce between man and woman, based on the solemn covenant that within the confines of civilization (outside, the rule lapses) the weapons of physical force may not be applied by man against woman nor by woman against man. Under this covenant the half of the human race, which most needs protection, is raised up above the waves of violence. It is this covenant, so faithfully kept by man, that the militant suffragist violates."

A prominent suffragist from New York, said "that while she deplored bloodshed, she thought it a good advertisement for the cause." Social degeneracy of this nature can hardly be called a good advertisement of any cause; it has not helped anarchy and it will never help woman suffrage. Justice Coleridge, although rather favorable to women voting, recognized the immorality in such acts of violence when he sentenced Mrs. Emmaline Pankhurst and Mrs. Pethick Lawrence at the Old Bailey to nine months in jail and to pay heavy costs.

"Does the woman who is poisoned by her misplaced self esteem, and who flies out at every man who does not pay homage to her intellect, do anything really worth while for the quality of her race? She is affronted if the man tells her that the glory of woman for him lies in her powers of attraction, her motherhood, and unswerving allegiance to the ethics of her sex. In the wake of these imbibed women come troops of girls, mere children, who are given ideas about their moral, intellectual, and financial values such as men never conceived. Their life program is to have their husband support them, to that and giving up his time and freedom for many hours in the day, but they themselves must not be asked to give up any of their liberty or subordinate themselves at all to his interest." A happy outlook for marital bliss in the future if such advice and teaching, so prevalent today in colleges for girls, is accepted.

Never in the world before has woman had such an opportunity to show her quality and unselfishness. Let her give up her ambition and forget her private grievances and refuse to accept the ballot, which only twenty per cent. of her sex want and eighty per cent. are indifferent about or actually oppose. Let her be careful lest, like Lucifer, her pride leads to her downfall. The suffragist will tell you that women for centuries have led a life of bondage, with suppression of their best possibilities, and are still so hampered that they cannot develop. In a second breath she will say that if she is allowed to work side by side with man, she will lift him up to the high moral plane which women enjoy and not descend to his poor level. Fallacy after fallacy; first that this continued oppression should have, contrary to the history of nations, produced such a noble creature, and, second, that a woman inheriting, as I have shown, qualities from both parents equally, should perform the same duties as a man, with even less physical resistance, and still not fall to the common level or below it.

The real truth is that in civilized races, woman has been made what she is by the reverence of man for her. He has fixed her position in the home and in his heart, and given her a standard up to which she must live if we are to preserve any ideals at all in this too material world. Can a woman reform a man by marrying him? Can she uplift a man by doing his work, by undue intimacy with him, by drinking, smoking, and swearing with him? The answer is too apparent to be discussed. I have been told by men prominent in affairs that in various States the women have resorted to a most corrupt form of lobbying, even threatening public men who

have been unkind enough to disagree with them. Instances of this sort of thing we have had right here in Maryland. A foeman worthy of his steel is what any brave man desires. It is unfortunately otherwise with the women in politics, who usually resent any decided opposition.

The excessive abuse of States' rights is the cause of more corrupt politics and unfair legislation than any other factor in our government. The crimes of individuals stand in an inverse ratio to the power of a State to enforce its laws. When one sees what a military government has done for Cuba, the Philippines, and Panama, in a short time, I am not sure but what we should be purer politically if we had a more military form of government. We should certainly be better hygienically.

I believe emphatically in obligatory military training for every able bodied man in the community, military schools, and the boy scout idea, from the standpoint of discipline and physical culture, as well as the patriotism it would engender, but for Americans only. Our latest folly is the training of foreign soldiers in our military schools and exposing the weakness of our equipment in this direction to the world's gaze, while we are teaching them how best to overcome us.

What we need are better men in civic life and better women in the homes, and better fathers and mothers. I cannot see anything else but the lowering of the efficiency of the race if women do men's work or men women's work. Men's duties and women's should be complementary in the social scheme; like parts of a machine, they run along together better if each is doing its own work well. If there is lack of harmony in the daily routine of life, the fundamental unit of civilization, the home is utterly disrupted. The actual physical labor done by each is less important.

Our masses need more natural recreation, like the peasants of Europe: games, dances, and various forms of outdoor pastimes, only possible when the conditions are as cited above. I have recommended a very good plan to many families under my care which is to spend a part of every Sunday in the woods, a long walk, with a simple luncheon in some picturesque spot, for the whole family. I believe today that the Children's Playground Associations, thanks to the women, are meeting one of the greatest needs in the community.

The ever growing tendency for the people to move out into the suburbs, shows a revolt against the crowding together in the large cities, and owing to the distances from places of employment necessitates more than ever the importance of the mother keeping close to the home. A greater feeling of independence and freedom from petty cares is developed in a rural residence, which more or less dissociates one from the strain and turmoil of the working world when our day's work is done and when we most need complete relaxation. Cowper was right when he said:

God made the country and man made the town.
What wonder then that health and virtue, gifts
That can alone make sweet the bitter draught
That life holds out to all, should most abound
And least be threatened in the fields and groves.

19 AND 21 MOUNT ROYAL AVENUE, WEST.

TUBERCULIZATION AND IMMUNIZATION.

An Epidemiological Study.

BY MAURICE FISHBERG, M. D.,
New York.

(Concluded from page 504.)

Tuberculization and immunization. Tuberculosis is evidently more prevalent in civilized communities than has been appreciated, but among primitive peoples, irrespective of racial affinity, geographical position, or sanitary and hygienic conditions, the disease is practically unknown unless introduced from without. Moreover, it is obvious that the infectious nature of tuberculosis has been underestimated; it is evidently as transmissible from man to man as is measles, as Hamburger has shown. Close contact between the sick and the healthy is not absolutely necessary to transmit the disease, because in civilized cities the bacilli are ubiquitous. In some villages in which no case of tuberculosis has occurred for more than ten years, Jakob (13), also Hillenberg (14) have found that over twenty-five per cent. of the children reacted to tuberculin, and it is a problem how these children had been infected. Römer suggests that perhaps latent tuberculosis, which is very widespread, as we have seen, can disseminate the disease in a manner with which we are as yet unacquainted. That this is not a mere hypothesis is obvious when we bear in mind certain observations made by veterinarians to the effect that the introduction of a cow which reacts to tuberculin into a stable with cattle known to be free from tuberculosis, often brings about infection of all the cattle, so that ultimately they all react positively to tuberculin, although it cannot be proved that the cow which disseminated the bacilli, had the physical signs of tuberculosis. Among human beings there are undoubtedly tubercle bacillus carriers, i. e., individuals who harbor the virus of the disease, but show no signs of sickness, just as is the case with some other diseases, notably typhoid. These persons, living under salutary hygienic and sanitary conditions, may never manifest phthisis, but they may mildly infect those around them, as is the case in some rural communities, or with white settlers among some aboriginal tribes in Africa and America, and even with some of the city dwellers in Europe.

It cannot be emphasized too strongly that these mild infections do not always lead to phthisis. If this was the case, four out of five people would die from tuberculosis and not one out of seven, as is actually the case. But when we find that nearly 100 per cent. of humanity are infected with tuberculosis, and only seven per cent. succumb, it is of great value to inquire into the problem, not only from the standpoint of infection, but also from the standpoint of immunity.

Healed tuberculous lesions as well as allergy to tuberculin are found only in civilized, i. e., tuberculized peoples who have lived in cities for generations, and not at all among peoples who have not come in contact with tuberculosis. In the newborn, when a tuberculous lesion is encountered at necropsy, it is always acute, progressive, and fatal. This strongly confirms the facts mentioned above that prolonged contact with

tuberculosis, while spreading infection broadcast, yet reduces the number of acute, progressive, and fatal cases, and produces a large number of persons in whom infection runs a mild innocuous course; and that chronic phthisis develops only in persons who have been inoculated with tubercle bacilli during childhood and in whom the initial lesion has either healed or remained latent. In other words, a mild infection during childhood immunizes the body to a certain degree, so that hematogenous general tuberculosis, which is characteristic of the virgin soil observed in infants and primitive peoples in whom infection is always primary, is prevented, and even when they become consumptives the disease runs a chronic, sluggish course which, in an enormous proportion of cases, terminates in a cure. It appears from the investigations of Behring (53), Römer (54), Calmette (55), Metchnikoff (26), Hamburger (8), and many others that these mild infections during childhood endow the organism with a certain amount of immunity against further and renewed exogenous infections with tubercle bacilli, and when occurring primarily between the second and fifteenth year of life, are of great benefit to the modern urban population.

Twenty-three years ago, Robert Koch (56) observed certain phenomena in the tuberculous guineapig which could be interpreted as showing that after one infection, a second infection could not be accomplished. Later, Behring found that cattle can be artificially immunized in this manner, and Calmette (55) showed by animal experiments conclusively that an old tuberculous lesion, active or healed, confers immunity against renewed infection. These investigations have been confirmed by many others, including Webb (57) and Williams and Lieb (58) in this country, but they have not been discussed to the extent they deserve, considering their practical bearing on our efforts to eradicate phthisis, excepting some papers by Pottenger (59), Baldwin (60), and especially Bushnell (61).

The experimental investigations by Römer (54), Hamburger (8), Calmette, Webb (57), Kraus and Volk (62), Lieb (58) and others have demonstrated clearly that animals having a tuberculous focus, active or latent, in any part of the body, possess a certain degree of resistance against exogenous reinfection with tubercle bacilli. It has been found that spontaneous tuberculosis of a chronic character, as well as that which has been experimentally induced, endows animals with more or less perfect immunity against renewed infection.

Careful experiments with guineapigs, cattle, sheep, monkeys, and other animals showed conclusively that tuberculous animals are immune to any mode of reinfection—inoculation, feeding, inhalation of tubercle bacilli in dust or spray, and contact infection, which is akin to the usual mode of spontaneous human infection, produces no new tuberculous lesions, while the controls are infected and succumb to the disease in some form. Moreover, it appears that not only are tuberculous animals immune to exogenous superinfection or additional infection with bacilli of another strain, but also to superinfection with bacilli taken from their own lesions.

There are no experimental data about immunity of tuberculous human beings to superinfection, but it appears that the same law holds good as in animals. Thus clinically we know that mildly infected patients living in hospitals or sanatoriums for consumptives are never reinfected from severely infected patients who share the ward with them, although many expectorate millions of virulent bacilli daily. A large number of nontuberculous cases are admitted to sanatoriums and discharged soon after the diagnosis has been established. While many of these nontuberculous patients remain in the sanatoriums for several weeks, or even months, yet it has not been observed that any one becomes tuberculous because of his sojourn in the institution. It is for this reason that hospitals and sanatoriums for consumptives do not see any reason for separating the "open" cases, i. e., those that expectorate sputum reeking with tubercle bacilli from the "closed" cases that do not expectorate, although we know that droplet infection is a great factor in disseminating tuberculosis. It is also known that the hospital staff, physicians, especially laryngologists, nurses, and attendants caring for consumptives, do not show a higher rate of morbidity and mortality from tuberculosis than others. This has been observed by Williams (63) at the Brompton Hospital, long before the discovery of the tubercle bacillus and was erroneously used as an argument against the infectiousness of tuberculosis. Many others, notably Saugmann (64) have confirmed Williams's observation since.

If adults living in modern cities easily contracted *phthisis* because of new and repeated infections, we should expect marital *phthisis* to be more frequent than it really is. It has been found that active tuberculosis in both husband and wife is exceptional, and that when one suffers from the disease, the chances that the consort also becomes *phthisical* are not much greater than among others of the same age and social and economic status. The statistical studies of Weinberg (65), Goring, Pearson (66), and others have shown this to be a fact. In my own experience with several hundred consumptives annually who live in poverty and want, depending on a charitable society for subsistence, and having all the opportunities to infect their wives or husbands, I find that tuberculosis in both husband and wife is exceedingly rare. Petruschky (67), a physician with an enormous experience in tuberculosis, while speaking of the dangers of marriage of consumptives, also mentions the dangers of marital infection to the healthy consort and says laconically that "he has never seen such a case," and Haupt found among 1,553 tuberculous couples that 106, or seven per cent., were both affected, i. e., exactly the proportion in which humanity in general suffers from the disease. Römer mentions that life insurance companies in Germany, basing their action on statistical experience, do not reject persons because of a history of exposure to infection, or those who live with tuberculous consorts. Pearson (66), considering that there is no closer relationship than that of husband and wife, used this fact of the rarity of marital *phthisis* as an argument against the infectiousness of tuberculosis, in which he is decidedly in error. The fact is that nearly every adult

has already been infected with tuberculosis during childhood, and cannot be again infected with a new strain of bacilli from another person, and the development of *phthisis* depends on many other factors beside infection during childhood.

Many investigations have shown that a large proportion of consumptives have tubercle bacilli circulating in their blood, yet they do not manifest general or miliary tuberculosis, and the only plausible explanation is that inasmuch as they have already a tuberculous focus in some part of their body, this protects them against renewed endogenous and exogenous reinfection and the bacilli in their blood remain innocuous.

Many clinical facts, hitherto obscure, can be explained by this immunity of the tuberculous to tuberculosis, and they confirm the assumption that the experimental data obtained in animals hold good for man. Thus, in spite of the fact that so much tuberculous sputum passes through the throat, tonsils, mouth, lips, etc., tuberculosis of the cervical glands and mucous membranes of the mouth is exceedingly rare in civilized adults. Conversely, in former times physicians believed that scrofulous children were immune to tuberculosis. Although so many bacilli are swallowed by consumptives, tuberculosis of the alimentary tract is not as frequent as opportunities for infection would lead us to expect, and when infection takes place, the lesions remain local without extending to the regional lymphatic glands, as is the rule in primary intestinal tuberculosis. Secondary tuberculosis of the skin is exceedingly rare in consumptives, although sputum reeking with bacilli is often carelessly handled by them, and when it does occur, it runs a much milder course than lupus—primary skin tuberculosis. We know the so called "pathologist's wart," and the "butcher's wart" which, although of a tuberculous nature, yet are of no significance, apparently because of old and quiescent tuberculous lesions in some other parts of the body which confer immunity.

While direct experiments on human beings are not available, for obvious reasons, still some facts are known which confirm the view just expressed. Bearing in mind that newborn infants are free from tuberculosis, no matter from what stock they are descended, we should expect that if tubercle bacilli were inoculated into infants, tuberculosis would run an acute and progressive course. This is actually the case when during ritual circumcision among Jews the wound is infected with sputum of a tuberculous operator (*Mohel*). The infant promptly becomes tuberculous and the disease runs an acute, rapid, and fatal course, which is a drastic contrast with the mildness of the "pathologist's wart" in the adult. On the other hand, Baumgarten injected cancerous adults, who may be assumed to have been infected with tuberculosis during childhood, with virulent bovine tubercle bacilli, and Klemperer injected similar germs into tuberculous persons, without any deleterious results. These authors sought to prove that bovine tubercle bacilli are harmless to man, but in truth they confirmed experimentally that infected persons are immune to renewed infection. In this country, Webb and Williams (57) inocu-

lated two children, both of whose parents were tuberculous, with upward of 600 bacilli without infection being produced. The fact observed by pediatricists that tuberculous infection during the first year of life is acute and fatal in the vast majority of cases—some even saying that they have never seen one recovery—finds its explanation here. In the infant we deal with a primary massive infection of an organism that has been free heretofore from tuberculous virus, real virgin soil, just as we saw was the case with primitive people that have not come in contact with civilization and tubercularization.

It is thus evident that the vast majority of civilized humanity, having been in contact with tubercle bacilli, have been mildly infected during childhood, and that this infection has endowed them with a specific immunity against exogenous reinfection. This phenomenon of acquired immunity is well known in pathology; it is a rule that an attack of an infectious disease confers immunity against a second attack of the same disease. This is the case with the endemic exanthemata, with typhoid fever, whooping cough, syphilis, etc. We also know that many persons who come in frequent contact with the virus of typhoid do not acquire the disease, and for this reason some physicians have altogether denied the infectious nature of typhoid fever. But as Metchnikoff (26) reasonably points out, a large number of individuals, especially infants, contract the disease in a mild form, which may pass unrecognized, and they thus acquire immunity which stands them in good stead throughout their life. Similarly it is known that mild forms of the exanthemata occur quite frequently and immunize many persons, and the Wassermann reaction has shown that this is often the case with syphilis. That persons may harbor virulent tubercle bacilli without evident harm is well known clinically, and an analogy is found in Texas fever. Cattle which survive an attack remain with the living virus within their body, but are immune against new infections, so that they may remain, without any danger to themselves, in infected pastures. But should they suffer from some secondary derangement, they may, as a result, experience an acute exacerbation of the process owing to a sudden proliferation of the virus which has been dormant within their body. Clinically we find similar condition with malaria in man, as Koch showed; infection with the malarial parasite protects against further infection with the same parasite from external sources, and for this reason in malarial districts adult indigenous individuals are immune. In some cases there does occur further infection in later years, and the result is a cachexia, a sort of malarial phthisis. In such cases the first infection was an especially strong and severe one. Römer (68) holds that in the same manner tuberculosis in adults is due to massive infection during childhood, the bacilli remaining dormant, and when the immunity which they confer fails owing to some intercurrent disease, phthisis breaks out. But that the specific immunity is not altogether lacking even in these cases, is evident from the fact that the lesions remain for a long time localized in the lungs, and no general miliary tuberculosis develops, as is the rule with individuals who have not previously been infected with tubercle.

Chronic phthisis is therefore to be considered a form of endogenous, metastatic autoinfection with tubercle bacilli that have been within the body for years. In other words, tuberculous infection to which nearly every one is subjected during childhood, as long as it does not immediately run an acute and fatal course, enhances the specific resistance against renewed infection from without. This acquired immunity is sufficient to prevent exogenous infection with tubercle bacilli during the lifetime of the average individual. But in exceptional cases, in which there is a failure in certain physiological functions and the tubercle bacilli are permitted to proliferate more or less freely because the immunity is disturbed, becoming impotent to protect the body against metastatic reinfection, we have new tuberculous foci established, and the disease known as phthisis develops. Failure in the acquired immunity may be caused by intercurrent disease, as measles, typhoid fever, whooping cough, pneumonia, pleurisy, etc., or by the changes going on in the body during puberty. During infancy tuberculosis pursues an acute course almost invariably, obviously because infection is primary and, if massive, overwhelms the susceptible organism, which has none of the protective, immunizing forces which are acquired through mild infections. Between the second and the tenth years the mild infections, which very few escape, may produce hyperplasia of the glands in the thorax or elsewhere, or osseous and articular tuberculosis, which are not altogether dangerous, spontaneous cure being the rule and a fatal issue is exceptional unless some complication aggravates the condition, or hematogenous tuberculosis produces meningitis. Only after the tenth year, phthisis is becoming more and more frequent, so that at puberty it is the rule in all in whom the immunity acquired by tubercularization is disturbed for any cause.

CONCLUSIONS.

In civilized countries, especially in industrial cities in which careful investigations have been made, it was ascertained that the population has been thoroughly tubercularized, and that nearly every person has been infected before reaching maturity, notwithstanding the strong efforts made to prevent infection. On the other hand, primitive peoples who have not come into intimate contact with civilized and tubercularized humanity and who, excepting their outdoor life, live under inferior hygienic and sanitary conditions even when compared with the slum population of modern large industrial cities, have no tuberculosis at all.

Individuals free from tuberculous infection are very susceptible to the pernicious effects of tubercle bacilli. Even the strong and robust constitution of the average rural inhabitant is of no avail when he comes into a tuberculous milieu while emigrating to a large city, and he succumbs more easily than those who have been raised in cities, as is the case among certain immigrants in the United States and among primitive peoples hitherto exempt from tuberculosis who meet white settlers in their native lands. Their strong and extraordinary vulnerability in contact with tubercle bacilli is to be considered a physiological trait of humanity irrespective of race, geographical position, and social or economic con-

ditions. On the other hand, the resistance to tuberculous infection of the adult population in civilized communities is undoubtedly of pathological origin, being, as it is, an expression of an acquired specific immunity through mild infection during childhood.

This acquired immunity of the tuberculous to tuberculosis is the greatest safeguard against superinfections and reinfections with new strains of tubercle bacilli which are ubiquitous and cannot be avoided in modern large cities. In cases in which, because of some disturbance in physiological function or pathological derangement, there occurs a failure in the immunity and the bacilli harbored within the body since childhood, are permitted to proliferate, no acute miliary tuberculosis occurs as a rule, but chronic phthisis is observed, which is localized and circumscribed and is amenable to spontaneous or therapeutic cure. Experience also teaches that primary infection is most dangerous during infancy and in the adult, while during childhood mild tuberculous infections are in the vast majority of cases benign and, because the body is thus immunized against reinfection, even beneficial.

We find here an explanation why in tubercularized countries the mortality from this disease is on the decline, while in countries into which tuberculosis is only recently introduced for the first time, the death rates are high. In countries where there is tuberculosis, it attacks all adults and children who have not been benefited by tubercularization or mild infections during childhood. Meeting virgin soil or susceptible elements, the tubercle bacilli produce in most cases acute and fatal hematogenous tuberculosis. This we find to be true among the robust Indians in this country, who still live a healthful outdoor life, as well as among the immigrants from southern and eastern Europe who come here from villages and agricultural settlements where they have been free from tuberculosis infection, and settle in large industrial cities with an abundance of tubercle bacilli.

The prophylaxis of phthisis is therefore to be directed along the lines of prevention of massive infections of children, especially infants, because they are liable to be the forerunners of phthisis in the adult. The phthisiophobia of adults born and bred in cities is unjustified, because nearly all have already been infected during childhood and cannot be reinfected, as is well illustrated by the rarity of phthisis in both husband and wife. These mild infections during childhood which can hardly be avoided irrespective of the strenuous prophylactic means recently taken, while pathological in character, are to be considered beneficial because thereby civilized humanity has actually been vaccinated against new infections with virulent tubercle bacilli to which every one living in a modern city is always exposed.

Among adults the prevention of metastatic autoinfection with bacilli harbored within the body since childhood can be prevented at the present state of our knowledge of phthisiogenesis only by the improvement of the social, economic, hygienic, and sanitary conditions which may be conducive to the physiological standard of health and well being of each individual in the community, and so preserve the balance in the acquired immunity characteristic of civilized and tubercularized humanity.

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57 EAST NINETY-THIRD STREET.

THE TREATMENT OF SUNSTROKE AND HEAT PROSTRATION

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It is a dangerous practice to employ the terms "sunstroke" and "heat prostration" interchangeably, as this implies similarity in treatment, a procedure which may prove fatal to the patient. Though sunstroke and heat prostration are both due to exposure to excessive heat, the diseases are different in character, each presenting a different symptom complex, and each demanding in many respects a different mode of treatment. The following tabulation will be found useful:

Sunstroke.

1. History of direct exposure to the sun's rays.
2. Onset sudden, often with convulsions or paralysis.
3. Usually complete unconsciousness.
4. Skin hot, dry, and flushed.
5. Injected conjunctiva, contracted pupils.
6. Temperature very high (105° to 113° F.).
7. Pulse high and bounding.
8. Respiration irregular, often Cheyne-Stokes in type.
9. Course brief, with guarded prognosis, terminating in death or recovery in from a few hours to a day or more.
10. Complications and sequelæ not uncommon.

Heat Prostration.

1. History of exposure to excessive heat, usually indoors.
2. Onset gradual; no convulsions or paralysis, but prodromata (headache, dizziness, nausea, etc.).
3. Rarely, loss of consciousness.
4. Skin cool, pale, and clammy.
5. Conjunctiva pale, pupils dilated or normal.
6. Temperature normal, subnormal or slightly elevated (100° to 102° F.).
7. Pulse weak and thready.
8. Respiration shallow and sighing.
9. Course greater in duration, prognosis favorable, usually terminating in recovery within a few days.
10. Recovery usually uninterrupted and complete.

TREATMENT.

The treatment of sunstroke and heat prostration may be considered under three headings: 1. Prophylactic; 2, the management of the attack; and, 3, the aftertreatment.

1. *The prophylactic treatment* of sunstroke and heat prostration consists in the avoidance of the causal factors. The diet should consist of simple, wholesome food, easy of digestion and assimilation. Sweets, pastries, and fried foods should be interdicted. Overeating is distinctly harmful. The indulgence in alcoholic beverages is a practice to be condemned in persons whose occupations predispose them to either sunstroke or heat prostration. The same danger exists in persons habituated to the immoderate use of tea, coffee, or tobacco, a fact which seems to have been overlooked by the profession. The explanation lies in the fact that these substances, by virtue of their contained active

principles, not only reduce the vital resistance to disease, but bring about a condition of irritability and instability of the functions of the nervous system of which the heat regulating mechanism is a part.

The bowels should be well evacuated at least once a day, using if necessary one of the mild laxatives. Proper ventilation should be insisted upon, both at home and at work. Frequent cold sponges or baths should be taken during warm weather, and if the heat is extreme, cloths wet with cool water should be applied to the head and kept in place by a cap. Heavy, dark hued clothing should be avoided, but linen and light textured material should be worn during the hot season; the quantity should be reduced to a minimum in persons exposed to great heat; factory hands, firemen, etc. Prolonged mental or physical exertion and long hours should be avoided as much as possible. Prolonged exposure to the sun's rays is especially to be guarded against. The functions of the skin and kidneys must be maintained in a normal state, and to this end the drinking of copious quantities of wholesome water (not ice water) is particularly beneficial.

2. *The management of the attack.* The treatment of sunstroke, as before intimated, is decidedly different to that of heat prostration. In the former all the symptoms point to excitation of the vital functions; in the latter, depression is characteristic.

SUNSTROKE.

The patient suffering with sunstroke must be at once removed to the shade, and as soon as practicable to a cool and well ventilated room. His clothing having been removed and his temperature having been taken, he should be at once placed in a tub of water at a temperature of 80° F., to which ice should be gradually added until the temperature reaches about 40°. At the same time ice should be applied to the head, and the skin of the body should be rubbed vigorously to bring the heated blood of the interior toward the surface. The temperature should be taken by rectum every fifteen minutes, and as soon as it has fallen to 102° F. the patient should be removed from the bath; otherwise he may pass into a condition of collapse from subnormal temperature. The temperature having reached 102° or 101° F., the patient should be removed to a cot in a shady spot in the open air and covered with a sheet. The temperature should be closely watched, and any marked rise should be combated with more ice baths. Ordinarily these baths should not be continued longer than from twenty to forty minutes, but in the event of a recurrence of the hyperpyrexia they may be repeated at intervals of two, three, or four hours. In marked cases, in which there are evidences of congestion of the internal viscera, with rapid pulse, cyanosis, and a laboring heart, free venesection (the extent depending on the condition of the patient), followed by the intravenous injection of physiological salt solution, has resulted very happily in the few of my cases. With the reduction in temperature, consciousness usually begins to return, sometimes within a half hour, but often twenty-four hours elapse before consciousness is complete; at times this is preceded by moments of

delirium. Frequently the reduction in temperature is very gradual, occupying three or four days, consciousness gradually returning at the same time.

The head must be kept cool by means of an ice cap, and the feet must be bathed in hot mustard water. In some cases ice water enemata or the needle spray of cold water will be found very useful adjuvants in the efforts to reduce the temperature. In the event of cardiac weakness, hypodermic injections of camphor and ether or whiskey may be given. If there seems to be a tendency to edema and congestion of the lungs, a hypodermic injection of grain 1/100 of atropine sulphate should be administered. If, after the temperature has begun to fall, the heart is still exceedingly rapid and becoming irregular, digitalis should be administered with careful supervision of its effects. It may be advisable to combine this drug with minute doses of veratrum to guard the pulse tension. Sweet spirits of nitre will enhance the action of the skin and kidneys as consciousness is restored. The use of pilocarpine to promote diaphoresis, as advocated by some authorities, is, except in very rare cases, strongly to be condemned as a dangerous practice, tending to add insult to a heart which is already injured by a grave toxemia.

As sunstroke is often characterized by symptoms of meningeal irritation, such drugs as quinine, salicylic acid, and the like, which cause congestion of the meninges, should not be given. The usual antipyretic drugs are contraindicated, not only because they are practically useless in this condition, but also because they are vascular depressants. Phenacetin and pyramidon, the least harmful of the usual antipyretics, if employed, should be watched carefully.

Though atropine and belladonna have their place as stimulants, it is well to avoid their routine use in sunstroke, as they may further retard the functions of the emunctories, particularly the skin, which is exceedingly dry in this condition.

Sodium bromide, sixty grains in one dose per rectum, repeated in thirty grain doses once or twice as indicated, will be found useful in the event of delirium or convulsions. If the latter exists a few whiffs of amyl nitrite should be tried, or the patient may be given chloroform to the verge of anesthesia. In the latter procedure, we are selecting the lesser of two evils, i. e., the possible slight injury to the vascular and eliminative organs due to the administration of chloroform, in preference to the probable grave danger of sudden death from cardiac failure or apoplexy from the continuance of the convulsions. Morphine, if given, must be carefully watched, as it may do more harm than good. It may be necessary to resort to artificial respiration and oxygen inhalation in some cases.

The patient should be kept quiet in bed, at least until his temperature and pulse have been normal for forty-eight hours. As soon as the patient returns to consciousness, a course of calomel should be given followed by a saline cathartic to flush the bowels and relieve the congested liver. The diet should be liquid during the first few days, consisting chiefly of skimmed milk, buttermilk, orange albumin, and plenty of water. The patient must not be discharged too soon, for after a few days he

may begin to suffer with violent headaches, evidence of meningitis. In this event the meningeal congestion must be overcome by repeated venesection and the administration of veratrum. In marked cases of meningeal irritation spinal puncture must be seriously considered as a therapeutic measure.

HEAT PROSTRATION.

A case of heat prostration should, like one of sunstroke, be removed from the influence of excessive heat. If the patient has been out of doors in the sun, he should be immediately removed to the shade and as quickly as practicable into a house or a hospital, and placed in bed in a cool, well ventilated room. The clothing should be loosened so as not to interfere with the respiration or circulation, and if the temperature is subnormal hot applications, such as hot water bottles or hot bricks, should be placed around him. Cold applications may be applied to the head; and a mustard plaster or paste may be applied to the back of the neck or over the spine. A warm bath of a temperature of 105° to 110° F. is often indicated. The temperature of the patient should be taken frequently by rectum, else the other extreme may be reached without the knowledge of the attendants. If the temperature is above normal, sponging with moderately cool or tepid water will soon lower it, but an ice bath must not be given.

To overcome the tendency to syncope, the aromatic spirits of ammonia, nitroglycerin, or inhalations of amyl nitrite may be given. The bowels, kidneys, and skin should be carefully observed and the proper methods instituted to overcome any tardiness in their functions. A stimulating enema may be administered to move the bowels, and copious draughts of water should be given. Weakness should be combated by the administration of strychnine, digitalis, and iron in addition to a concentrated nourishing diet which, as first, should be liquid.

3. *Aftertreatment.* Persons who have been subjects of either sunstroke or heat prostration are very susceptible to the effects of heat during the remainder of their lives. It is necessary to advise these patients or their friends of the possibility of recurrences, in order to warn them to avoid exposure to the direct rays of the sun or to overheated rooms during warm weather. As already implied under prophylactic treatment, the avoidance of causative factors is of greatest importance. Under this heading the questions of cold bathing, occupation, clothing, diet, and other details in personal hygiene are vital. These patients should dress lightly, avoid overeating, drink plenty of water, and abstain from the use of alcohol, tea, coffee, and tobacco. They should keep their heads as cool as possible. Some patients who have suffered with sunstroke, find that their memory is impaired. Though very little can be done for this condition, the administration of some form of phosphorus should be tried. If possible, these patients should be sent to the mountains or to cool seashore resorts during the summer months. The prolonged administration of some forms of iron and arsenic may be required by patients in whom the blood is impoverished.

Not infrequently, infants and young children suffer from the effects of extreme heat. This condition should be looked for in children who are suddenly taken ill in hot weather without any apparent reason. If they are found suffering from a high temperature for which no other explanation can be found, and if the history of the case shows that they have been exposed to high temperature, they should be placed under favorable conditions in a cool, airy room and given a sponge bath of cool water, while cold drinks are administered. If the heart becomes weak, small doses of whiskey, well diluted, should be administered. The diet should receive very careful attention.

1714 NORTH SEVENTH STREET.

DUST.

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While there is much to be reviewed on the subject of moisture, inhaled or otherwise, disturbing our healthful functions during sudden lowering of the atmospheric temperature, there seems to be less literature expressive and explanatory of the harmful effects produced by the solid constituents that forever float about at the bottom of this sea of air in which we live, and said to be fifty miles in depth. As life eternally wends its way through the ages, and as organized life increases upon our world; and with the continued multiplication of discoveries, inventions, and scientific research, there is a proportionate increase of the solid particles forming this pabulum. Cosmic dust and clean dust from the virgin forest or plain do no harm, save perhaps as mechanical irritants. The pulverized particles of celestial matter undoubtedly carry no living germs of disease, while untrammelled terrestrial areas emit an oxidized product, unfavorable to the low vitality of disease factors.

Human beings, more so than the lower animals, prefer to herd together. The savage moves about more, but is still herding. The civilized gentleman herds and rests at the same time, which may answer the following questions: Why is it that he fills his insides with alcohol, peppery food, unwholesome food, poisonous food? Why does he hide his skin, that organ of respiration from God's oxygen, with tight clothing? Why does he war with his fellowman and murder his brother for greed and selfish motives, instigated by those *not on the firing line*? Why does he make the reproduction of his species somewhat of a vulgar joke? He who was made in the image of the Grand Architect of the universe.

As the world progresses, more artificiality generates in the activities of our environment. Nature must be forced to keep up the speed mania in all our undertakings. So, as we are carried along in the flood of human advancement, let us consider any topic that may soothe our fevered career. The prevention of the production of active and disturbed unclean pulverized matter is an important item for serious consideration. I refer principally to the awful disturbance of poisonous dust, by the

heavy and rapid traffic on our streets and roadways. These enormous monsters in tonnage may perhaps, by jarring buried pipes, loosen up joints and liberate gases and liquids further to poison our atmosphere.

In cities with paved streets, be more than liberal with water. Wash the streets and keep them washed until there is no atom of contaminated dry dirt to be blown all over everywhere and anywhere. Moist filth is far preferable to dry filth. Oil the country roads, even if it does injure automobile tires; but does it really? If so, the fellow who can afford an automobile can afford to assist his poor brother by not throwing all his germ laden dust into that poor brother's lungs.

The propensity for sweeping and dusting houses, I am glad to say, is dying out. God bless the man that invented the vacuum cleaner, and the woman that suggested the damp cloth duster. In the old days, I remember many a piece of bric-a-brac torn from the mantel by an awkward housemaid, banging a dry cloth around in her attempt to get rid of settled and peaceable dust lying dormant and reposeful on some lovely vase. This dust would then find a harbor of refuge within the air passages of the household, and possibly sow the seeds of tuberculosis. In those days, I also remember having started a crusade against using oyster shells in the streets of my native town, in eastern Virginia. I held that, in dry weather, these shells in a finely powdered state and mixed with a proportion of rotten adherent oyster and horse manure, were not a desirable inhalant. The minute, knifelike scales ground off from these shells, put nice little inoculation furrows where was deposited its adherent filth within the bronchial tubes of the unsuspecting. Although my plea was at the time apparently unnoticed, since then all the shell roading in and about the town has been supplemented by asphalt, stone and tar, macadam, or similar paving. I do not wish any credit, I merely want to give my fellow creatures the benefit of my suggestion.

It should be a national law, that nothing whatever is to be recklessly thrown on a street, and any person allowing debris and filth to remain on the sidewalk in front of his or her property for a stated time, should be fined, and the person or persons permitting or responsible should be reported to the authorities for immediate punishment. While I am presenting bouquets to myself, I beg permission to state—by way of diversion—that many years ago I also started a crusade against unnecessary noise, but my thunder was successfully appropriated by a woman. The ladies, God bless them, I take my hat off to them.

Coming back to moisture, my experience of a quarter century in the navy, has shown that men enjoy better health on board ship than on shore, provided the same amount of exercise is taken. If we accustom ourselves to the regular and plain but wholesome food at sea, we find that our health improves, and when we return to terra firma we notice a difference in our sensations, as of being mildly oppressed by the earth ridden air; sometimes catarrhal symptoms develop in the nose or pharynx. The eyes also become mildly irritated by the infinitesimal dust particles, especially so when limestone or shells are used in the driveways.

PULMONARY TUBERCULOSIS COMPLICATING OPERATION FOR APPENDICITIS.

By A. C. BURNHAM, M. D.,
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It is generally recognized that patients suffering from pulmonary tuberculosis are poor operative risks. This is especially true, even in slightly advanced cases, if the patient is suffering from an appreciable toxemia as a result of the pulmonary lesion. Even cases of latent tuberculosis may become active, and arrested lesions may progress steadily after a comparatively slight operation. A series of cases, in which the pulmonary tuberculosis complicated the operation for appendicitis, has been studied in order to serve as illustrations for the discussion of the general effect of appendectomy upon pulmonary tuberculosis.

It is hardly necessary to state that the advanced progressive cases of phthisis are not under consideration. These cases naturally do poorly under any sort of operative interference. However, in passing, it may be noted that occasionally, when the necessity arises, a patient with an advanced lesion in the lung may be greatly benefited by the operative relief of a chronically inflamed appendix. In the discussion of the effect of a major operation upon the lung condition, I wish particularly to call attention to its effect upon three different types:

1. Latent pulmonary tuberculosis.
2. Cases with slight but definite signs.
3. Moderately advanced cases.

The development of pulmonary symptoms following appendicitis should always lead to the suspicion of tuberculosis, just as pulmonary symptoms do after measles or typhoid fever. The following cases are of this type:

CASE I. Woman, aged thirty-five years. Subacute appendicitis. No history of cough or other pulmonary symptom. No signs in chest. Appendectomy without drainage. Uninterrupted recovery, except for slight cough. Cough persisted, and after three weeks began to have some sputum which showed tubercle bacilli. Signs in chest slight.

CASE II. Woman, aged thirty years. No history nor signs of tuberculosis. Acute appendicitis with spreading peritonitis. Appendectomy and drainage. Postoperative temperature 102° F. for sixty days. Signs in lung distinct on discharge. Condition fair. Two months later, showed all symptoms of chronic pulmonary tuberculosis.

In neither case was there any suspicion of tuberculosis before the operation. In Case I the appendix was not acutely involved, and the operation might have been postponed had there been any suspicion of tuberculosis. The patient left the hospital after a rapid convalescence, the pulmonary symptoms appearing three weeks after operation. In Case II there was spreading peritonitis with profuse drainage for a long period, pulmonary tuberculosis becoming manifest during the patient's stay in the ward.

The second class of cases is represented by those patients in whom there are definite signs and chronic history.

CASE III. Girl, aged sixteen years. Slight signs, but no history of pulmonary tuberculosis on admission. No sputum. Appendectomy for acute appendicitis. No drainage. Postoperative temperature 101.5° F. for four

days. Discharged from hospital, cured. No change in signs in chest. General condition excellent.

CASE IV. Man, aged twenty-two years. Chronic cough, no tubercle bacilli found in sputum. Distinct signs in chest. Appendectomy without drainage for acute appendicitis. Spinal anesthesia. Postoperative temperature 101° F. for three days. No change in signs in lungs. Discharged from hospital in excellent condition.

These represent two acute cases, in which operation was judged to be imperative. There was no marked toxemia, and both patients did well, although considerable apprehension was felt before operation. In one case chloroform was given, and in the other spinal anesthesia. Both cases made rapid convalescence, with no increase in the pulmonary signs and symptoms. This has been my experience in general in chronic cases with only slight lung involvement, and holds true even in cases with tubercle bacilli in the sputum. Indeed, cases have been reported, in which there appeared to be marked improvement after a major operation.

In moderately advanced tuberculosis, the risks of operation are much greater. Three cases may be cited to illustrate the course of cases of this type.

CASE V. Woman, aged twenty-nine years. Moderately advanced pulmonary tuberculosis. Sputum positive. Appendectomy for acute appendicitis; no drainage. Chloroform anesthesia. Postoperative temperature 102° F., lasting nineteen days. On discharge, condition worse than on admission. Signs in lungs increased.

CASE VI. Woman, aged thirty-six years. History of tuberculosis, and signs of a moderately advanced process in the lung. Appendectomy for acute appendicitis. No drainage. Chloroform anesthesia. Tuberculosis of the intestine seen at operation. Temperature after operation 102° F., which persisted during the stay in the hospital. After four weeks, patient was taken to the country, with a daily rise of temperature to 101° F., and the lung condition distinctly worse. Subsequent history not obtained.

CASE VII. Woman, aged twenty-two years. Moderately advanced pulmonary tuberculosis for eight years. Sputum positive for bacilli. Tuberculosis of ankle and hip. Acute appendicitis. Appendectomy, no drainage. Chloroform anesthesia. Postoperative temperature 101° F., lasting three days. Left hospital distinctly improved. Signs in chest unchanged.

In the last patient (Case VII) there was little or no reaction. The anesthetic (chloroform) was well taken, and there was only a moderate rise of temperature following operation. Here we have a chronic pulmonary process complicated by tuberculosis of the ankle and hip, which did not add to the severity of the postoperative reaction, nor to the duration of the period of convalescence. It appears to me that the chronicity of the disease in this case (eight years) is the factor of most importance. A patient who has carried a tuberculous process in the body for a long period, has shown a natural resistance to the lesion, which has probably resulted in the localization of the disease to definite areas. Such a patient can often undergo a serious surgical procedure without any apparent increase in the pulmonary symptoms.

In Cases V and VI the operation was undertaken for acute appendicitis, and was essentially the same as in Case VII, but the result was entirely different. In both cases the condition of the appendix was such that it was not thought advisable to delay the operation, although the consideration of the pulmonary symptoms made evident the dangers of anesthesia. In both cases the postoperative reaction was marked and the convalescence was long drawn out. While the patients improved somewhat after

the operation, they both showed increased pulmonary signs and symptoms. Case v left the hospital in worse condition than on admission, while Case vi, after a stay of four weeks, left the hospital while still showing a daily rise of temperature to 101° F.

It is not possible in such a short series of cases to lay down definite rules for or against operation, but it has been the writer's aim to call attention to the fact that certain cases do not do well, and to emphasize the necessity of a consideration of even an incipient or early tuberculous condition in the lungs of patients under treatment for appendicitis. I believe that patients with symptoms of pulmonary tuberculosis should be operated upon only when the signs about the appendix indicate a progressively increasing inflammation or a localized collection of pus. Chronic catarrhal appendicitis and recurrent mild attacks are not, to my mind, sufficient indications. The interval operation appears to have no place in the treatment of appendicitis occurring during the course of a pulmonary tuberculosis.

If it can be shown that a chronically inflamed appendix acts as a direct cause of an obstruction to the intestinal flow, and that this in turn lowers the resistance of the organism to the action of the tubercle bacilli, as Lane has maintained, then without doubt the operation for the relief of the obstruction should be undertaken, but only with due regard to the danger of increasing the pulmonary lesion. In the severe types of appendicitis occurring during the course of pulmonary tuberculosis, there are still a few cases which will do much better under a conservative plan of treatment, and it seems better to reserve operation for those cases which do not permit of delay. When there is any choice, the conservative treatment is indicated.

The following observations have been of help to me in cases where these two conditions are combined:

1. A cough occurring after operation should always arouse suspicion of tuberculosis.

2. Mild cases usually stand operation very well, but they should not be subjected to operation when the symptoms may be alleviated by other means.

3. Moderately advanced cases, except very chronic arrested ones, usually stand operation very poorly.

4. If operation is necessary, delay only weakens the resistance of the patient. Accurate diagnosis of the condition of the appendix is of far greater importance in patients with pulmonary tuberculosis than it is in patients otherwise healthy. The purulent or gangrenous appendix should be removed as early as possible, while the catarrhal or mildly inflamed condition is better dealt with more conservatively.

157 WEST SEVENTY-NINTH STREET.

Diabetes in Children.—Children of school age while in the full bloom of youthful vigor may develop a malignant type of diabetes, says the *Medical Record* for September 12, 1914. In this country at least these cases seldom come to autopsy, nevertheless there is every reason to believe that the actual disease is pancreatitis, the diabetes being the clinical expression. Knowledge of the causation of the pancreas lesion might lead to the use of prophylactic measures or at least prepare for a tragedy.

TYROSIN CRYSTALS IN THE URINE OF A NORMAL PREGNANT WOMAN.

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(From the Biochemical Laboratory of the Western Pennsylvania Hospital.)

It is usually taught that crystals of tyrosin are never found in urinary sediments under normal conditions; we wish to report, however, their occurrence in the urinary sediment from a pregnant woman near term. This woman, aged nineteen years, was perfectly healthy, yet the urine on one occasion had a large number of tyrosin crystals in the sediment. These crystals were in the form of very fine needles grouped in sheaves. They dissolved in ammonia and in hydrochloric acid, but were insoluble in acetic acid and in ether and slightly soluble in alcohol. The crystals were obtained from the urine by centrifugating.

When these crystals were dissolved in ammonia and heated with Millon's reagent, they yielded a fine red color and red solution (1). A warmed aqueous solution of the crystals acidified with one per cent. acetic acid and one per cent. sodium nitrite, added by drops, turned bright red (2). When heated with three drops of concentrated sulphuric acid, diluted, neutralized with barium carbonate and one per cent. ferric chloride (neutral) added, a violet color was produced (3). Some of the crystals were added to three c. c. of a reagent of the following composition: formaldehyde solution, one c. c.; water, forty-five c. c.; concentrated sulphuric acid, fifty-five c. c., and the mixture heated with the production of a green color.

As the foregoing reactions applied to these crystals, are characteristic of tyrosin, it leaves no doubt as to the nature of these crystals in the sediment. It may be of some value to review briefly certain points regarding the presence of tyrosin and the usually associated leucin in urine. They were first observed by Frerichs (4) in a case of acute yellow atrophy, while Schultzen and Reiss (5) have found as much as 1.5 gram in the twenty-four hour urine in such cases. It is to be recalled that these substances have been found in the urine in many diseases, such as erysipelas, typhus, typhoid fever, variola, rabies, leucemia, gout, diabetes, cystinuria, and acute phosphorus poisoning, but they are present in solution and not as spontaneously precipitated crystals in the sediment (6). Von Jaksch (7), however, asserts that tyrosin crystals are very rarely found in the urine in cases of phosphorus poisoning.

The only other cases reported where tyrosin has been found in urinary sediments are those of Boston (8) in a case of jaundice with enlargement of the liver; Kirkbride (9) in a case of erysipelas and osteomalacia; Mann (10) in cases of hepatic congestion due to cardiac disease; Juge (11) in a case of diabetes mellitus with albuminuria; by Ruge (12) in a case of primary carcinoma of the liver, and Langstein (13) in a case of jaundice with a stone in the common duct.

Von Noorden (14) and also Stadelmann (15) sought leucin and tyrosin in the urine in cases of hepatic cirrhosis with negative results. Greco (16), however, found crystals of leucin in the urine in cases of hepatic cirrhosis. Except in the above mentioned diseases the presence of leucin and tyrosin in the urine has not been conclusively demonstrated. In pernicious anemia both Laache (17) and von Noorden (18) have found them. Smith (19) has found an abundant sediment of leucin in the urine of a young woman not seriously ill.

The observations recorded in this paper should teach us to be cautious regarding the interpretation to be drawn from the finding of tyrosin crystals in the urine. In the past many would have considered this good evidence as to the presence of acute yellow atrophy of the liver, but in the case recorded in this paper, the pregnant woman, whose urine contained tyrosin crystals, was perfectly normal and passed through a normal delivery.

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5737 FORBES STREET.

Therapeutic Notes.

Treatment of Vertigo in the Elderly.—P. Gallois, in *Bulletins et mémoires de la société de médecine de Paris*, December 27, 1913, advises that before definitely making a diagnosis of vertigo due to arteriosclerosis in persons over fifty years of age, and ordering iodides, nitrites, purgation, and a more or less exclusive milk diet, one should make sure that signs of arteriosclerosis really exist and, in particular, ascertain the patient's blood pressure. Oftener than is generally believed, such signs will not be found clearly marked, and the blood pressure rather low than high. Gallois is convinced from his experience that vertigo in old persons is not infrequently due to anemia, this, in turn, being the result of insufficient exercise, excessive indoor life, and underfeeding or digestive disturbances—the latter often due to loss of teeth. Upon inverting the lower lid the conjunctiva will be found pale, and by inquiry it will be found that the dizziness comes on generally when the patient rises from his bed or chair, i. e., at times when the intracerebral blood pressure is diminished. While, indeed, true

arteriosclerotic vertigo is itself due chiefly to brain ischemia, the causes of this ischemia in the two instances are different, and the treatment consequently must also differ. In patients subjected to iodides, strict diet, and repeated purgation, the author has frequently noted an increase in the vertigo, whereas when these same patients, with pale conjunctivæ, were given iron, their vertigo would completely disappear in a week. A substantial diet is also indicated in these cases. Where arteriosclerosis is felt to exist in addition, there is nothing to prevent an alternate administration of iron and the iodide or even their simultaneous use in the form of the iodide of iron.

Treatment of Amebic Abscess of the Liver.

Dopter and Pauron, in *Bulletins et mémoires de la société médicale des hôpitaux de Paris*, December 4, 1913, report a case of dysentery with hepatic abscess in which, contrary to the prevailing order of procedure, injections of emetine hydrochloride were administered before evacuating the abscess. The daily amount of alkaloid given—on six successive days—was two thirds to one and a third grain (0.04 to 0.08 gram). Prompt relief from local pain and tenderness, together with a diminution in the size of the liver and of the (palpable) abscess mass, was obtained. Appetite returned, anemia began to disappear, and the patient's general condition was greatly bettered. The drug did not prove capable, however, of overcoming the condition entirely, the liver remaining somewhat enlarged and tenderness on deep palpation persisting. The abscess was therefore evacuated, yielding 300 grams of pus—not of the usual chocolate color, but grayish yellow. The value of the preliminary emetine treatment then became at once apparent, discharge from the wound ceasing in two days, and prompt healing taking place. The emetine had evidently transformed the abscess into one of the "cold" variety, which was tolerated but could not be resorbed by the organism.

In another case, clinically diagnosed as amebic abscess, but in which this diagnosis was not confirmed by exploratory punctures, administration of one and a third grain (0.08 gram) of emetine on twelve successive days, brought apparently almost complete recovery. Twelve days after the last injection, however, grayish pus was suddenly evacuated by way of the lungs. At this time there was practically no fever nor prostration; next morning, after sleeping only four hours, the patient felt but little inconvenienced. He spent the entire day walking out of doors, and was discharged soon after. In this case again the emetine had checked the suppurative process and rendered the pus innocuous.

These cases show that where hepatic abscess is suspected or diagnosed clinically, but puncture gives negative results, emetine injections are capable of arresting the inflammatory process. The second case proves, however, according to the authors, that emetine is not an effectual prophylactic against hepatic abscess in dysentery—probably because amebas in the encysted condition withstand the effects of emetine, even its continued use.

Dopter calls attention to the fact that of forty-

six cases of amebic dysentery treated by him with emetine in the last eight months, ten have already relapsed.

Milian, in the discussion, suggests that in refractory cases neosalvarsan be given, having noted in a syphilitic dysentery patient that a single injection of this drug caused the amebas to disappear from the stools in three days. This patient was completely cured of his dysentery by the neosalvarsan, recurrence not having taken place in two years.

Use of Chlorinated Alcohol in Skin Disinfection.

—Pellegrini, in *Semaine médicale* for September 24, 1913, is stated to have found chlorinated alcohol the equal of tincture of iodine in efficiency as a skin disinfectant, and superior to it in other ways. The preparation is made simply by passing chlorine fumes through alcohol, pure or denatured. The chlorine can be generated easily and at slight expense by the action of sulphuric or hydrochloric acid on calcium chloride; or, tanks of liquid chlorine, such as are used in the industries, may be secured. Denatured alcohol, when chlorine is passed through it, loses its greenish color, becoming colorless and later assuming a yellowish tint; its penetrating and irritating odor also disappears, and is replaced by a rather agreeable odor.

The author's preoperative procedure is to rub the hands for seven or eight minutes with a sterile gauze compress saturated with the chlorinated alcohol; the hands are then dipped in the solution itself for about two minutes. The gauze compress is changed at least once during the procedure, and the chlorinated alcohol discarded after the hands have been dipped. The preparation does not irritate the skin, even upon repeated use, as the author has had occasion to observe in six months' trial of it. In several hernia cases the preparation was used for disinfection of the operative field, and healing by first intention was obtained, as with Grossich's method. Even where a pad saturated with the chlorinated alcohol was left on the operative wound no irritation resulted. The preparation presents the advantage over iodine of not discoloring the tissues and obscuring landmarks; on the contrary, it tends to bleach the tissues. It seems to injure rubber gloves less than iodine tincture, and does not fix blood to the skin, as does the latter. By reason of its lack of irritant properties it can be used with advantage where tincture of iodine causes blistering or dermatitis. The persistent brownish coloration of the skin is also avoided.

Treatment of Emphysema.—C. J. Macalister, in the *Liverpool Medico-Chirurgical Journal* for January, 1914, records good results from the application of elastic webbing around the chest in pronounced cases of emphysema. In a child whose chest expansion was reduced to three quarters of an inch, and with the diaphragm appearing flattened out and immobile under the x rays, rest for a couple of months, with the use of the cotton webbing, brought about a complete restoration of respiratory function, the expansion increasing to two and a half inches and the diaphragm showing a normal cupola and apparently contracting normally. In a man suffering from inveterate bron-

chitis and emphysema as a sequel to pneumonia many years before, and with chest expansion likewise reduced to three quarters of an inch and diaphragm practically immovable, great relief was afforded by an elastic corselet made from shoemaker's webbing, i. e., the webbing used for elastic side boots. The author considers that these cases are often permanently benefited by the measure, which permits the inspiratory muscles, at first spastic and then enfeebled, to regain their purchase and become strong again. Emphysematous working men, taught to use the webbing in the hospital, seldom give it up thereafter, as it renders them much more fit for work.

Treatment of Chilblains.—Hammerschlag, in *Journal de médecine de Paris* for September 13, 1913, is credited with the following ointment for chilblains:

℞ Plumbi subacetatis, ...gr. lxxv (5 grams);
Petrolati, ...
Adipis lanæ hydrosi, } āā 3vi (25 grams).
M. et ft. unguentum.

Kaposi has recommended the following combination:

℞ Camphoræ, ...gr. xv (1 gram);
Ceræ albæ, ...5x (40 grams);
Olei lini, ...3iiss (80 grams);
Balsami peruviani, ...℥xxiv (1.5 gram).
M. et ft. unguentum.

Treatment of Furunculosis.—Rishl, in *Journal de médecine de Paris* for October 4, 1913, is credited with having recommended the use of a two per cent. solution of salicylic acid, used as a lotion around a furuncle each time the latter is dressed, for the purpose of preventing infection of healthy skin areas.

To bring about desquamation of the epidermis where it is infected with staphylococci, the area should first be lightly rubbed with ether or benzine, to remove fats, and the following paste then used:

℞ Betanaphtholis, ...partes 5;
Sulphuris sublimati, ...partes 25;
Saponis, ... } āā partes 10.
Petrolati, .. }
M. et ft. pasta.

This should be applied in a layer one or two mm. thick, with a small spatula. In a minute or two the patient will experience a sensation of burning, which will disappear spontaneously in about ten minutes. The paste should be removed with the spatula about ten minutes after its application, the area then washed with benzine or ether, and some bland powder applied. Correctly used, the paste leaves a local redness, which disappears in an hour's time at most.

The same procedure should be gone through on the succeeding days, until the stratum corneum has assumed a parchmentlike appearance. Throughout the treatment no water should be allowed to come in contact with the involved area, which, however, should be washed over at frequent intervals with alcohol to which one or two per cent. of resorcinol or salicylic acid has been added, followed by dusting with a bland powder. The desired result will usually be obtained after three or four days' treatment.

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EDITORS

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THE VARIETIES OF MODERN BULLETS.

The various bullets which have been used by armies of civilized nations admit of being grouped together in three classes, the members of each of which resemble each other more or less closely in the means used to injure or kill an enemy. One of these classes of projectiles is called the reduced calibre, jacketed bullet. The second class includes the leaden balls in shrapnel and the blunt nosed bullet formerly in use in the British army and subsequently used by the Servians. (*Journal of the Royal Army Medical Corps*, xvii, page 607, 1911.) To the third class belong the expanding bullets, the soft nosed bullet, and the dum-dum bullet. Some authorities speak of the first class as the pointed bullet. It has less stopping power than the other two. The greater part of the nations of the world use the ogival bullet, described editorially in our issue for August 15th, page 330; it is a pointed bullet whose tip forms an obtuse angle like an arch. All three groups of bullets may be compared by their effects on bone. These effects are carefully described by Lagarde (*Gunshot Injuries*, page 72, 1914), and by an Italian officer, Imbriaco (*Poli-clinico, sezione pratica*, xx, page 113, 1913). Lagarde contrasts the effects of bullets as shown by

x ray pictures of fractures. Imbriaco, on the other hand, is occupied with a single problem—the effects of bullets fired at long and at short distances.

Taking the latter problem first, we find, as Imbriaco says, that the two bullets now in use, the ogival and the blunt nosed, have a rotary and a wobbling motion. On impact they produce a wound like that made by the blow of a hammer. This effect seems to be observed at all ranges, but particularly at 1,000 yards. Here the gyroscopic steadiness due to rotation is lost; the bullet may even turn on its axis and produce explosive effects. Colonel Lagarde describes an instance; the wound was made by the bullet of the United States magazine rifle, which is similar to the bullet used by the British and Germans. Lateral impact seems the only explanation of these explosive effects. The unstable Japanese bullet, unstable because it is the lightest and smallest in use, makes at 800 to 1,000 yards perforations which are large, with explosive exits, and in the soft viscera a wide track showing a great deal of laceration. These effects are probably the result of the bullet's course, which is a tangent to the curve of the trajectory. Before it takes a curve, at very short ranges, it has effects less severe, but here its stopping power is less. In this respect it is much inferior to the blunt nosed bullet. The action of both these types of modern bullets on the human body would, at first sight, seem to be the same, but careful inspection of wounds during the Balkan war shows that wounds caused by the sharp nosed German or Turkish bullet were on the whole more favorable for speedy healing than those caused by the blunt nosed Servian bullet. For example, a Turk and a Servian were both wounded in the same bone of the forearm. They were advancing on each other at 100 metres. The blunt nosed, nickel mantled Servian bullet caused a terrible smashing of the bone in the case of the Turk, whose arm was destroyed, while the Servian got off with simple fracture, a clean hole through the radius without splintering. (Grinberger, *Journal of the Royal Army Medical Corps*, xx, page 377, 1913.) There is, however, a marked defect of the pointed bullet. The result of shaving off the tip and shoulder to a fine point is to throw the centre of gravity very far back, as we have already pointed out (*JOURNAL, loco citato*); this peculiarity tends to make the bullet travel on its transverse axis. This effect increases wounding power by increasing the area of the wound.

It is interesting to inquire if these effects resemble the effects of dum-dum bullets. The dum-dum bullet, as is well known, has a jacket and a core of lead, but its special quality is the projection of the lead beyond the mantle. When it strikes an object

the soft lead spreads out in the shape of a mushroom, hence the bullet causes wounds that have great stopping power. Pointed bullets, it should be said, can be converted into dum-dum bullets by filing the point and exposing the lead. The x ray plates of the effect of these bullets on bone furnish strong presumptive evidence whether the bullet was jacketed or not. Colonel Lagarde, in the series of plates which illustrate his book, shows that the fracture caused by the dum-dum bullet betrays fragments of lead on the plate, and a butterfly arrangement of the particles.

DRY VEGETABLES IN DIABETES.

Dry vegetables, by which term French clinicians mean all legumes such as peas, beans, and lentils, which contain a relatively low proportion of water, have been found recently to be of considerable value in the treatment of hyperglycemia and acidosis, which entail the danger of diabetic coma. While von Noorden has clearly shown the advantages of a vegetable diet and has reported many cases successfully treated by means of oatmeal, it is well known that the latter is not well borne by some patients and that this cereal also presents the disadvantages of being poor in protein and of inadequately opposing nitrogenous denutrition. Meat is also harmful in cases attended with denutrition and acidosis, and tends to favor the production of coma. Conversely, the above mentioned dry vegetables are well borne; they satisfy the appetite, even in those who are in the habit of eating copiously, and are beneficial where through this habit the liver has become engorged. They also present the signal advantage, in some cases, of considerably reducing the sugar excretion, and tend markedly to arrest the progress of the disease. They are especially effective in severe cases in which denutrition is pronounced, and acidosis appears as a danger signal of coma.

Marcel Labbé (*Revue de médecine*, July 10, 1914) lays stress on the value of this form of dietetic treatment in the class of patients mentioned, and reports numerous illustrative cases. The dietetic course in twenty-four hours was as follows: Of dry vegetables, 300 grams; 150 grams of butter; five or six eggs; five or six aleuron biscuits or thirty grams of gluten bread. The vegetables (peas, beans, or lentils) should be thoroughly cooked to insure perfect digestion. The butter is used with the vegetables, but the eggs may, if preferred, be taken separately and cooked according to the patient's taste. Purées may be employed, but the decortication this involves is necessary only where digestion is defective. The quantities given

above are for three or four meals. It is by no means an inanition diet, since it furnishes on an average 120 to 140 grams of protein, 130 to 170 grams of fats, and 170 to 190 grams of starch. This diet should be continued three or four days, though some of Labbé's patients prolonged it without inconvenience and apparent benefit for two weeks or more and then suspended it for ten days or two weeks.

The use of dry vegetables was found not to constipate as does the milk diet, while avoiding the periods of diarrhea which attend the use of oatmeal. The vegetables maintain normal intestinal movements; in one of Professor Labbé's cases, in fact, the dry vegetable diet corrected a constipation which had resisted many laxatives. The digestive process is as a rule easy, and absorption is good, as shown by examination of the stools and by the arrest of denutrition.

On the whole, the advantages noted have been the elimination of the danger signals of diabetic coma, viz., general malaise, anorexia, depression, and somnolence; increased nutrition, reduction of the sugar ratio, and disappearance of the acidosis, particularly where meat is no longer included in the diet. The regimen referred to advantageously takes the place of the alkaline treatment.

THE CASE AGAINST THE TONSIL.

Although the anatomical peculiarities of the tonsils, such as the lack of complete epithelial covering, the presence of crypts, and their exposed condition have been recognized for years, yet the disease producing possibilities of these structures have been appreciated but slowly.

At first the removal of the tonsils was considered advisable on account of the direct influence that they exerted upon the development of the individual. If they were enlarged, they were removed and the pre-existing conditions were expected to improve. That they might be sources of local or systemic infection was not realized generally for many years. Possibly the recognition of their importance in tuberculosis of children was the first step forward from a bacteriological point of view. The marked prostration from a so called simple follicular tonsillitis was further indication of the general disturbances resulting from what was considered a local condition.

Time passed and a relationship between tonsillar injections and "rheumatic" conditions was observed. Bacteriological examinations of excised tonsils showed that cocci were present in many instances. Experimentation in turn proved that the cocci found were virulent for smaller animals, and in numerous cases caused an acute infection of the joints. It was

well known that acute and chronic endocarditis was not uncommon during and after attacks of articular rheumatism. Some of the organisms removed from the tonsils showed that they could give rise to similar cardiac conditions. It was at first supposed that the cocci found were a special type, but recent work indicates that they are nothing more than ordinary streptococci that have undergone certain modifications.

That a clear case has been made against the enlarged tonsil seems true. Not only can it hinder both the physical and mental development of the child, but it can be the port of entry for bacteria, giving rise to widespread disturbances, both acute and chronic, and of varying severity.

THE SANITARY CONSCIENCE.

Professor Rosenau, of Harvard, finds the awakening of the sanitary conscience to be one of the most remarkable developments of our age. It is a new idea to many, that the care of the body and care of the surroundings of each of us may be, indeed generally are, very considerable factors in the comfort, safety, and even the life and health of all the rest. The moral sense derived from personal hygiene is part of the doctrine of sanitary righteousness; twentieth century preventive medicine "teaches the unselfishness of community interest, and has been a potent biological factor underlying the present trend toward socialism."

The question, Am I my brother's keeper? has been variously answered, and not always ignobly. But there is no question at all that, through being steadfastly one's own keeper, the welfare of one's neighbors is vouchsafed. The man with the sanitary conscience will get himself and his own vaccinated, for his own sake and because by thus personally avoiding smallpox, he and his will not be transmitters of that infection to others. He would certainly not, if he could avoid it, commit homicide; no more should he, by neglecting to prevent disease in himself and in his household, be the cause of others dying of dreadful infections. It is odd how belated in civilization is this latter idea. A man's own length of days in the land depends on his maintenance of his house and grounds in a wholesome condition; by the goodness of his character he ought to perceive that if the environment for which he is directly responsible was otherwise—if it included a neglected fly breeding dung heap, for example, or a mosquito breeding cesspool—his community would be in jeopardy of typhoid or malaria. His sanitary conscience should, both in logic and in rectitude, impel him inexorably to an

interest in the local health administration; to back up the local health officer; to get such an officer discharged if he happens to be incompetent for such important work, and to see that an efficient man is employed. Then he must hold up the arm of the right man, realizing that the latter can by himself alone no more assure the communal health than a minister can conduct a church, unaided by the people in the pews. After all, the sanitary conscience is part and parcel of the physiological life which, being consistently lived, all the rest—the moral life, the spiritual life, the intellectual life, the strenuous life, the last, however, within rational limits, shall be assured.

THE WAR AND DRUG PRICES.

The war in Europe has completely disorganized the drug markets of the world. Some fifty of the more important botanical drugs are drawn from the area involved in the war, and even drugs from the Orient and India have been materially affected in price, since most of them reach us through either London or Hamburg, and the interruption of traffic between those ports and New York has cut off immediate supplies. Our supplies of opium are grown in Asia Minor and reach us through Salonica and London. It has been impossible to obtain supplies regularly, and not only has opium been advanced in price, but the American manufacturers of the alkaloidal derivatives have withdrawn all quotations. We are dependent upon Germany for a large number of synthetic products, such as antipyrine, salvarsan, atophan, atoxyl, etc. As a rule, both American importers of these drugs and the German manufacturers carry from two to three months' supplies. The probabilities are that most of the German laboratories have either ceased manufacturing on account of the lack of men or have been commandeered to manufacture army medical supplies. Before the supplies now in the United States are exhausted, communication will probably be reestablished with the German factories through some neutral port, such as Rotterdam; we can then draw on the reserves at the laboratories, provided Germany does not follow the example of England and forbid the exportation of both food and medicinal products. If the reserves are exhausted before the resumption of manufacture, we shall be compelled to abandon the use of these synthetic drugs, resorting to such of the older remedies as may be available. A few of the synthetic products are already made in the United States and others may be made, though not economically.

Many of these synthetic drugs are protected by United States process patents. They could be manufactured in the United States under these patents on a royalty basis if satisfactory terms could be arranged with the German patentees, but the erection of factories, the organization of the staff, etc., would involve an investment which no manufacturer would care to make in view of the uncertainties of war. Several years ago, England adopted an amendment to the patent laws requiring the operation in England of all process patents in order to maintain their validity. The result has been an increase in the cost of such products to the English consumer, the patentees having added to the price of the products the amortization cost of the English plant. It remains to be seen whether this law works out well under the exigencies of war. It has not accomplished its expected purpose in times of peace.

At the recent meeting of the American Pharmaceutical Association, a committee was appointed to encourage the collection of indigenous drugs which have not hitherto been collected on account of the competition of cheap labor in Europe. If this committee is successful, the threatened famine in several important drugs may be averted. The prices of practically all medicinal chemicals have been increased by the manufacturer and the wholesale markets are in an unsettled condition, with prospects of still further advances.

THE TREATMENT OF SUNSTROKE.

It has been frequently stated that in sunstroke, the patient should be at once placed in a tub of water at a temperature of 80° F., to which ice should be added gradually until the temperature reaches about 40°. The error of this practice, an error which has crept into various textbooks, is thoroughly exposed in Baruch's *Principles and Practice of Hydrotherapy*, p. 384. The mortality after this treatment is 33.33 per cent., a mortality which Osler considers "about as satisfactory as can be obtained." Yet Baruch shows that the rate may be reduced to six per cent. by means of *affusions with force*, of ice water, stopped when the temperature falls to 103° F. He contrasts the various methods and mortality. The graduated bath (110° to 72° F.) has a mortality of 41.17 per cent.; the ice pack a mortality of 38.7 per cent.; the cold bath (70° to 50° F.) a mortality of 33.33 per cent.; the needle spray a mortality of 11.5 per cent. As hospitals and tubs are not always at hand, the chief point of interest may be how to reduce the temperature without ice water. It is strange that Hiller's work should be so often overlooked (*Der Hitzschlag auf Märschen*, etc.). In these circumstances—the most common ones in our experience—the clothing is removed from the chest and legs. Water is then sprinkled over the exposed parts of the body and

evaporation produced by waving a coat rhythmically over the face, chest, and legs. With the evaporation of water a marked fall of temperature takes place and a corresponding stimulus to the brain and nervous system. When the patient can swallow, water (not whiskey) is freely administered. We have ourselves treated cases in this way with success. The distinction between sunstroke and heatstroke seems to be loosely made. The true distinction, we think, is between the asphyctic and the comatose form.

News Items.

Changes of Address.—Dr. Samuel D. Ingham, to 601 Professional Building, Philadelphia.

Publication of British Pharmacopœia Postponed.—It is announced that on account of the war the publication of the British pharmacopœia for 1914 has been postponed.

The War and a Medical Journal.—*Riforma medica*, published at Naples, announces that it cannot undertake to mail foreign copies until the present abnormal state of affairs in Europe is ended. The suspension began with No. 33, for August 15th.

Oregon State Board of Medical Examiners.—At the annual meeting of the board, it was decided to reject applications for reciprocity with other States in the matter of admitting licensed physicians to practise in the State of Oregon without examination. Officers were elected as follows: Dr. Harry F. McKay, president; Dr. L. H. Hamilton, secretary; Dr. Charles T. Chamberlain, treasurer.

Fund for the American Ambulance Hospital, Paris.—This fund now amounts to over \$30,000. It is being raised for the purpose of equipping an annex to the American Hospital in Paris with 1,000 beds and adding an automobile ambulance service in order to meet the extraordinary demands upon the hospital during the war. The entire service is in charge of American surgeons and nurses, and ill and wounded soldiers are being cared for irrespective of nationality. Refugees in Paris are also receiving medical attention.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, September 21st, Philadelphia Clinical Association, Episcopal Hospital Clinical Society; Tuesday, September 22d, West Philadelphia Medical Association; Wednesday, September 23d, Philadelphia County Medical Society; Thursday, September 24th, Pathological Society, Germantown Branch of Philadelphia County Medical Society; Friday, September 25th, Northern Medical Association, South Branch of the Philadelphia County Medical Society, Medical Club.

American Hospital in London.—The American Women's Hospital, fully equipped through the efforts of American women in London, has been turned over to the war office and is housing a large number of wounded soldiers. Beds for 200 patients have been provided through the efforts of American women, and complete hospital equipment and all supplies required by injured soldiers have been supplied by the committee, headed by Lady Paget. The American flag and the Red Cross flag fly together from the roof of the hospital, and it is open to the wounded soldiers of all nations.

The Travel Study Club of American Physicians, which made a successful study tour of Europe last year, has completed plans for its 1915 study tour to the meeting of the American Medical Association in San Francisco, to Honolulu, Japan, the Philippines, and China, with return optional via Siberia and Europe (war permitting) or via Canada. This being the first party of American physicians to visit the Far East and the new possessions of the United States, a most cordial welcome may be expected by authorities and members of the medical profession. The club would like to make its enterprise as representative as possible, and asks all those interested to communicate with the secretary, Dr. Richard Kovacs, 236 East Sixty-ninth Street, New York.

The Red Cross Fund.—On September 17th, the New York branch of the Red Cross Society received \$8,767.54 for the European fund, making the total amount received since the fund was started \$131,875.05.

Announcement was made on September 8th that contributions received by the Philadelphia branch of the Red Cross Society amounted to over \$4,000, and on September 15th, Baltimore's contributions to the fund amounted to nearly \$4,000.

Medical Society of the State of Pennsylvania.—The sixty-fourth annual meeting of this society will be held in Pittsburgh, on Monday, Tuesday, and Wednesday, September 21st, 22d, and 23d, under the presidency of Dr. Edward B. Heckel. All scientific meetings and the commercial exhibit will be held in the Carnegie Institute, and the headquarters of the association will be at the Hotel Schenley. An excellent scientific program has been prepared, the committee taking care to prevent an excess of papers in order to permit of free discussion. Other officers of the association are: First vice-president, Dr. Henry D. Jump, of Philadelphia, who is also chairman of the program committee; second vice-president, Dr. James B. Amberson, of Waynesboro; third vice-president, Dr. Jefferson H. Wilson, of Beaver; fourth vice-president, Dr. John B. McMurray, of Washington; secretary, Dr. Cyrus Lee Stevens, of Athens; assistant secretary, Dr. William H. Cameron, of Pittsburgh; treasurer, Dr. George W. Wagoner, of Johnstown.

List of Diseases Which Must Be Reported.—In order to bring the provisions of the sanitary code relating to the infectious diseases more thoroughly into harmony with modern scientific conception, the board of health at its regular meeting, August 25, 1914, amended the code so that the Sections now read as follows:

Section 133. It shall be the duty of every physician and of the commissioners or managers or the principal, supervisor, superintendent, or physician, of each and every hospital, public institution, or dispensary in this city, to report to the department of health in writing, the full name, age, and address of every person suffering from any one of the infectious diseases included in the list appended, with the name of the disease, within twenty-four hours of the time when the case is first seen: Anthrax, Asiatic cholera, diphtheria (croup), dysentery (epidemic), epidemic cerebrospinal meningitis, glanders, gonorrheal ophthalmia, hookworm disease, leprosy, malarial fever, measles, mumps, paratyphoid, plague, poliomyelitis, acute anterior (infantile) paralysis, pulmonary tuberculosis, rabies, rubella (German measles, *rotheln*), scarlet fever, septic sore throat, smallpox, tetanus, trachoma, tuberculous meningitis, typhoid fever, typhus, varicella (chicken pox), whooping cough, and yellow fever.

Personal.—Dr. Louis Faugeres Bishop, and Mrs. Bishop, who were in Bad Nauheim, Germany, the greater part of the summer, returned to New York on the *Rotterdam*.

Dr. Albert L. Lowenstein has been chosen to take charge of the medical work of the Jewish Philanthropic Society, Rochester, N. Y.

Dr. John Hewat, of North Adams, Mass., has been accepted as a volunteer member of the British Army Medical Corps, with the temporary rank of lieutenant in the Royal army. Doctor Hewat came to North Adams about a year and a half ago from Edinburgh, Scotland.

Dr. Edward Bradford Dench, of New York, was a passenger on board the steamer *Antilles* which left Genoa, Italy, for New York on September 11th.

Dr. William H. Welch, of Johns Hopkins Medical School, Baltimore, arrived in New York on September 7th on the *Rotterdam*.

Dr. Virgil H. Moon has been appointed head of the pathological department of the Memorial Institute for Infectious Diseases, Chicago.

Dr. Robert N. Willson has been appointed a member of the visiting staff of physicians at the Philadelphia General Hospital, to succeed Dr. William E. Hughes, resigned.

Dr. John L. Borsch, Jr., of Philadelphia, has joined the French army and is now in active service.

Dr. Carl Habich, of Indianapolis, has been appointed chief medical inspector of the public, private and parochial schools of Indianapolis.

Dr. Albert Comstock has recently opened an office at 1169 Flatbush Avenue, Brooklyn.

The Week's Mortality in New York.—There were 1,206 deaths and a death rate of 11.27 reported during the past week, against 1,184 deaths and a rate of 11.50 for the corresponding week of 1913, an increase in the absolute number of deaths of 22, but a decrease in the rate of 0.23 per 1,000 of the population, which is equivalent to a decrease of 25 deaths. The most noteworthy decreases in the individual causes of death were scarlet fever—not a death was reported from this cause during the week, which is unusual—diphtheria and croup, whooping cough, lobar pneumonia, and bronchopneumonia. Those causes showing material increases were typhoid fever, diarrheal diseases, organic heart disease, pulmonary tuberculosis, Bright's disease, and deaths from violence.

The American Red Cross Ship.—The *Red Cross* sailed for Europe on Sunday afternoon, September 13th, with Captain Armistead Rust, United States Navy, in command. The first stop will be Falmouth, England, where four Red Cross units will be landed, two for service with the British and two with the Russian forces. From Falmouth the *Red Cross* will go to Brest, to land two units for the French Army, and from Brest to Rotterdam, where the units assigned to the German Army and the army of Austria-Hungary will be landed.

At Falmouth, Rear Admiral Aaron Ward, U. S. N., retired, will take command of the expedition. Ten additional units are being organized in this country for service in the war zone. If they are ordered to the front they will go on a regular liner.

News of the Medical Schools.—Dr. Eliot Round Clark, formerly assistant professor of anatomy at Johns Hopkins University, has been made professor of anatomy at the University of Missouri, Columbia. Dr. M. P. Ravelle, formerly of the University of Wisconsin, has been made professor of medical bacteriology and preventive medicine and director of the public health laboratory at the same institution. Dr. Floyd A. Martin has been appointed instructor in pathology. While only the first two years of the medical curriculum are taught at the University of Missouri, there have been added recently a course in minor surgery and one in physical diagnosis. Dr. Max W. Myer, formerly professor of gynecology and obstetrics in the University of Missouri, and later of St. Louis, has been made professor of clinical medicine and surgery.

The next session of the department of tropical medicine of Harvard University will begin on October 1, 1914, and will continue until April 10, 1915. The courses will be open to graduates from recognized medical schools; properly qualified students (not necessarily graduates in medicine) will be admitted to single courses, or to any number of courses which they may care to select from the various subjects offered. Students in the Harvard Medical School may also follow courses in the School of Tropical Medicine. Women are admitted on the same terms as men. The tuition fee for students pursuing all the regular courses is \$100 for the school year; special students not paying the regular fee must pay a special fee for each course taken. Laboratory material will be charged at cost. A detailed announcement of the complete course in tropical medicine may be obtained by applying to the dean of the Harvard Graduate School of Medicine, Boston.

The opening exercises of the thirty-fifth annual session of the College of Physicians and Surgeons, Boston, were held on Wednesday, Thursday, and Friday of the past week. On Wednesday, Dr. Benn E. Nicola, superintendent of Attleboro Sanitarium, delivered an address on Rational Therapeutics. On Thursday, an illustrated address on Solving the Milk Problem was given by Dr. Nelson C. Davis, and on Friday afternoon Dr. Arthur B. Morong, a member of the faculty of the college, gave an address on physiology.

Dr. John B. Harvie, of Troy, N. Y., has been appointed clinical professor of surgery at the Albany Medical College.

Dr. L. D. Bristol, formerly assistant professor of bacteriology and director of laboratories at Syracuse University, N. Y., has been appointed professor of bacteriology and pathology at the University of North Dakota and director of the State Health Laboratory, succeeding Dr. Gustaf Ruediger, who resigned to become director of a hygienic institute in La Salle, Ill. Dr. J. E. Cox, also from Syracuse, N. Y., has been appointed professor of pathology at the University of North Dakota.

Pith of Progressive Literature.

DERMATOLOGISCHE WOCHENSCHRIFT

August 8, 1914.

Friedmann's Remedy for the Treatment and Prophylaxis of Lupus, Tuberculosis of the Skin and Bones.—P. Wichmann says that although he did not have high expectations that a cure of lupus could be obtained by means of this remedy, for the small number of tubercle bacilli contained in the patches rendered such a widespread specific action improbable, yet he did think that activity of the tuberculous foci could be affected, so that under the influence of the remedy there would be at least no farther advance, and no appearance of new patches, especially as the activity in lupus and bone tuberculosis is relatively slight. Even these moderate and reasonable expectations were not realized; benefit was obtained in not a single case, and he maintains that there is no justification for terming Friedmann's serum either a prophylactic or a remedy.

Immunotherapeutic Experiments in Syphilis.—A. Groszlik concludes his paper on this subject with the following statements: 1. The alcoholic extract of the syphilitic fetal liver acts specifically on products of syphilis in all stages of the disease, similarly to mercury, potassic iodide, and salvarsan. 2. As regards quickness, intensity, and number of the cases influenced, it is not equal to the tested specifics. 3. If the so called favorable cases alone are taken into account, the effect of the extract was most marked in the secondary, much less in tertiary, and least in recent syphilis. 4. Among the secondary manifestations those localized in the skin were affected to a higher degree than those in the mucous membranes. 5. Among the tertiary diseases ulcerated gummata responded much more readily than those that were not ulcerated, but the syphilitic diseases of the periosteum and of the bones resisted the influence of the extract the most obstinately. 6. The therapeutic methods had no visible influence on the results of treatment in secondary recurrent syphilis, while in tertiary better results were obtained with small doses than with large.

August 15, 1914.

Treatment of Gonorrhea with Uranoblen.—M. Mondschein advocates the use of soluble capsules containing a silver compound to be introduced into and allowed to dissolve in the urethra in the way suggested by Bruck. The capsules are about twelve cm. long, four or five mm. in diameter, with thin walls, and are made of a nonfatty substance that maintains its shape rigidly and yet is readily soluble. These capsules are filled with what he calls uranoblen, a compound that contains about 40.5 per cent. of silver, is easily soluble in water, and is not precipitated by either albumin or salts. The filled capsule is dipped in a lubricant that is quite free from fat, as fat interferes with the germicidal action of the drug, is introduced into the urethra, and left there as long as the patient can go without micturition. The capsule becomes dissolved in from ten to fifteen minutes and allows the uranoblen, to which is ascribed a high germicidal power against

gonococci, to be distributed uniformly over the mucous membrane. The writer reports twenty cases, ten acute, four subacute, and six chronic, which he has treated successfully in this manner. Gonococci disappeared on the average in from eight to twelve days, frequently in three, and the disappearance proved to be permanent. When for any reason the capsules cannot be introduced at the beginning of an acute case, the duration may be as long as from sixteen to twenty-two days.

PARIS MÉDICAL.

August 1, 1914.

Serum Diagnosis of Tuberculosis with Egg Antigen.—A. Besredka employs a complement fixation reaction in which the antigen is produced from cultures of tubercle bacilli on egg bouillon. The bacilli are grown in this medium for several months, until abundant cultures are formed. A mixture of human and bovine cultures one month old is then made, heated to 115° C. for fifteen minutes, and the organisms are allowed to sediment. The supernatant clear fluid constitutes the antigen employed. In each of five tubes is placed 0.2 c. c. of the serum to be tested and 0.3 c. c. of the antigen. The alexin is freshly obtained from guineapigs, and in a one in thirty dilution, is added to each of the five tubes in amounts ascending from 0.3 c. c. to 0.7 c. c. In a sixth (control) tube, containing no antigen, 0.5 c. c. of alexin is placed. Before each test the alexin must be standardized in the presence of antigen and normal serum. After the preparation of the tubes they are incubated for one hour, and 0.1 c. c. of a twenty per cent. emulsion of washed sheep corpuscles and 0.1 c. c. of hemolytic serum is added to every tube. The tubes are then incubated again for twenty-five or thirty minutes, and the results noted. Of sixty-seven persons yielding a positive or partial reaction, who were clinically examined, the large majority clearly proved tuberculous or showed suspicious lesions, while of 145 yielding a negative reaction fifteen had signs suggesting a former active tuberculosis. In a subsequent series of 150 cases even more striking results were obtained. On the whole, the author feels justified in asserting that the reaction, giving positive results in nearly 100 per cent. of cases of incipient tuberculosis, is likely to prove of value to the clinician. The serum reaction generally proves negative in cases of latent tuberculosis, becoming positive only when the morbid process resumes activity. It is, therefore, likely to prove useful in the early detection of the disease.

Diagnosis and Treatment of Undulant (Malta) Fever.—E. Sergeant is convinced that cultivation of *Micrococcus melitensis* from the blood and urine is the best procedure in the diagnosis of undulant fever. The serum (agglutination) reaction is always of use and often entirely sufficient in the diagnosis, but certain precautions of technic are absolutely essential to correct results, viz., the culture used must be as young as possible—not over a few days; the emulsions should be made in normal saline solution and be rather clear; the microscope should be used in deciding the extent of agglutination that has taken place; the strain of micrococci used in the

test must have been carefully selected for proper agglutinability; and the serum under examination must always be heated for a half hour at 56° C. before the test is made. Even if agglutination does not occur under these conditions, it cannot be positively stated that an infection with *Micrococcus paramelitensis* does not exist. In regard to the prophylaxis of undulant fever, Sergeant calls attention to the fact that the disease is transmitted not only through contaminated milk but also from soiled hands. His observations were made in Algeria.

SEMAINE MÉDICALE.

August 5, 1914.

New Reaction of Syphilitic Blood Serum.—

L. Hirschfeld and R. Klinger describe a new serum reaction for syphilis—the coaguloreaction. The organ extracts in the Wassermann reaction exert a powerful cytozymic or coagulation action, which disappears in contact with a syphilitic serum, though little altered by normal serum. In the new test, when the extract in contact with the serum under examination exhibits a normal clotting power, the serum is considered normal, whereas if clotting is delayed or entirely prevented, the serum is held to be derived from a syphilitic. The fluids required in the performance of the reaction include serozyme; normal saline solution with the addition of calcium; oxalated blood plasma. The serozyme consists of clear rabbit serum, rendered incoagulable with sodium oxalate and incubated for an hour to destroy the residual thrombin. The calcium solution is made by adding five c. c. of one per cent. calcium chloride solution to 100 c. c. of normal saline, while the oxalated plasma is obtained from ox blood. The organ extract used is an extract of guineapig's heart, of such coagulating power that 0.1 c. c. of a one in 160 dilution, placed in contact with the serozyme and oxalated plasma, causes the latter to coagulate in three or four minutes. In carrying out the reaction the serum under examination is first heated for forty minutes at 58° C. In each of four test tubes are placed 0.1 c. c. of this serum, and in the first three tubes a like amount of the organ extract, in dilutions, respectively, of one in forty, one in eighty, and one in 160. In the fourth, or control, tube is added 0.1 c. c. of normal saline. The tubes are shaken, allowed to stand for an hour, and there are then added to each one c. c. of the calcium saline solution and 0.5 c. c. of serozyme (previously diluted with four parts of saline solution). Fifteen minutes later one c. c. of dilute oxalated plasma is added, the tubes are gently shaken, and the progress of coagulation is then observed by partly reclining the tubes at short intervals. Negative serums show a delay of one to eight minutes compared with the controls, and positive (syphilitic) serums coagulate long after or not at all. In 750 cases in which the results of the Wassermann test and coaguloreaction were compared, an almost complete concordance of the two tests was noted, the latter even proving superior by being positive in cases of syphilis under treatment and cases of latent syphilis in which the Wassermann was negative. The coaguloreaction, in spite of its relative simplicity, will not, in the author's estima-

tion, replace the Wassermann, now adopted everywhere, but may be useful as a control test where the Wassermann is doubtful, and, being more sensitive than the Wassermann, seems to be indicated for use where the physician wishes carefully to trace the course of the disease and determine the effect of treatment.

BRITISH MEDICAL JOURNAL.

August 22, 1914.

Evolution of the Shockless Operation.—H. M. W. Gray says that, after an experience of nearly twenty years in the use of local anesthesia, he has come to regard it as the chief, the most important factor of any of those at our disposal in the prevention of pain and therefore of shock. He looks upon general anesthetics, narcotics, and other precautionary measures merely as adjuvants to the local anesthetic. Credit is given to Crile for having done more than any one else to popularize the methods of anoci association, but Gray thinks that the haphazard attempts to employ it still indicate a lack of appreciation of the essentials of the method. The preparation of the patient should be as simple as possible, with every attention to the avoidance of anything which might disturb him, and the operation should occur as soon as possible after the decision to operate has been made. The injection of an opiate should precede the actual steps of preparation. Thoroughly sharp cutting instruments should be used and no tearing nor trauma should be permitted. Complete and accurate hemostasis is an essential. Tight suturing must be avoided, and a proper dressing should be applied to relieve the possible strain on the sutures. If a general anesthetic becomes necessary preference should be given to open ether, and only the smallest possible amount should be employed. As a preliminary narcotic a combination of omnopon and scopolamine is recommended. It is also valuable to give a dose of veronal on the evening preceding the operation, both to secure a good night's rest, and as an adjuvant to the later narcotics. Gray's method of producing local anesthesia for abdominal operations is essentially the anesthetization of the several nerve trunks laterally upon the abdomen through five or six punctures. The solution consists of 0.4 gram of potassium sulphate and twelve drops of synthetic adrenaline to each hundred c. c. of one fourth per cent. solution of novocaine. All the tissues from the skin to the peritoneum should be infiltrated at the site of each puncture. In addition to this the line of incision is infiltrated in a similar manner, and, if necessary, additional infiltration of the mesenteric attachments, etc., may be made. With his technic Gray has had only two cases of post-operative shock in well over 2,000 cases in the last three years.

Opium and Omnopon.—H. Sahli contributes a laudatory article on the relative value of omnopon (pantopium) compared with opium and morphine. The most important advantages are: Its solubility in water, and hence its utility for hypodermic administration, and the fact that the presence of the by alkaloids of opium renders the preparation less active on the respiratory centre. Ill effects

from the injection of omnopon occur only occasionally. Sahli attempts to explain some of the claims for omnopon as follows: On the one hand omnopon exerts a powerful calming action upon peristalsis and is an efficient agent in the symptomatic treatment of diarrhea; on the other hand, when fulfilling its office as an analgesic, hypnotic, etc., the constipating action is so slightly marked as to be almost negligible; certainly it is far less marked than that of morphine. This merit is related to the technic of administration according to different indications. In order to get the full action upon peristalsis, the preparation must be given on an empty stomach. In this method the alkaloids of opium come into intimate contact locally in relatively high concentration, and the action on peristalsis is therefore decidedly enhanced. When given by the mouth to allay a troublesome cough the frequently repeated doses of the preparation do not enter a quite empty stomach, and as the individual doses are small, the concentration reached in the gastrointestinal tract is rarely high. Constipation can be obviated by suitable distribution of small doses and avoiding giving them on an empty stomach. Paradoxical conditions with regard to the constipating effect appear also when the drug is given subcutaneously. If the injections are made with the object of inducing sleep or for analgesic effect, the constipating action is not in evidence. In this case the local action on the intestine takes place only through the excretion of the alkaloids through the mucous membrane, and therefore in a mitigated form. Notwithstanding this, diarrhea can be controlled with ease by subcutaneous injections of omnopon and this can be explained by the well known pharmacological rule, that an irritated function can be more easily checked than one not pathologically excited.

Disseminated Sclerosis Treated by Inoculation.

—H. Lyon Smith and T. Grainger Stewart report a case of this affection, apparently secondary to an infected wound, occurring in a young woman. The spinal fluid gave a pure culture of *Staphylococcus aureus pallidus*, from which a vaccine was made. Prior to the culture one c. c. of the spinal fluid was injected subcutaneously, constituting an inoculation of about two million living organisms. After this from fifty to 400 million organisms were injected in the form of a vaccine. The condition improved very rapidly and the patient was discharged cured about six weeks after the first injection.

THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

August, 1914.

Staining Urinary Deposits.—Johnson employed various stains to differentiate the component parts of urinary deposits and found the most practical to be a stain composed of equal parts of methylene blue and polychrome methylene blue (chromatized old methylene blue). The process of staining which he calls the wet method is as follows: Some sediment from the urine is spread on a slide previously cleaned with a twenty per cent. lysol solution, allowed to dry in the air and fixed either in the flame or with ten per cent. formalin solution. If sediment is small in quantity, centrifugate for a few minutes; if abundant, centrifugate a few c. c., pour off the urine, wash the deposit with normal saline solu-

tion, and centrifugate again. If urates are present, add sodium bicarbonate; if phosphates, a trace of acetic acid. When the film is dry apply a few drops of stain, cover immediately with a cover slip, and press between blotting paper. The advantages of this method are: 1. Saving of time; 2, everything in the sediment is stained; 3, small amount of labor; 4, oil immersion lens can be used; 5, good differentiation between nucleus and cell structure; 6, the ingredients of the deposit are magnified. Following this procedure one can in a short time be able to name the ingredients present in a urinary deposit, and, if from the examination, it is deemed necessary to use further specific stains to study special parts of the deposit, they can be employed.

Pseudohypertrophic Muscular Dystrophy.—

Shaw reports two cases of this disease in brothers. The family history was negative, and a third child, a girl, was healthy. One of the brothers fell out of a perambulator when a year old, but with no harmful effect. Six months later, he had inflammation of the brain. After recovery, he was weak in his legs and at the age of two years, swelling of the calves was first noticed. He has never walked properly and is always falling. The condition has become progressively worse. The other boy was normal up to four years of age and was able to walk. Then he began to waddle and fall easily. When standing, the legs were kept apart, the chest was flattened anterioposteriorly, the shoulders were thrown back, the abdomen protruded. There was lordosis in the lumbar and dorsal regions which disappeared on sitting down. The gait was slow and equilibrium was easily disturbed. Of the muscles, those of the calves were most enlarged. Others showing hypertrophy were the supraspinatus and infraspinatus, deltoid, triceps, erector spinæ, gluteus maximus, and the hamstring. The atrophic muscles were the latissimus dorsi, pectoralis major, and biceps. Loose shoulders were well marked. The extensors of the knee, also, particularly the vastus internus, were atrophic. The knee jerks and the Achilles jerk were absent. Muscular weakness was one of the most evident features of this type of muscular dystrophy, and it was obviously not due to loss of muscle sense as in tabes. The only known etiological factor is heredity. In one half of the cases, it has been found to exist in members of the same generation. The familial tendency is marked, and is often limited to one sex. The female is capable of transmitting the disease though not affected.

GLASGOW MEDICAL JOURNAL.

August, 1914.

Malignant Ganglioneuroma of Left Suprarenal.

—Monro and Dunn report a case in a boy three and a half years old. His family history was negative. At the time of examination, about six months after the beginning of his ill health, there was marked pallor of the face, and large veins were seen on the forehead. The limbs were emaciated. A large mass was found in the situation which an enlarged spleen might occupy, but the anterior edge was thick and rounded and the mass extended more transversely than if it were a spleen. It was firm and easily movable. The hemoglobin was forty-

eight per cent., erythrocytes 2,020,000, leucocytes 4,000; urine normal. On the operating table a large retroperitoneal swelling, occupying the renal fossa, was found. A reniform body was found at the lower end of the swelling, which body corresponded to a large suprarenal. Considerable glandular enlargement in the prevertebral and cecal regions. Patient died before the completion of the operation. Pathological report showed the tumor to be composed of firm, pale tissue and in part of soft, hemorrhagic tissue; metastatic deposits in the retroperitoneal, mesenteric, mediastinal, cervical and inguinal glands. Tumors were also present in the ribs and bones of the skull. The liver and spleen were free. Histologically the firm, pale tissue was composed of nervous tissue; the soft, hemorrhagic areas, of small cells corresponding to the embryonic nerve cells which form the sympathetic nervous system in normal development. The secondary tumors were composed exclusively of the small celled malignant tissue.

Gangrenous Appendicitis with Complications.—Mort describes a case of gangrenous appendicitis in which after the appendix had been removed it was noticed that the colon was studded with darkened spots which resembled gangrenous perityphlitis. A portion of gangrenous omentum was removed, the wound was disinfected, packed, and drained. On the third day castor oil was given and a bowel movement was obtained. On the tenth day there was a sudden rise of temperature and pain over the wound set in. On the twelfth day signs of peritonitis had developed, including tympanites, rigidity, tenderness, and abdominal facies. A second operation was performed. Distended and collapsed coils of small intestine were found when the abdomen was opened, and a diagnosis of obstruction was made. It was found that the adhesion which caused the obstruction partially covered a rupture two inches in length in the intestine which was caused by gangrene of its wall. The band was ligated and cut away, the rupture sutured by four layers of continuous Lembert silk sutures, a fenestrated loop of omentum excised, and the wound packed with iodoform gauze and sutured loosely with silk. Four days after the second operation the rotted portion of the intestine ruptured again and intestinal contents poured abundantly from the upper end of the wound. The boy improved and was apparently recovering, with a fistula in the small intestine quite high up, as milk appeared in the opening soon after feeding. Methylene blue given per rectum did not appear in the wound. The fistula lessened in size and twenty-seven days after the last operation, closed spontaneously. The chain of complications is very interesting, as any one of them might have proved fatal.

CHINA MEDICAL JOURNAL.

July, 1914.

A Study of the Sources of Infection in Surgery.—J. B. Patterson concludes: The only method which gave an absolutely sterile plate every time was ninety-five per cent. alcohol, followed with bichloride, one to 1,000 for five minutes. 3. Hasty preparation is dangerous, even criminal at times. 4. Soap is a source of infection. Soap should be

boiled each day, or after each operation. 5. Forceps should be used in the dressings of all chronic surgery, to furnish the most perfect asepsis and to facilitate the surgeon's work.

Febrile Splenomegaly with Splenectomy.—G. Gushur-Taylor remarks that in splenectomy it seems to him that systematic division of individual vessels between ligatures, without clamps, as advised by Owen Richards, is preferable to seizing the whole pedicle in a clamp. The latter method is apt to be more bloody, and, to his mind, is attended by grave risk of the slipping of ligatures. In the removal of tropical spleens, he regards it of importance to respect the tail of the pancreas. The effect of the operation on the blood is very quickly seen in the rapidity of recovery. In his case, eight days after the removal of the spleen the red corpuscles had gone up to 4,200,000, and whites to 25,000. It is fairly common to get a leucocytosis after splenectomy; this occurring in about thirty per cent. of cases. Marked benefit was obtained from pituitary extract in dealing with postoperative paralysis with distention of the small gut.

Balantidium coli.—J. M. Wright states that probably the infection may be found in different parts of China; several writers have mentioned observing this parasite in South China. For the past three years he has endeavored to record the cases coming under his observation. In ordinary smear examination of feces, he has overlooked the parasites except when the stools were watery, but when the material has been strained through a sieve (using boiled water), their active movements, when present, have been readily observed. After describing the phenomena shown, he states that he has found the infection in apparently healthy persons, and in no case could he attribute any of the symptoms to it. The symptoms in any of the cases could be accounted for by other conditions; and on mitigating such complaints as hookworm disease, malaria, or gastric ulcer, the patients improved or entirely recovered. From his observation thus far, he is inclined to think that the presence of these parasites is not necessarily a disturbing factor. If, however, there were a disease of the lower bowel, one could readily imagine the harm they might do. He knows of two individuals in whose cases this infection was discovered three and two years ago, respectively, who are today in good health.

Prevalence of Hookworm at Changsha.—A. C. Reed concludes: 1. There is a paucity of data from which to estimate the economic, social, and physical significance of hookworm infection in China. 2. An initial study in a campaign against the disease in the Changsha Yale Hospital presents 120 unselected cases examined, with an infection ratio of 11.6 per cent. Hookworm (which is a minimum figure), 60.8 per cent., *Ascaris*, 9.1 per cent., *Trichocephalus*, with one case showing *Schistosomum japonicum*. 3. Less occupational exposure, to which foot binding contributes, determines a rate of incidence of three per cent. in women, against fifteen per cent. in men. The positive cases were scattered through many occupations, though farmers and boatmen are especially liable. 4. Special studies are indicated to determine the incidence of *Ankylostoma* among soldiers.

BOSTON MEDICAL AND SURGICAL JOURNAL.

September 3, 1914.

Pyogenic Infections of the Upper Urinary Tract.—Arthur L. Chute maintains that treatment of infections of the kidney should be expectant in the less acute cases; acute pyelonephritis with miliary abscess will be benefited by decapsulation and occasionally by nephrectomy. Nephrectomy is seldom indicated; it is only a slight exaggeration to say that it should never be done. The underlying principle of the treatment of chronic infections is the securing of adequate drainage wherever conservative treatment is possible. In the simplest cases this consists in freeing abnormally tied down organs, or in fastening in place abnormally mobile ones. Sometimes various plastics are needed. The results obtained in some cases of chronic suppuration were very gratifying, but his experience with conservative operations on kidneys that have shown definite foci of chronic suppuration has not on the whole been encouraging.

Röntgen Determination of Certain Renal and Ureteric Variations and Disorders.—Percy Brown emphasizes the importance of collaboration between surgeon, cystoscopist, and röntgenologist in the examination of the urinary tract. Delineation of the urinary tract beyond the contour of the renal substance is impossible in health by virtue of tissue consistence, so the aid of art is necessary to reveal the outlines of pelvis and ureter *in situ*. The opaque substance introduced to facilitate the delineation must be present in such amount as to portray pelvis and ureter free from the influence of distention. Patients differ in degree of physical sensibility and it is easy to overdistend even the remote calices. Any one of three methods may be employed; colloidal injection, the radiographic catheter, and the intraluminal insertion of foreign material of high atomic weight. Each method has its faults. Colloidal silver under undue pressure causes inaccurate interpretation; the modern radiographic catheter is an improvement over its predecessors, but even a delicate catheter may force a ureter into a false position and obliterate a kink; leaden fuse wire either possesses the fault of the catheter if too coarse, or is difficult to introduce and to extract if too fine. The writer feels that if the individual excellencies of catheter and fuse wire can be properly combined, the combination will prove ideal. He also says that the Röntgen examination of a renal or ureteric situation is incomplete when it does not end by portraying, for the sake of the urologist and the patient, the simultaneous delineation of both kidneys and their immediate appendages. The same may be said with regard to the lower ureteric and vesical regions. On account of the distortion engendered, it is unsatisfactory to attempt to reveal the entire urinary tract at one examination, unless the patient happens to be of unusually diminutive stature.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

September 5, 1914.

A Few Points of Practical Importance in Obstetrics, Gynecology, and Abdominal Surgery, by E. G. Zinke.—This paper was abstracted in our issue for June 27th, page 1309.

Newer Points of View Regarding the Part Played by Different Food Substances in Nutrition, by L. B. Mendel.—This paper was abstracted in our issue for July 4th, page 41.

Intermediary Protein Metabolism, by O. Folin.—This paper was abstracted in our issue for July 4th, page 41.

The Specific Dynamic Action of the Foodstuffs, by Graham Lusk.—This paper was abstracted in our issue for July 4th, page 41.

The Total Energy Requirement in Disease, as Determined by Calorimetric Observations, by E. F. DuBois.—This paper was abstracted in our issue for July 4th, page 41.

The Use of Antitoxin in Diphtheria, by S. S. Woody.—This paper was abstracted in our issue for July 4th, page 46.

Treatment of Unlocalized Intracranial Injuries by Drainage Through a Subtemporal Approach, by V. P. Blair.—This paper was abstracted in our issue for June 27th, page 1308.

Immunity in Measles.—C. S. Woods says that Hektoen's experiments seem to prove that measles may be transmitted by injecting the blood of a person with measles into another person in normal health. One might infer that infants *in utero* would have measles if the mother had them. He had seen a woman in the eighth month of pregnancy with the usual signs of measles who had never had the disease. Two children in the family were just recovering from measles. She recovered without any unfavorable results, and some three weeks later was delivered of a healthy child. That the child had acquired measles from the mother he thought likely, and says that perhaps it did. Recently he heard that the child had a severe attack of measles in the past spring; while it is true that measles may attack a second, and even a third time, this child while *in utero* must have had the most ideal opportunity for acquiring immunity. It is impossible to say that it did not have measles *in utero*. Children have been born with measles, smallpox, and other diseases certainly contracted from the mother. This case emphasizes the great difficulty of securing immunity, as well as the remarkable power of the virus of measles to invade the human organism.

Retroperitoneal Hernia Due to an Aberrant Middle Colic Artery.—A. Primrose states that retroperitoneal hernia, while not common, occurs often enough to warrant careful study of its cause, its symptoms, and treatment. The case he reports occurred in connection with a rare anomaly, an aberrant origin and course of the middle colic artery. The vessel arose from the right common iliac artery, and proceeded upward to its destination in the transverse colon. In relation to this aberrant artery, a peritoneal pouch was formed, which contained the whole of the small intestine. In the present instance the anomaly was found during an operation.

Active Immunization in Diphtheria and Treatment with Toxin-Antitoxin.—W. H. Park, A. Zingher, and M. H. Serota found that active immunization produced a very decided increase of antitoxin in a relatively short time in all persons who had natural antitoxin. These, how-

ever, were immune to diphtheria before the injections were made. In a series of 700 scarlet fever patients of varying ages, tested for natural immunity by the Schick reaction, 400 gave a negative reaction. Fifty-seven per cent. were, therefore, naturally protected, and needed neither active nor passive immunization. Less than one fourth of the remaining forty-three per cent., who were probably susceptible to diphtheria, reacted to active immunization with mixtures of diphtheria toxin and antitoxin to a degree sufficient to immunize them surely. A larger proportion evolved a trace of antitoxin, possible enough to give a slight protection. The authors' conclusions are: Those who are exposed to infection should be passively immunized, even if toxin-antitoxin injections have been given. The Schick test will determine the necessity of immunizing about two thirds of those exposed, judging from a year's experience, those not reacting are immune. The naturally immune probably continue so for a considerable period, possibly indefinitely. Active immunization is indicated when there is no immediate danger of infection, and when it is desirable to lessen the number of susceptible persons. It is too early to decide whether active immunization should be attempted on a large scale. The insufficient response of at least fifty per cent. of those susceptible and the fact that immunity to diphtheria lasts but one or two years, will probably limit to some degree its usefulness.

MEDICAL RECORD.

September 5, 1914.

Salvarsan Treatment of Syphilis, Tested by the Wassermann Reaction, with a Cholesterin Antigen.—E. G. Stillman reports forty-seven cases of syphilis, which were treated by two or more salvarsan injections. In only five was the Wassermann reaction rendered negative; in thirty-six the reaction remained unchanged. Of the small number of serological reports on the action of salvarsan most are lacking in important details. Many writers, for instance, do not state whether the original technic of Wassermann or some modification was followed. Some antigens uniformly give less positive results than others; it is essential to know what antigen is used, the exact number of salvarsan injections, and, because of its effect on the reaction, mercurial medication should be described in full. Not until reports on the salvarsan treatment of syphilis are given in greater detail, can a comparison of different methods of treatment be made. It would be well to follow Fox's tabulation for the sake of uniformity. The author states that the cases he reports are too few to draw any definite conclusions from, yet they seem to show that when a cholesterin fortified antigen is used in the Wassermann reaction: 1, Early cases of syphilis treated by salvarsan injections may be changed from a 3+ to a negative; 2, old cases of syphilis treated by numerous salvarsan injections show little or no improvement from a serological standpoint.

Autoimmunization in Respiratory Infections.—C. H. Duncan believes that a natural, or spontaneous cure of an infectious disease is due to the entrance into the blood stream of unmodified toxic substances, developed in the focus of infec-

tion. When this occurs the power of the blood serum is raised and the activity of the leucocytes is stimulated, with the resultant development of specific antibodies. Autotherapy, or autoimmunization, he says, is based on Nature's method of cure, for by autotherapy the patient is inoculated with unmodified toxic substances elaborated within his own body by the action of the infecting agent on his body issues. These substances may be obtained by filtering the pathogenic exudate of the disease through a Berkefeld filter. The bacteria free filtrate contains all the unmodified toxins from all the microorganisms, both causative and complicating, which are in the focus of infection, and when this is injected hypodermically, a cure is effected in the same manner employed by Nature. As more antibodies are developed when the toxins are placed in subcutaneous tissues than when they are injected into the blood stream, and as by autoinoculating the patient early, the physician may often steal a march on the slow natural method of autoinoculation, autotherapy has distinct advantages over even the natural method of cure. The unmodified toxin complex is therefore the ideal therapeutic agent for treating a patient suffering from any localized, and possibly nonlocalized, infectious disease. Furthermore this unmodified complex therapy has distinct advantages over any form of vaccine therapy, for the reason that the unmodified toxins are the parent toxins, or set of toxins, which are in the patient's body, the therapeutic value of which is unchanged by the mechanical process of filtration. On the other hand, every step in the process through which a vaccine passes in the laboratory during its preparation, alters its therapeutic effect in the tissues. The author emphasizes the point that the speed, certainty, and comparative freedom from danger, with which nearly all acute respiratory infections of the respiratory tract may be cured by autotherapy, make it imperative on the part of the physician to treat the patient, not the disease, autotherapeutically, if he would cure him in the quickest and best manner possible, and prevent or abort the sequel in the shape of a chronic condition. He advises the following formula and technic, which, however, he says, will often have to be altered somewhat to suit the individual needs of the patient: Sputum, one dram; distilled water, one ounce. Mix in a two ounce bottle, shake well, and allow to stand for twenty-four hours. Pass through a Berkefeld filter. Inject twenty minims of the filtrate into the loose cellular tissue over the biceps muscle. Give no further dose until the patient ceases to improve; in chronic cases this will often be from the third to the fifth day. In very weak patients, and in very chronic cases, proportionately less should be given. One injection, however, will usually cure an acute or subacute bronchitis within twenty-four hours. Pulmonary tuberculosis requires a special autotherapeutic technic.

Cerebral Syphilis in the Secondary Stage.—C. B. Craig says that syphilis may attack the cerebrospinal axis early in the disease. The clinical stage of cerebrospinal syphilis is usually late, and if the initial, secondary, and tolerant periods are vigorously treated, the nervous system will never suffer. It is fortunate that the clinical stage of ner-

vous affection is not always late, as symptoms arising from involvement of the nervous system are usually regarded more seriously by the patient, and treatment is less apt to cease by default. The character of the lesion in the nervous system at this stage is commonly meningitis, and the most frequent resultant symptom is headache, though root symptoms may also occur. The promptness and completeness with which cases of cerebrospinal syphilis respond to arsenical therapy is very gratifying.

LANCET-CLINIC

September 5, 1914.

Therapeutic Value of Fischer's Solution.—

Southworth considers Fischer's solution of value in aiding the kidneys to resume their normal function when diseased. The solution consists of sodium carbonate (crystallized) ten grams, sodium chloride fourteen grams, dissolved in a litre of water. He has used it in a case of vomiting of pregnancy where other measures had failed, giving twenty grains of sodium bromide dissolved in a pint of Fischer's solution per rectum by the drop method. He has also used it with good result in chronic nephritis. To a patient with typhoid fever, who had delirium at the end of the second week with scanty output of urine, Fischer's solution was given per rectum by the drop method continuously for four hours, and after an interval of two hours was given again for the same length of time. This treatment was carried out for two days. The urinary output increased and the patient became conscious on the third day. A patient with chronic myocarditis, mitral regurgitation, and a moderate degree of arteriosclerosis, who had general edema and vomiting, was put on Fischer's solution per rectum by the drop method and passed a gallon of urine inside of fourteen hours. In the course of the attack the cardiac action became weak and the patient required stimulation. This could not be given by the mouth in account of the stomach condition, and, accordingly, one twentieth grain of strychnine was dissolved in a pint of Fischer's solution and given per rectum. It had the desired effect, the pulse becoming stronger and more regular. Post partum eclampsia coming on in a primipara who failed to respond to the ordinary treatment with veratrum viride and in whom the convulsions were so severe and the condition so grave that at one time the patient was considered dead, was successfully treated by a venesection followed by an intravenous infusion of one and a half pint of Fischer's solution. The solution was continued per rectum after the primary intravenous infusion. The solution is of great benefit in those cases where it is impossible to give medication by mouth and it would appear as though any drug which can be dissolved in it can be given in the form of an enema.

Myasthenia gravis pseudoparalytica.—Hoppe defines this condition as a general disease, affecting more conspicuously the muscles supplied by the cranial nerves, but involving all muscles, even the unstriated. It was formerly known as bulbar paralysis without anatomical findings. Other synonyms are myasthenia gravis pseudoparalytica, bulbar palsy, and asthenic paralysis. It occurs mostly in

adult life; females are affected more than males. Infection as a preceding factor, especially influenza, was noted in about twenty-five per cent. of the cases. Menstruation, pregnancy, and lactation have a deleterious effect on the gravity of the symptoms. At times it is combined with sexual infantilism. Persistent thymus is found in a few of the cases. Muscle fibres may be atrophic when the infiltration is large. Malignant tumors and tumors of the mediastinum are found in some cases. The exciting cause is probably some toxin in the body acting upon muscle tissue congenitally defective. This toxin, in a majority of cases, is of endogenous origin. Rapid exhaustion of muscles when used is the chief symptom. Patient may be normal in morning on arising and in evening muscles may be in a state of paresis. The exhaustion is seen first in muscles supplied by cranial nerves. First symptoms usually involve the external muscles of the eye. There may be ptosis at night, or diplopia. There is a gradual loss of expression from involvement of the facial muscles; eating and speaking become difficult. The neck muscles become involved and the head gradually sinks forward. The muscles of the extremities show the same involvement after a while. There are periods of remission at first, but later the condition becomes permanent to a greater or less degree. There are no signs of degenerative atrophy of the muscles. The muscles react markedly to faradic stimulation, but exhaustion sets in soon and no response can be obtained. The prognosis is unfavorable, fifty per cent. of the reported cases having a fatal outcome. Death occurs as a result of exhaustion or septic pneumonia. Treatment is by x ray to destroy remnant of thymus. The muscles are rested by putting the patient to bed and prohibiting all physical activity, even speaking. Gentle massage and passive stroking of the muscles should be substituted. Food should be given in liquid or semisolid form, and rectal feeding must be used when patient cannot swallow. Antitoxin has been used without result; injections of spermin have also been tried. Citrate of sodium and sodium formate in doses of fifteen grains each three times daily, and tonics in the form of iron, quinine, arsenic, and strychnine are indicated. Artificial respiration may be required in attacks of dyspnea threatening life.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

August, 1914.

Murphy Button.—Kennedy believes that the Murphy button possesses many advantages over the anastomoses that are performed by the clamp and stitch method. It can be used in one half the time usually required by other operations, a particularly valuable point, as such patients are usually poor subjects for surgery, and time is of vital importance; also, on account of the ease of its application it has a use in the hands of numerous operators who are not abdominal surgeons, but occasionally have to operate. Such an anastomosis resulting from the use of the button is a connection produced by a slough and is not prone to closure by subsequent contraction. The button will also give an opening much larger than is obtained by an incision of equal

length in the clamp and stitch method. Adhesions are less likely to occur when the button has been used and another great advantage is the total absence of hemorrhage. It may also be employed in locations where the clamp and stitch are impossible on account of the difficulty of application.

Application of the Ninhydrin Reaction to the Urine and Urine Dialysate of Pregnant Women.—Berman reviews the application of the Abderhalden reaction to the urine of pregnant women as a means of diagnosis. Warfield supported his theory by the findings in seventeen cases of pregnancy and seven cases in the puerperium. Berman examined the urine of ninety-seven pregnant women, of forty-eight gynecological patients, none of whom were pregnant, and of ten men. He found ninety-two per cent. of the obstetrical cases, eighty-nine per cent. of the gynecological cases and seventy per cent. of the urine of normal men gave a positive reaction when the urine was tested directly with the ninhydrin solution. Identical results were obtained with the urine dialysate. Berman therefore concludes that this reaction cannot be relied upon as a test for pregnancy.

ARCHIVES OF DIAGNOSIS

July, 1914.

Respiration in Heart Disease.—Max Herz asserts that one is now able to differentiate between the following respiratory disturbances arising in the course of heart affections: Mitral dyspnea; high pressure dyspnea; respiratory blockade; sighing spasm; paroxysmal respiratory disturbance; Cheyne-Stokes breathing; and extrasystolic dyspnea. In the first of these, a change in the lesser circulation, due to inefficiency of the left side of the heart, underlies the respiratory difficulty. High pressure dyspnea, found in patients with a strong, regular pulse and pronounced cardiac hypertrophy, and considered by Herz to be due to a strangulation of the right ventricle between the enlarged left ventricle and the chest wall, is increased when the patient lies on the right side. Respiratory blockade, consisting of a sensation of greatly impeded breathing—without air hunger—in nervous patients, is due to disturbed innervation of the diaphragm; it is not called forth by exertion, but by psychic excitement and movements involving well regulated coordination, such as writing, piano playing, and hair dressing. Sighing spasm is the term applied where the preceding condition appears when a person is reposing, and seeks to free himself of the oppression by frequent and intense inspiratory sighs. The patient, sometimes arteriosclerotic, suffering from paroxysmal respiratory difficulty, summons all his strength in relieving a pronounced air hunger, but without giving the impression that there is mechanical obstruction to breathing, as in the asthmatic. Extrasystolic dyspnea, caused by an extrasystole, occurs in very sensitive patients only, and is characterized by its sudden onset, duration of a few seconds only, and usual association with a sense of fear; it is of no serious import.

Relation of High Systolic to Diastolic Pressure.—J. H. Musser, Jr., finds the theoretical importance of the diastolic pressure sustained in actual prac-

tice. The diastolic pressure in cases with high systolic pressure does not increase *pari passu* with the systolic pressure. Diastolic pressures exceeding 110 mm. Hg are indicative of renal or vascular disease, the latter being practically always accompanied by the former, and probably chiefly responsible for the increase of vascular tension.

Acromial Respiratory Sounds.—J. H. Barach questions the statements of Abrahams relative to the value of auscultation over the acromial end of the clavicle in the diagnosis of apical tuberculosis. He asserts that between the findings at the acromion in the normal subject and those in the slightly or moderately diseased, no one can differentiate with certainty and accuracy.

Percussion Sign for Detecting Fluid in the Pleura.—L. S. Mace has found diagonal percussion through the bodies of the vertebrae, toward the affected side, a valuable means of differentiating fluid in the pleura from consolidated lung or thickened pleura. A flat note is produced only when fluid is present. The percussion note varies in the same vertebra according to the condition of the tissues to the right and left of the vertebral body, and the differentiation is sharply defined and unequivocal.

JOURNAL OF MEDICAL RESEARCH.

July, 1914.

Effect of Quinine on Rabbits Inoculated with Rabies.—Frothingham and Halliday inoculated five rabbits with material from a cat that showed Negri bodies. As soon as any symptoms of rabies were noticed, the animals were given subcutaneous injections of quinine bisulphate and quinine and urea hydrochloride dissolved in water. In these few experiments there was no curative effect upon the rabbits. Subcutaneous injections caused a local reaction with necrosis and, in the control rabbits, subsequent sloughing.

Spontaneous Tumors in Mice.—Slye, Holmes, and Wells found that hereditary influences show a marked relation to the occurrence and character of the primary spontaneous tumors of the lung. Of 155 cases investigated from this standpoint, there was a tumor ancestry in 146, and only nine cases of lung tumors appeared in the mice without tumor ancestry. As somewhat over one third of the mice were from noncancerous strains, the theoretical proportion, if inheritance played no part, should have given at least fifty cases in these strains instead of only nine. Furthermore of these nine cases, all were benign. From the studies made, and from similar observations in connection with other tumors in mice, it seems that the influence of heredity in determining the incidence of tumors lies in its modifying the nature or degree of reaction to injury.

OPHTHALMOLOGY.

July, 1914.

Efficiency of the Eye Under Different Systems of Lighting.—C. E. Ferree says that confronting the problem of the effect of lighting systems on the eye, it is obvious that the first step toward systematic work is to obtain some means of making a definite estimate of this effect. The prominent effects of bad lighting systems are loss of efficiency,

temporary and progressive, and eye discomfort. Three classes of effects may be investigated: 1. The effect on the general level or scale of efficiency for the fresh eye; 2, loss of efficiency as the result of a period of work; 3, the tendency to produce discomfort. The last two of these three classes are the more important, for the best lighting system is not the one that gives us the maximum acuity of vision for the momentary judgment, or the highest level of efficiency for the fresh eye. It is rather the one that gives us the least loss of efficiency for a period of work and the maximum of comfort. The author then details his observations and emphasizes two points: Of the lighting factors that influence the welfare of the eye, the distribution of light and the surface brightness are apparently fundamental. If the light is well distributed in the field of vision and there are no extremes of surface brightness, tests would seem to indicate that the eye, so far as the problem of lighting is concerned, is practically independent of intensity. That is, when the proper distribution effects are obtained, intensities high enough to give maximum discrimination of detail may be employed without causing appreciable damage or discomfort to the eye. The second point is that for the kind of distribution effects given by the majority of lighting systems in use at the present time, results show that unquestionably too much light is being used for the welfare and comfort of the eye.

SOUTHERN MEDICAL JOURNAL.

July, 1914.

Etiology of Pellagra; Experimental Inoculation of Monkeys and Rabbits.—W. A. Dearman doubts very strongly that the cause of pellagra is to be found in spoiled corn. He believes in all probability it is insect borne, and that dog and cat fleas should be looked upon with suspicion. Further experiment, study, and observation are needed to clear up all the facts relating to its etiology.

Digestive Symptoms of Pellagra.—S. Harris states that the diagnosis from the digestive symptoms rests largely upon the burning pain in the mouth, dryness of the esophagus, dysphagia, burning or undefinable pain in the abdomen, and diarrhea. In a person living in a community where there are cases of pellagra, these symptoms are, in his opinion, quite sufficient for a positive diagnosis, even though no skin lesion has been present; and in any community they should be regarded as suspicious. Careful questioning will often elicit a history of sunburn or slight eruption on the dorsal surface of the hand, occurring in the spring or autumn, and this, added to the digestive symptoms mentioned, makes the diagnosis absolutely positive.

First Symptom in Pellagra.—T. Frazer says that the clinical picture of pellagra in its early stages is a varied one, although most of the symptoms at this time may be referred to the skin, the gastrointestinal tract, and nervous system. In a patient with unmistakable signs of pellagra, it may be next to impossible to determine, from the history, whether pellagra should be assigned as the cause of previous dysenteric attacks or whether these should be regarded as dependent on some other infection. Recently it has been observed that shortly after

operation, certain patients showed frank symptoms of pellagra who before the operation exhibited such symptoms as general weakness, insomnia, nervousness, indigestion, and constipation, and less often, dysentery and delusions. It has been noted that pregnancy may bring to light a latent pellagra. It is probable that in the endemic area, there are many unrecognized cases; it is the author's belief that diligent search for the first symptom will enable one to unearth such cases.

Multiple Mycotic Aneurysm of the Aorta.—H. L. McNeil, reports that the patient's illness began, about six days prior to admission to the hospital, with headache, loss of appetite, pain in the chest, and fever. A provisional diagnosis of typhoid fever, in a patient suffering from a chronic cardiopathy, was made, and on the morning of the second day, the patient died suddenly. At the autopsy, in addition to a ruptured aneurysm about the size of a pecan, and two smaller aneurysms of the ascending aorta, there was found a greatly hypertrophied heart, with aortic and mitral valvular lesions. Since, unfortunately, no cultures were made, it is impossible to say what the offending organism was. The case was a malignant endocarditis, superimposed upon a chronic endocarditis, and an infected embolus, lodging in one of the vasa vasorum, was the direct cause of the aneurysm.

Proceedings of Societies.

THE NEW YORK NEUROLOGICAL SOCIETY.

Regular Meeting, Held February 3, 1914.

The President, Dr. S. E. JELLIFFE, in the Chair.

Cerebrocerebellar Diplegia.—This paper, by Dr. L. PIERCE CLARK, was published in the JOURNAL for May 2, 1914, page 873.

Doctor NOYES said that about two months ago a boy ten years of age had been sent to his clinic from the department of education, suffering from a certain amount of retardation, spasticity of the lower extremities, ataxia, an increase of the knee jerks, an exhaustible ankle clonus, a Babinski on one side and not on the other, other reflexes normal. There were choreiform movements closely resembling Sydenham's chorea, but in the opinion of the examiners it was a motor condition secondary to the general condition. He showed a marked hypotonia of the fingers and elbow joints, but none of the lower extremities. The mental condition corresponded to two years' retardation by the Binet-Simon scale, but in general he might be termed an odd rather than a feeble-minded or even a subnormal child. Many tests for mental functions he performed extremely well. His speech was of an infantile type, associated with a deformed palate. According to the mother, there was a serious asphyxia at birth, lasting nearly half an hour. He did fairly well during his first years, excepting in a decided delay in learning to talk and walk. She did not notice any stiffness or staggering until he was four years old. After an attack of scarlet fever at five

years, this stiffness became more marked, and by seven he showed decided spasticity, ataxia, and mental defect. He never learned to control his bladder or rectum normally until a year ago. The peculiar history of progression suggested Friedreich's disease, even more than Little's disease or diplegia. The extent of the hypotonia almost reached the degree of muscular atrophy of the fingers, suggesting the syndrome of amyotrophic lateral sclerosis. This case might readily be associated with the cases described by Doctor Clark. In addition to the obvious diplegia caused by the asphyxia at birth, the hypotonia and ataxia readily suggested a cerebellar lesion, and could be accurately diagnosed as a cerebrotocerebellar diplegia. Marked improvement in intellect, speech, and gait followed appropriate treatment with massage and tonics. That a diplegia based upon a combined lesion of the cerebrum and cerebellum should produce exactly such an associated spasticity of the lower extremities and hypotonia of part of the upper extremity was the important point in the paper of Doctor Clark, and to a certain extent it was a new idea to many of them.

Doctor ABRAHAMSON asked if Doctor Clark had made any Bárány tests to show the cerebellar involvement. The second important point was the differentiation between lesions affecting the parietal lobes and the cerebellum—to distinguish between stereopsychic disturbances and affection of the muscle tone, between tactile orientation and tonus orientation. He believed it very difficult to distinguish between them in defective children. The third point was the great similarity between the hypotonia found in these cases and that seen in the myotonia congenita of Oppenheim, which resemblance suggested a similar pathology.

Doctor TILNEY said that it had been a question in his mind by what avenues salvarsan reached the nervous tissues, if it got there at all. The theory that salvarsanized serum introduced intraspinaly penetrated into the depths of the nervous system by means of the lymphatics, was based upon an assumption in support of which there was little or no anatomical fact. Recalling the facts that the vital stains in Ehrlich's hands were the basis of chemotherapy, that such stains and salvarsan were closely allied in their chemotaxis, and also that Ehrlich had found trypan red (a vital stain) to be a trypanocide, it seemed justifiable to use these stains on living animal tissue, and especially to observe what happened when intra vitam injections were made intraspinaly, intravenously, endarterially, and subcutaneously.

The cat was selected as the first animal to be observed, and the vital stain, trypan blue, used. The first experiment was the injection into the subarachnoid space of 0.1 of a one per cent. solution. Goldmann had experimented with rabbits and found that these animals when so injected died in three hours, first manifesting opisthotonos and then passing into coma. The animals they injected showed no such disorder. Post mortem, it was found that the dura mater had been stained intensely. The brain itself was stained; in the gross, the tissue seemed to have taken a diffuse stain. None of the other organs of the body was stained. Microscopic preparations showed that the trabeculae of the pia mater extend-

ing into the cord and brain, as well as the walls of the bloodvessels, were stained. It was apparent, therefore, that trypan blue got into the substance of the nervous tissue along the lines of these trabeculae and by the bloodvessels. The ganglion cells and nerve fibres were not stained.

The next experiment was an endarterial injection, which showed a marked staining of intestines, liver, spleen, skin, kidneys, and conjunctiva, but no stain in the central nervous system or its covering.

The third injection was made intravenously. The animal was allowed to live for twenty-four hours, as in all the experiments. Here they were surprised to find the dura mater, pia, and pituitary body distinctly stained, although not so intensely as by the intraspinal injection. Frozen sections of this material showed that none of the stain had penetrated into the cord. The last animal was injected subcutaneously, and while it showed the usual staining of the organs, no region or part of the nervous system showed any stain whatsoever.

It seemed from these limited experiments that they had at least a suggestion that the salvarsan administered intraspinaly reached the deeper portions of the central nervous system by two very distinct routes: first, by the trabeculae extending from the pia mater; and, second, by penetrating the vessels and thus gaining access to the deeper structures of the cord and brain. Goldmann made the suggestion that this intra vitam staining was not only interesting from a histological standpoint, but that it might serve as a medium for carrying in remedial agents. It was proposed to carry out this idea on monkeys and rabbits which had already been infected with spirochetes to see whether the same results could be obtained as were produced from the intraspinal and intravenous injections in the cat. Undoubtedly the intraspinal introduction of salvarsan seemed to be the method of selection, and if the intravenous method was used, larger doses must be employed to get corresponding results.

Doctor STRAUSS, two years ago, had injected a dog with a one per cent. solution of collargol into the subarachnoid space, using a fair quantity. The dog died after five or six hours, probably from the poisoning. To his surprise, he found collargol not only throughout the subarachnoid space, but in the central canal of the cord. He could not understand this until he saw Kramer's specimen. He thought Kramer used methylene blue, and he likewise found that this substance had gone into the central substance of the cord. Kramer had also demonstrated to him something which he said had been pointed out fifty years ago, namely, that there was an opening from the central canal outward in the region of the conus.

The interesting feature of Doctor Tilney's experiments was not so much that when he injected trypan blue, he found it going into the brain and cord in that way, but that if he injected it intravenously he found it in the dura and pia. Granting that it went there, there was no reason that it should not go further into the cord and brain. That bore out his contention that in all these discussions of the intravenous and intraspinal use of salvarsan, those who held that in giving it intravenously they were not getting it into the central system, were

in error. Clinical experience and a study of the spinal fluid showed that when intravenous injections were given, the drug reached the central nervous system.

Another point was the work being done to show whether there was any arsenic in the twelve c. c. of serum taken from the blood. Perhaps it would be shown that the amount was very minute—perhaps 0.05 mg. of arsenic. When introduced into the circulation, it became fixed so rapidly to the cells that it was not in the blood.

Doctor JELLIFFE said that Doctor Kramer did not employ a stain which, like trypan blue, was of the same chemical structure as salvarsan. In other words, anilin blue was a crude stain as it entered into commerce, and had chemically no affinities with the substances on which Ehrlich built up his salvarsan. Kramer's results, therefore, could not be brought into relationship with the results reported.

Doctor ROSENBLUTH had had no experience with trypan blue, but would apply his experience with methylene blue in staining *intra vitam*, where the reaction involved was surely chemotactic. The results obtained corresponded to the degree of concentration of the dye that reached the central nervous system, so in routine work with this method it was always important that the return of fluid from the veins of the injected animal was well colored with the dye, so as to be sure that all the intracranial vessels were engorged; and if they wished a more positive elemental stain by this method, they could sprinkle the powdered methylene blue on the living neutral substance *in situ*, as first suggested by Cajal; so that the uncertainty of the stain was not due to any uncertainty of chemotaxis, but to the uncertainty of bringing the reagent to the tissue to be acted upon. That the venous route was feasible was shown by the fair proportion of successful stains by this method, especially if one was careful fully to oxidize by exposure to the air. That this was a chemotactic reaction was further demonstrated by Låwen and Gaza in their experiments on epidural anesthesia; intraspinal injection of an anilin dye went as far as the base of the brain, but only stained the parts by infiltration and not by circulatory transmission.

Doctor JELLIFFE said that arsenic had been found in the central nervous system following the injection of a heterologous serum from another patient. Such patients had not received any arsenical compound other than the serum from another treated patient, and yet this admittedly small amount of arsenic had been sufficient to be determined as arsenic in the cerebrospinal fluid. When it was recalled that even following large doses of salvarsan intravenously, no arsenic had been found in the cerebrospinal fluid, it was a matter of possibly far reaching significance that the small amount in a heterologous serum could yet be found there.

Jung's Libido Theory.—This paper, by Dr. BERTHA HINKLE, appeared in the JOURNAL for May 30, 1914.

Doctor JELLIFFE, ever since reading Bergson's works, had been struck with the close relationship between the Freudian and Bergsonian attitude of mind. Bergson's conception of the unconscious was practically identical with that of Freud, and he had

found that the two concepts were so much alike that they could be used interchangeably in psychoanalytic work. In that masterly description which Bergson gave of what constituted their unconscious and what their conscious, he said that duration was the continuous progress of the past which gnawed into the future and which swelled as it advanced. And as the past grew without ceasing, so also was there no limit to its preservation. Memory, as they had tried to prove, was not a faculty of putting away recollections in a drawer, nor of inscribing them in a register. There was no register; no drawer; there was not even, properly speaking, a faculty; for a faculty worked intermittently, when it would or could, while the piling up of the past upon the past went on without relaxation. In reality, the past was preserved by itself, automatically. In its entirety, probably it followed them at every instant; all that they had felt, thought, and willed, from their earliest infancy was there, leaning over the present which was about to join it, pressing against the portals of consciousness that would fain leave it outside.

This partial description of what constituted the unconscious was illuminating because it served to emphasize the Freudian point of view that nothing in their past was trivial; and Jung's concept was only another way of describing just how this past became classified in the mental machinery. The chief complex constellations clustering about the hunger and love impulses were arranged according to a series of mechanisms, which the Freudian psychology had so aptly attempted to formulate. Furthermore, Bergson went on to say that the cerebral mechanism was arranged just so as to drive back into the unconscious almost the whole of this past, and to admit beyond the threshold only that which could cast light on the present situation or further the action now being prepared, in short, only that which could give useful work. At the most, a few superfluous recollections might succeed in smuggling themselves through the half open door. These memories, messengers from the unconscious, reminded them of what they were dragging behind them unaware. But, even though they might have no distinct idea of it, they felt vaguely that the past remained present to them. Nowhere could one find so apt a description of what were the features in hysterical or compulsive thinking, which produced those symptoms usually thought of under these symbols. What Bergson called the superfluous recollections which succeeded in smuggling themselves through the half open door, were those which interfered with the smooth working of the activities of that application of the libido which they called "consciousness." These were the disturbing factors which psychoanalysis had so wisely investigated.

Finally, what Bergson asked was, What were they, what was their character, if not the condensation of the history that they had lived from birth—nay, even before birth, since they brought with them prenatal dispositions? Doubtless they thought with only a small part of their past, but it was with their entire past, including the original bent of their souls, that they desired, willed, and acted. Their past, then, as a whole, was made manifest to them in this impulse; it was felt in the form of tendency, al-

though a small part of it only was known in the form of an idea. They got from this last series of word pictures ample justification for the Freudian point of view concerning the value of the affective life, in the study, not only of the average individual, but of those who varied from the average to such a degree as to show disharmony of mental activities.

The affective life, possessing as it did the old heritage of the past, was of far greater importance in determining their activities than the comparatively late development which they called intelligence. At the same time, nothing was so calculated to impress the mind with the great importance of the affective life as Bergson's description of the mutually interacting forces of intelligence and instinct, and only the naive intelligence that approached mental problems from the standpoint of Topsy in *Uncle Tom's Cabin*, could fail to be impressed with the tremendous complexity of the psychical reactions, and to realize that the heretofore utilized methods for their study had been inefficient and superficial.

Doctor OBERNDORF had enjoyed Doctor Hinkle's clear presentation of Jung's position. However, there seemed to be very little difference between Jung's conception of libido and that previously enunciated by Freud. What Jung had called a "regression" of the libido was a mechanism which Freud pointed out in his analysis of a case of paranoia. In this, Freud attempted to demonstrate that the paranoid ideas resulted as a projection of an unrequited unconscious homosexuality, and that in such a case the libido retrogressed to the homosexual plane. Such a mechanism occurred when the individual encountered untoward circumstances in his life, just as Jung has reiterated, but Freud attempted to trace the retrogression of the libido back to a fixation point in infancy.

Doctor Hinkle had mentioned the value of analysis in enabling the patient to regulate his energy. Certain complexes existed in each and every one of them, unconsciously influencing their actions, which, when brought to full consciousness, no longer annoyed or hampered them, and thus increased their efficiency. In fact, recently, a stenographer, whom one could not call a "patient" but who had previously been treated for a minor disorder along analytic lines, wrote him that she wished to undergo further analysis, though she had no active symptoms, "merely as a matter of common sense and business," as she thought that money invested in analysis would help her keep her present position, which she had already held for ten years, but which was becoming irksome to her. This was the first time in his experience that a person who was not ill had applied for analysis, but it seemed to be perfectly rational and quite in keeping with the dictum of the Zurich school, that any physician before analyzing others should himself submit to analysis.

In Doctor Hinkle's first case, Doctor Oberndorf thought that the child's manifestations toward the mother very possibly had some connection with her relation to her father, on which Doctor Hinkle did not touch. In the second case, the homosexuality which Doctor Hinkle mentioned, had not been traced to a point of fixation. In this case, he supposed, in view of the close relationship which often existed between life and death, between pregnancy

and suicide, in the minds of many individuals, that the suicidal attempts might have represented a wish for pregnancy. With the very close mother identification which Doctor Hinkle had pointed out, it would seem reasonable to suspect that a strong desire for emulating the mother, even in respect to childbirth, existed in this spinster, and that this desire became converted into suicidal attempts after the patient had passed the menopause.

In closing, Doctor HINKLE had nothing to add to what had been said in her paper, excepting to reply to Doctor Oberndorf's inquiry regarding the factor of jealousy of the mother because of a wish for the father in the monoplegic case, and a wish for pregnancy on account of the mother identification in the melancholia case. She had found nothing to substantiate such an idea, although the possibilities of those fantasies had not been overlooked; and even if found, they would not in these cases alter the interpretation of the problems as outlined.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Diagnostic Methods; Chemical, Bacteriological, and Microscopical. A Textbook for Students and Practitioners. By RALPH W. WEBSTER, M. D., Ph. D., Assistant Professor of Pharmacological Therapeutics and Instructor in Medicine in Rush Medical College, University of Chicago; Director of Chicago Clinical Laboratory. Fourth Edition, Revised and Enlarged with 37 Colored Plates and 171 Other Illustrations. Philadelphia: P. Blakiston's Son & Co., 1914. Pp. xxxvi-738. (Price \$4.50.)

The first feature to strike one in reading this book is the excellent systematic scheme for the presentation of the details of each of the gross subjects considered, a mere glance through the table of contents being sufficient to guide one to the pages which he may wish to consult without the trouble of referring to the more elaborate index. All of the older material is concisely presented, and most of that which has become more or less obsolete has been wisely omitted. The chapter on the blood comprises 258 pages, or nearly one third of the entire text, a proportion which gives a good index of the great amount of work which has been expended upon this field in recent years and of the vast importance of this portion of the human body in diagnosis. It is rather curious that the author should have contented himself with a mere reference to the original paper of Folin and Denis instead of giving an outline of their new method for the quantitative determination of uric acid in the blood. As it is, he gives no quantitative method at all for this determination, although it is much practised at the present time. At the same time he finds space for procedures which are far less likely to be of practical diagnostic value to either student or physician, such as the culture of *Spirochaeta pallida* by Noguchi's method, and that of the organism of anterior poliomyelitis, both of which are too complicated for general utility. But with the exception of this minor lack of balance, the volume as a whole is very well executed and is sufficiently comprehensive for all practical purposes. An excellent discussion of the technic and diagnostic possibilities of blood culture is given, which, taken together with a new chapter on general bacteriological methods, should prove of considerable value to the practitioner who has access to a laboratory.

Serology has grown to such stupendous dimensions that the author has been compelled to present only the more important aspects of this new science, chosen mainly for their diagnostic possibilities. He precedes this, however,

with a lucid description of the fundamental phenomena upon which most of the reactions ultimately depend. Noguchi's luetin test is described and the several types of reaction are mentioned. The complement fixation test is given, with its several possible applications, including its use and limitations in the diagnosis of gonorrheal infection. Both the optical and dialysis methods of performing the Abderhalden test are described, along with the method of preparation of each of the component parts of the test. The Herman-Perutz reaction for syphilis has not been omitted, and the author expresses confidence in its value, which he ranks as nearly equal to the more elaborate Wassermann reaction. Among the tests for occult blood, the phenolphthalein test is ranked as the most delicate, though it has not yet come into very general use. In speaking of the ordinary blood cell counts, Webster sounds a note of valuable conservatism and warning. He says, "It should be stated as an axiom that blood findings may never be interpreted except in the light of the clinical findings. To the clinician it should be said, never trust the laboratory report implicitly unless it agrees with the clinical manifestations; to the laboratory worker we would say, never report a blood finding as diagnostic without knowing something of the clinical history of the case. A single blood examination will rarely be of any greater value than will a single temperature determination."

The author has fallen into one curious but minor error in the repeated use of the word "media" where the singular of the noun is intended. The work, however, is in all so very excellent that it would take a host of more important errors than this seriously to mar it, and as it stands it should be a thoroughly thumb marked volume in the library of every progressive physician.

A System of Surgery. Edited by C. C. CHOYCE, B. Sc., M. D., F. R. C. S., Dean of and Teacher of Operative Surgery in the London School of Clinical Medicine (Post-Graduate); Surgeon to the Seamen's (Dreadnought) Hospital, Greenwich; Surgeon to the Great Northern Central Hospital. Pathological Editor, J. MARTIN BEATTIE, M. A., M. D., C. M., Professor of Bacteriology in the University of Liverpool, and Bacteriologist to the City of Liverpool, etc. In Three Volumes. Volume III, with 12 Color Plates, 22 Black-and-White Plates, and 242 Illustrations in the Text. New York: Funk and Wagnalls Company. Pp. xvi-901. (Price, \$7.)

The third and last volume of this system maintains the high standard set by the first two volumes. With its long list of collaborators the whole work is representative of the theoretical and practical surgery of Great Britain. The articles are written by men specially fitted for the subject allotted and therefore have the stamp of authority. Plenty of space is given to the underlying pathological principles of each condition. In fact, the chief stress is laid upon pathology, symptomatology, and diagnosis and less upon operative technic which can always be more fully and satisfactorily treated in special books on this subject. The illustrations in the present volume also are excellent, notably the colored plates showing tumors and other pathological findings. The well written subject matter is presented in an unusually attractive form.

The Question of Alcohol. By EDWARD HUNTINGTON WILLIAMS, M. D., Formerly Associate Professor of Pathology, State University of Iowa, and Assistant Physician in the New York State Hospital Service; Author of "The Walled City," "Increasing Your Mental Efficiency," etc., and Joint Author of "The Wonders of Science in Modern Life." New York: The Goodhue Company, 1914. Pp. 128.

Doctor Williams, the author of this little book, collaborated with his brother, Dr. Henry Smith Williams, in a series of investigations into the alcohol and drug habits; the latter's address to the National Conference on Race Betterment, at Battle Creek, January 10, 1914, forms the last chapter. The chapters take up in succession the drug habit menace, temperance instruction in public schools and its results, liquor legislation and insanity, the liquor question in medicine, and the possible remedies. What the author has to say about the effects of cocaine corroborates what we have said editorially; it also crazes without apparently impairing accuracy of pistol aim. We learn, too, that co-

caine seems to render the victim immune to bullets of small calibre. In the south, at least, the cocaine habit is increasing; the point is, that it has replaced whiskey, partly driven out by prohibition. The school books which discuss alcohol are filled with inaccuracies; for the sake of completeness, we suppose, the author repeats this fact, well known to the profession. As to alcohol and insanity, he seems to agree with us that many people have put the cart before the horse in attributing the disease to drink, the fact being that the drunkard is already insane. Doctor Williams shows that inaccurate statements concerning the effects of alcohol are not confined to textbooks, but are spread broadcast by well meaning crusaders for abstinence. In discussing remedies, the author avers that prohibition fails because most people think that they can use alcohol with safety, but have grave doubts about the will power of others. He suggests rational treatment of the dipsomaniac, shielding the adolescent, controlling the saloon along Scandinavian lines, and providing substitutes for it. The statement is made that five times as much liquor is now consumed per capita as in 1850; apparently this is the sole result, so far, of the crusading.

Interclinical Notes.

Apropos of our remark last week that disease might be brought into the armies of Europe from Asia, despite the modern precautions of the various medical corps, it is already stated that bubonic plague has broken out among the Turkish troops.

* * *

In none of the magazines, so far as we have been able to ascertain, is there any account of the enormously important medical organizations of the various European armies. There is little glory, if plenty of excitement, in the career of an army surgeon.

* * *

The *Review of Reviews* for September gives page after page of handsomely illustrated accounts of the European conflict; like other of our magazines, it respectfully observes the President's command concerning neutrality. There is an interesting picture of the signing of the treaty of Berlin in 1878; these treaties seem to give rise to pleasant social reunions among the delegates from the several countries, but are not otherwise important. A photograph of the officers in the Austrian army shows that they are at least unusually picturesque. There is, in contrast to all this warlike stuff in the *Reviews of Reviews*, an account of heliotherapy in tuberculosis of the young at Sea Breeze, N. Y.

* * *

Current Opinion for September contains matter of special interest to the thinking physician in a reproduction of the evidence pro and con for the "twilight sleep," citing editorial comments from the NEW YORK MEDICAL JOURNAL and other authorities; features of the great parliament of science in Melbourne, Australia, almost lost sight of since the war; the new theories on protective color changes in animals; an analysis of the mind that thinks in colors; a defense of the degenerate against the theories of the eugenis; beside entertaining matter concerning moving pictures, new plays, poetry, religion, commerce, and advertising.

Meetings of Local Medical Societies.

MONDAY, September 21st.—Elmira Clinical Society.

TUESDAY, September 22d.—New York Dermatological Society; Onondaga Medical Society, New York; Valentine Mott Medical Society, New York; Washington Heights Medical Society, New York.

THURSDAY, September 24th.—Ex-Intern Society of Seney Hospital, Brooklyn; Medical Union, Buffalo.

FRIDAY, September 25th.—Society of New York German Physicians; Manhattan Medical Society; Italian Medical Society of New York.

SATURDAY, September 26th.—Lenox Medical and Surgical Society, New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending September 9, 1914:

Ashford, F. A., Passed Assistant Surgeon. Leave of absence for one month from August 17, 1914, amended to read one month's leave of absence from September 8, 1914." **Burkhalter, J. T.**, Surgeon. Leave of absence for fourteen days from August 27, 1914, amended to read "eight days' leave of absence from August 27, 1914." **Carter, H. R.**, Senior Surgeon. Directed to proceed to Bluff Falls on the Pee Dee River in connection with investigations of malaria begun in North Carolina. **Crohurst, H. R.**, Sanitary Engineer. Directed to proceed to Noblesville, Ind., and take charge of the experimental plant being installed for the investigation of strawboard waste. **Foster, A. D.**, Passed Assistant Surgeon. Granted two days' leave of absence from September 8, 1914. **Fox, Carroll**, Surgeon. Granted two days' leave of absence, September 4 and 5, 1914. **Gassaway, J. M.**, Surgeon. Leave of absence for one month from August 5, 1914, amended to read "one month's leave of absence from August 20, 1914." **Holt, J. M.**, Surgeon. Granted twenty-nine days' leave of absence from June 13, 1914. **Hommon, H. B.**, Sanitary Chemist. Directed to proceed to Farnham, N. Y., for the purpose of making preliminary studies of the wastes of the canning industry. **Kolb, L.**, Passed Assistant Surgeon. Leave of absence for one month from August 27, 1914, amended to read "one month's leave of absence en route to rejoin station." **Lavinder, C. H.**, Surgeon. Directed to proceed to Bridgeport, Conn., and make a sanitary inspection of the United States Post Office and Court House building in that city. **Leake, J. P.**, Passed Assistant Surgeon. Granted nine days' leave of absence en route during inspection of laboratories. **Nydegger, J. A.**, Surgeon. Leave of absence for twenty-one days from August 13, 1914, on account of sickness, amended to read "eighteen days' leave of absence on account of sickness from August 18, 1914." **Phelps, E. B.**, Professor. Directed, at the request of the International Joint Commission, to attend the hearings to be held by the commission at points on the Niagara and Detroit Rivers September 25 to 30, 1914, for the purpose of advising on questions affecting the pollution of international waters; detailed to visit the experimental works at Luray, Va., during the week of September 7th, to inspect the plant which is now completed and to outline the necessary analytical and experimental procedure.

Board Convened.

Board of commissioned medical officers convened to meet at the bureau for the examination of Pharmacist G. C. Cannon to determine his fitness for promotion to the grade of pharmacist of the second class. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Surgeon C. C. Pierce, recorder.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the five weeks ending September 5, 1914:

Brinsmade, W. B., Assistant Surgeon, Medical Reserve Corps. Commissioned an assistant surgeon from July 12, 1914. **Connors, W. H.**, Passed Assistant Surgeon. Detached from the *Isla de Luzon* and ordered to the *Dubuque*. **Crow, G. B.**, Passed Assistant Surgeon. Resignation accepted to take effect January 20, 1915. **De Valin, C. M.**, Medical Inspector. Commissioned a medical inspector from June 24, 1914. **Dunn, H. A.**, Surgeon. Detached from the Atlantic Reserve Fleet and ordered to the Philadelphia Hospital. **Dykes, J. R.**, Surgeon. Detached from the receiving ship at Mare Island, California, and ordered to the recruiting station, Atlanta, Georgia. **Eaton, W. E.**, Passed Assistant Surgeon. Commissioned a passed assistant surgeon from October 1, 1913. **George, C. I.**, Passed Assistant Sur-

geon. Commissioned a passed assistant surgeon from December 24, 1913. **Glenn, C. F.**, Assistant Surgeon, Medical Reserve Corps. Commissioned an assistant surgeon from August 8, 1914. **Hargrave, W. H.**, Assistant Surgeon. Detached from the navy recruiting station, Atlanta, Ga., and will await orders. **Harlan, Tharos**, Passed Assistant Surgeon. Detached from the receiving ship at Norfolk, Va., and ordered to duty with Marine Brigade, Vera Cruz, Mexico. **Harris, J. H.**, Assistant Surgeon, Medical Reserve Corps. Commissioned an assistant surgeon from July 30, 1914. **Hathaway, G. S.**, Passed Assistant Surgeon. Detached from the *Raleigh* and ordered to station at Tutuila. **Hoen, W. S.**, Surgeon. Detached from the *South Dakota* and ordered to duty with Pacific Reserve Fleet. **Hunt, Daniel**, Assistant Surgeon. Detached from the *Missouri* and ordered to the *Florida*, temporarily. **Jenkins, H. E.**, Passed Assistant Surgeon. Commissioned a passed assistant surgeon from October 1, 1913. **Jones, E. L.**, Passed Assistant Surgeon. Detached from the Naval Hospital, Olongapo, P. I., and ordered home. **Kaveny, I. J.**, Assistant Surgeon, Medical Reserve Corps. Detached from the *Machias* and ordered home. **Kindleberger, C. P.**, Surgeon. Ordered to the Naval Academy, Annapolis, Maryland. **Lhamon, R. H.**, Assistant Surgeon. Detached from Las Animas Hospital, and ordered to the Naval Medical School, Washington, D. C. **Malkin, G. M.**, Acting Assistant Surgeon. Detached from the naval recruiting station, New Orleans, La., and ordered to the naval recruiting station, Des Moines, Iowa. **McDonald, Henry**, Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Hospital, Mare Island, Cal., and ordered to the Naval Medical School, Washington, D. C. **McLean, A. D.**, Surgeon. Commissioned a surgeon from June 13, 1914. **Mendleson, R. W.**, Acting Assistant Surgeon. Resignation accepted to take effect September 1, 1914. **Michael, W. H.**, Assistant Surgeon, Medical Reserve Corps. Commissioned an assistant surgeon from August 8, 1914. **Neuberger, J. W.**, Assistant Surgeon, Medical Reserve Corps. Detached from the Pacific Reserve Fleet, and ordered to the Naval Medical School, Washington, D. C. **Omer, J. A.**, Assistant Surgeon. Ordered to the Naval Dispensary, Washington, D. C. **Owens, W. D.**, Passed Assistant Surgeon. Detached from the *Tallahassee* and ordered to the *Utah*. **Parker, E. G.**, Surgeon. Detached from the Naval Academy, Annapolis, Md., and ordered to the *South Dakota*. **Ransdell, R. C.** Detached from the *Mayflower* and ordered to duty at the Bureau of Medicine and Surgery, Navy Department, Washington, D. C. **Reed, E. U.**, Passed Assistant Surgeon. Ordered to the naval recruiting station, Detroit, Mich. **Reed, T. W.**, Passed Assistant Surgeon. Ordered to the receiving ship at Norfolk, Va. **Robnett, A. H.**, Passed Assistant Surgeon. Detached from the *Texas* and ordered to Las Animas Hospital. **Ross, C. W.**, Assistant Surgeon. Detached from the receiving ship at Mare Island, California, and ordered to the Naval Medical School, Washington, D. C. **Saurman, J. S.**, Assistant Surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered home. **Stenhouse, H. N.**, Assistant Surgeon. Ordered to the Naval Medical School, Washington, D. C. **Stephenson, C. S.**, Assistant Surgeon. Detached from New York Hospital, and will await orders. **Stitt, E. R.**, Medical Director. Commissioned a medical director from November 20, 1913. **Straeten, R. J.**, Passed Assistant Surgeon. Detached from the *Florida* and ordered to the *Tennessee*. **Tompkins, J. A.**, Assistant Surgeon, Medical Reserve Corps. Ordered to the naval recruiting station, New Orleans, La. **Torrence, R. A.**, Assistant Surgeon, Medical Reserve Corps. Commissioned an assistant surgeon from July 23, 1914. **Trielby, C. E.**, Assistant Surgeon. Detached from the Marine Recruiting Station, Detroit, Michigan, and will await orders. **Waterhouse, R. M.**, Assistant Surgeon. Detached from the Naval Hospital, Newport, R. I., and will await orders. **Weaver, G. H.**, Assistant Surgeon, Medical Reserve Corps. Commissioned an assistant surgeon from August 4, 1914. **Wheeler, L. H.**, Passed Assistant Surgeon. Detached from Navy Yard, Portsmouth, N. H., and ordered to

the *Mayflower*. **Wilson**, C. C., Assistant Surgeon. Detached from the *New Hampshire* and ordered to the *Machias*. **Winn**, C. K., Passed Assistant Surgeon. Ordered to the receiving ship at Mare Island, California. **Woodland**, E. E., Passed Assistant Surgeon. Commissioned a passed assistant surgeon from May 4, 1914.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending September 12, 1914:

Archer, W. M., First Lieutenant, Medical Reserve Corps. Reports departure on the September 5th transport for the Philippine Islands. **Brownlee**, C. Y., Major, Medical Corps. Relieved from duty with the Second Division and at Fort Des Moines, Iowa, and will proceed to Fort Totten, New York, about October 1st, for duty, relieving Major H. H. Rutherford, who upon being thus relieved will proceed to Texas City for duty with the Second Division with station at Fort Des Moines, Iowa. **Clark**, F. E., First Lieutenant, Medical Reserve Corps. Reports on active duty at Fort Ethan Allen, Vermont. **Clayton**, Jere B., Major, Medical Corps. Relieved from duty at Vancouver Barracks, Washington, upon the arrival of Major Peter C. Field, and will then proceed to Fort Sam Houston, Texas, for duty with Field Hospital No. 7, relieving Major James L. Bevans, Medical Corps, who upon being thus relieved will report to his proper station, Fort McKinley, Maine. **Ford**, Clyde S., Major, Medical Corps. Reports departure from duty in the Surgeon General's Office en route to temporary duty at Fort Leavenworth, Kansas. **Gandy**, C. L., First Lieutenant, Medical Corps. Relieved from duty in the Second Division and at Fort Myer, Virginia, and will take the December 5th transport for Manila, Philippine Islands. **Grisinger**, J. D., Captain, Medical Corps. Reports on one month's leave of absence, which will be spent at Mechanicsburg, Pa. **Hart**, J. W., First Lieutenant, Medical Reserve Corps. Has been ordered to active duty with station at Washington Barracks, D. C. **Ingold**, J. G., First Lieutenant, Medical Corps. Reports on two months' leave of absence, which will be spent at Chicago, Illinois. **Kennard**, H. W., First Lieutenant, Medical Reserve Corps. Sailed September 5th from San Francisco, Cal., on the United States Army transport *Logan* for Manila, P. I. **Marietta**, S. U., First Lieutenant, Medical Corps. Sailed September 5th from San Francisco on the United States Army transport *Logan* for Manila, P. I. **Nelson**, Kent, Major, Medical Corps. Reports on one month's leave of absence from United States Military Prison at Fort Leavenworth, Kansas. **Nichols**, Harry C., First Lieutenant, Medical Reserve Corps. Has tendered his resignation and same was accepted to take effect September 3, 1914. **Reynolds**, C. R., Major, Medical Corps. Reports on one month's leave of absence from the base hospital, Fort Sam Houston, Texas; address Elmira, New York. **Sheep**, W. L., Captain, Medical Corps. Sailed September 5th from San Francisco, California, on the United States Army transport *Logan*, for Manila, P. I. **Speissegger**, C. O., First Lieutenant, Medical Reserve Corps. Reports for duty at Fort Moultrie, South Carolina. **Tarleton**, L. O., First Lieutenant, Medical Corps. Sailed September 5th from San Francisco, California, on the United States Army transport *Logan*, for Manila, P. I. **Vaughan**, W. W., First Lieutenant, Medical Corps. Relieved from duty with the Second Division and from duty at Fort Myer, Virginia, and will take the December 5th transport for Manila, P. I.

Births, Marriages, and Deaths.

Born.

Alexander.—In Park Ridge, N. J., on Sunday, August 30th, to Dr. Samuel Alexander and Mrs. Alexander, a son. **Golden**.—In Philadelphia, on Thursday, August 27th, to Dr. G. Morris Golden and Mrs. Golden, a daughter. **Tuch**.—In Hartford, Conn., on Friday, September 4th, to Dr. Morris Tuch and Mrs. Tuch, a daughter.

Married.

Barkhorn—Gless.—In Deal, N. J., on Wednesday, September 9th, Dr. Henry C. Barkhorn and Miss Marietta Louise Gless. **Carr—Leseur**.—In Hyde Park, Mass., on Wednesday, September 9th, Dr. Percy W. Carr and Miss Polly Leseur. **Carelli—Russo**.—In New Haven, Conn., on Monday, September 14th, Dr. Genesis Frank Carelli and Miss Rosina Russo. **Goldstein—Lipitz**.—In Atlantic City, N. J., on Tuesday, September 8th, Dr. Heyman I. Goldstein and Miss Evelyn Lipitz. **Havers—Miller**.—In Detroit, Mich., on Saturday, September 5th, Dr. Howard Havers and Miss Jean Miller. **Key—Kirtland**.—In Rensselaer, N. Y., on Wednesday, September 9th, Dr. Sothoron Key and Miss Augusta Georgia Kirtland. **Kostmayer—Reichel**.—In Chicago, Ill., on Monday, August 31st, Dr. Hiram W. Kostmayer, of New Orleans, and Mrs. Carroll H. Reichel. **McElfatrick—Eckman**.—In Wilmington, Del., on Thursday, September 3d, Dr. George C. McElfatrick and Miss Elsie A. Eckman. **Nelson—Lubitz**.—In Milwaukee, Wis., on Monday, August 24th, Dr. R. N. Nelson, of Horicon, Wis., and Miss Gertrude Lubitz. **Rosenthal—Masbach**.—In Baltimore, Md., on Tuesday, September 8th, Dr. Harry W. Rosenthal and Miss Ruth A. Masbach. **Smith—Armour**.—In New Rochelle, N. Y., on Tuesday, September 1st, Dr. Charles A. Smith and Miss Amy A. Armour. **Stark—Stough**.—In New York, on Monday, September 7th, Dr. Harry H. Stark, of El Paso, Texas, and Mrs. Bertha Congdon Stough. **Torrance—Wilkerson**.—In Birmingham, Ala., on Tuesday, September 1st, Dr. Gaston Torrance and Miss Annie Sommerville Wilkerson.

Died.

Anderson.—In San Antonio, Texas, on Sunday, August 30th, Dr. Calvin Brewer Anderson, aged seventy-nine years. **Borden**.—In Ocean City, N. J., on Wednesday, September 9th, Dr. Matthew S. Borden, of New York. **Brickey**.—In Little Rock, Ark., on Monday, August 31st, Dr. William Brickey, aged sixty years. **Burris**.—In New York, on Thursday, September 10th, Dr. John E. Burris, aged sixty-nine years. **Dann**.—In Rochester, N. Y., on Sunday, September 6th, Dr. Archibald M. Dann, aged sixty-nine years. **Davis**.—In Creston, Iowa, on Sunday, August 30th, Dr. Simeon O. Davis, aged fifty years. **Dudley**.—In Nashville, Tenn., on Tuesday, September 8th, Dr. William L. Dudley, aged fifty-five years. **Fife**.—In West Elizabeth, Pa., on Thursday, September 3d, Dr. Samuel R. Fife, aged eighty-one years. **Halpin**.—In Brooklyn, N. Y., on Friday, September 4th, Dr. John F. Halpin, aged thirty-seven years. **Hammer**.—In Chicago, Ill., on Sunday, August 30th, Dr. Arthur W. Hammer, aged thirty-three years. **Hightower**.—In Atlanta, Ga., on Tuesday, August 18th, Dr. T. W. Hightower, aged thirty-two years. **Hill**.—In Carthage, Mo., on Tuesday, September 1st, Dr. George B. Hill, aged seventy-three years. **Hinners**.—In Milwaukee, Wis., on Monday, August 31st, Dr. George Francis Hinners, aged fifty-seven years. **Houghton**.—In New York, on Friday, September 11th, Dr. H. Seymour Houghton, aged fifty-two years. **Jenkins**.—In Fort Madison, Iowa, on Friday, September 4th, Dr. George F. Jenkins, aged seventy-two years. **Johnson**.—In Camden, S. C., on Thursday, September 3d, Dr. Robert B. Johnson, aged ninety years. **Kelley**.—In Parkersburg, W. Va., on Tuesday, September 8th, Dr. John H. Kelley, aged sixty-one years. **Kennedy**.—In Warrenton, Va., on Thursday, September 3d, Dr. Stephen D. Kennedy, aged eighty years. **Larkin**.—In Point Pleasant, Minn., on Thursday, September 3d, Dr. Chandler C. Larkin, aged thirty years. **Peck**.—In Hinton, W. Va., on Wednesday, September 2d, Dr. Channon P. Peck, aged fifty-five years. **Post**.—In Castle Park, Mich., on Wednesday, September 2d, Dr. M. Hayward Post, Sr., aged sixty-three years. **Rawlins**.—In Georgetown, Ky., on Friday, September 4th, Dr. Samuel Rawlins, aged seventy-three years. **Senton**.—In Roxbury, Mass., on Tuesday, September 1st, Dr. Benjamin C. Senton, aged sixty-seven years. **Ware**.—In Bridgeton, N. J., on Sunday, September 6th, Dr. James B. Ware, aged eighty-three years. **Wysong**.—In Kansas City, Mo., on Wednesday, September 2d, Dr. Luther E. Wysong, aged forty-one years.

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Original Communications.

MODERN DIAGNOSTIC METHODS IN SYPHILIS.*

BY J. A. FORDYCE, M. D.,
New York,

Professor of Dermatology and Syphilology, Columbia University.

Our present diagnostic methods of syphilis are those applied to the demonstration of *Spirochæta pallida* in a suspected lesion, the reaction of the blood to the Wassermann test, the findings in the spinal fluid, and the cutaneous or luetin reaction. In endeavoring properly to estimate the modern diagnostic methods in the various stages of syphilis, we must not forget the importance of careful clinical training in recognizing the various stages of the disease. Clinical observation and laboratory methods supplement each other. Furthermore, the great majority of practitioners are not prepared to carry out the dark field or other necessary technic, and in many instances are situated away from large cities affording facilities for such examinations. A thorough knowledge of the multiform character of syphilitic manifestations especially of the primary lesion cannot therefore be overestimated, and unless the available methods are accurate, it is better to be guided by clinical experience alone than misled by improperly made or interpreted laboratory tests. The value of these tests as confirmatory or negative evidence is a matter of daily demonstration to the physician who has them at his disposal, provided they are performed by carefully trained laboratory workers, but when carried out by the inexperienced or according to the methods calculated to be short cuts, they are positively misleading, entail a valuable loss of time to the patient, and only serve to bring them into disrepute.

It is no longer excusable to delay the treatment of syphilis until corroborative evidence in the form of a generalized eruption appears, as it has been demonstrated absolutely that the infection may be aborted by intensive treatment while it is still local, and that we are more certain of a cure in a limited time in the stage of early dissemination. It is therefore incumbent upon us to employ our best diagnostic skill and every means at our command to establish a diagnosis at the earliest possible date. To this end the most valuable aid is the dark field illumination for the demonstration of *Spirochæta pallida* in the lesion of an individual suspected of syphilitic infection.

Spirochæta pallida is demonstrable by the dark

field illumination, the India ink, the Giemsa and Levaditi stains, and by inoculation and cultures. Owing to its simplicity and rapidity the dark field is the method of choice. Clear serum only should be used, and with care and practice good specimens are easily obtained. The organisms are usually fairly numerous when antiseptics have not been previously applied. If none are found, the procedure should be repeated for several days, and if negative or doubtful, repeated Wassermann examinations should be made. Cutaneous chancres present little difficulty in the recognition of *Spirochæta pallida*, but in the mouth there is greater difficulty in differentiating it from *Spirochæta dentium*. In the latter, however, the spirals are not as regular as in *pallida* and the organism is thicker. The India ink method cannot compare in accuracy with the dark field illumination, and the Giemsa smear and the Levaditi tissue stains are not practical for diagnostic purposes except in operation or autopsy material, nor are inoculation and cultural methods, their value being restricted to experimental work, owing to the length of time, five to ten weeks, intervening between the time of inoculation and positive laboratory findings. The latter may prove of greater value in the future as recently suggested by Nichols (*Journal of Experimental Medicine*, XIX, 4, 1914) in prognosticating the type of infection from the cultural characteristics of the spirochætæ obtained in a given infection. In a strain isolated from the nervous system he found that they had a thicker form, a shorter incubation period, producing in the rabbit hard lesions with necrotic centres and showing a tendency to generalize with lesions of the skin and eye following local inoculation of the testicle and scrotum. He is of the opinion that they possess a highly invasive power rather than a neurotropic action.

It frequently happens that after careful and painstaking search we fail to find the spirochætæ, owing to the use of antiseptic dressings or ointments which in many cases are applied by the patient before he presents himself for an opinion. In these cases we must depend upon clinical experience. In making a diagnosis of the initial sore, one must bear in mind its multiform appearance; that chancres are often without induration or ulceration from the beginning or that such characteristics may disappear in a few days, even without treatment. In the mixed forms the chancroids sometimes remain nonindurated, and constitutional symptoms are absent or overlooked until tertiaries or symptoms pointing to involvement of the nervous system appear. Urethral sores are sometimes unattended by local symptoms, or these are attributed

*Read before the New York Academy of Medicine, April 2, 1914.

to an accompanying gonorrhea. The primary lesion may manifest itself by the slightest abrasion or may simulate an outbreak of herpes, or there may be no discoverable chancre, the glandular enlargement being the only symptom. The hard edema sometimes seen on the foreskin means a spirochetal lymphangitis, involving the entire circumference of the foreskin and producing phimosis, the indurated edema of the labia being an analogous condition. Again, infection may take place without any local reaction, the organisms probably entering the lymphatic system direct. I have had a number of cases where by the most painstaking search it was not possible to find any evidence of an initial sore, but such cases were shown to be definitely syphilitic by secondary symptoms and a positive Wassermann. I have under observation at the present time a male nurse, who pricked himself with a needle used for taking blood for a Wassermann directly after he had withdrawn the blood in a very florid case of syphilis. There was absolutely no lesion at the site of the puncture, and although the patient watched for secondaries, nothing appeared for several months, when a few papules developed between his toes. His Wassermann reaction was strongly positive. Nonne, too, reports the case of a young physician who was pricked with a needle used on a syphilitic individual, in which case there were no primary manifestations, but secondaries and tabes three years later. Hutchinson likewise mentions several cases following a needle prick in which no local phenomena followed the accident, but which in due time showed constitutional symptoms.

Insect contagion may in some cases be a means of direct inoculation without demonstrable chancre. A patient came to me several months ago with a fully developed secondary eruption and iritis. There was no history of an initial lesion, and minute examination failed to reveal the remains of one anywhere. The patient had had, however, about two months previously, pubic pediculi and it is not at all improbable that the infection was contracted in this way. He was an engineer returned from a three or four months' trip to the woods, during which time there had been no exposure. As to the manner in which the pediculi were acquired he was not aware. Hutchinson narrates a similar case. He also believed that the association of syphilis with scabies was more than a coincidence. The diagnosis of extragenital lesions is frequently very difficult, not only because of their location in out of the way places, but because of their atypical appearance. An initial lesion under the nail, for instance, may be quite overlooked until secondaries make their appearance, as in the case of a dentist at present under my care, in whom a banal lesion was quite without the earmarks of lues. A dark red spot then may be the only evidence of primary infection, or large phagedenic lesions bearing little semblance to a chancre may obscure the real nature of the trouble. Initial lesions of the lip, tongue, throat, eyelid, and other extragenital locations, especially when occurring in older people, are frequently mistaken for surgical or other infections. In the throat differential diagnosis of the primary lesion from Vincent's angina not infrequently comes up. Sometimes patients are met with in whom there is an absence of palpable lymph node

enlargement. This may be true, not only of the area drained by the so called satellite lymph nodes, but, as is more usual, there may be an absence of general adenopathy. In conceptional syphilis, in which we are as ignorant as ever of how infection takes place, we now know through the Wassermann reaction that not only the child but the mother, in the absence of all clinical manifestations, is definitely syphilitic. On account of the unusual way in which syphilitic infection may take place, it is extremely difficult to draw definite conclusions as to the percentage of luetic infections in nervous and vascular troubles.

THE WASSERMANN REACTION.

During the past four years, I have had ample opportunity to compare Wassermann reports from laboratories in various large and small cities of the country, and I find that a very large percentage are unreliable. The results are unreliable because negative reactions are reported in patients who have very positive manifestations of the disease, and positive reports are received of patients who have never had any evidence and have never suffered from the disease in any way. In making a diagnosis of syphilis in doubtful cases, there is so much at stake in the question of treatment, the mental state of the patient, and his future health, that we can afford to take cognizance only of tests which have proved to be trustworthy over a long period of time. We cannot condemn a man to a long period of treatment on the report of one Wassermann laboratory that has proved to be unreliable, nor can we condemn a method because of the conflicting reports when the technic and the laboratory are at fault. It is the consensus of the best authorities that the original Wassermann is still superior to all modifications which have been devised, and this should be taken into consideration when submitting a specimen for examination. The only departure from the original method permissible is in the matter of antigens, as it has been demonstrated that the use of alcoholic extracts of guineapig, human, and beef hearts fortified with cholesterin give more delicate and more uniform results. This is particularly well illustrated in tertiary cases where the percentage of negative reactions with manifest symptoms has been markedly reduced. In performing accurate Wassermann work, no detail can we afford to slight, and under no circumstances should the test be made without a preliminary titration of the hemolytic system for the day's work. It is very important that the complement be titrated, as guineapig serum varies greatly and too large or too small a dose may give inexact results. Nor should one be content with the use of one antigen only, as a slight variation in the strength of the extract or in the method of mixing it may throw the test off, and for this reason a sufficient number of controls should be used.

What is the diagnostic value of the Wassermann reaction in the various stages of syphilis and how are we to interpret it? In the primary stage its diagnostic value is overshadowed by the demonstration of spirochætae in the lesion. The greatest diversity is found in the statistics giving the percentage of positive reactions in the initial period of the diseases, and this is obvious when we consider that

they depend entirely on the length of time that the lesion has existed or rather that it has been observed by the patient, which is usually less than its actual age, and on difference in technic employed by various observers. The earliest date recorded in the literature is that by Craig, who found a positive reaction five days after the appearance of the sore. From his figures 27.6 per cent. give a positive reaction in the first week. (Craig and Nichols: *Studies of Syphilis*, Bulletin No. 3, War Department, June, 1913.) On the other hand, Boas found that the sixth week and, as a rule a much later date, the seventh or eighth week, was the more usual time. (*Die Wassermannsche Reaktion*, 1914.) From my own examinations, the earliest reaction appeared at the end of two weeks, the majority after the fourth week. I have under observation a large number of patients treated within two weeks of the appearance of the chancre with positive microscopic findings and a negative Wassermann, in whom the affection was aborted. Here the Wassermann is more important as a guide to the effect of treatment. To illustrate, a patient presented himself with a lesion of the penis of eight days' duration, slight inguinal adenopathy, spirochetal examination positive, Wassermann negative. Treatment was begun immediately, following the intensive plan of combined courses of salvarsan and mercury. He has never manifested anything whatever as a clinical reminder, nor has his reaction become positive, so that to the best of our present knowledge a complete sterilization of his infection was attained.

It is frequently possible in early cases to follow a developing reaction; thus at the end of two weeks a partial inhibition of hemolysis manifests itself which does not hold, the cells going into solution during the next few hours in the refrigerator. This incomplete fixation may continue for two weeks, at the end of which time inhibition will be complete and no hemolysis will take place over night. During this stage of development a strong reaction may be precipitated by an injection of salvarsan, in other words, a provocative reaction will be obtained. To cite the course of such cases, I was consulted by a young man with multiple erosions of the glans penis and foreskin of two weeks' duration, in whom examination for spirochætæ was futile owing to the application of various antiseptic solutions and ointments. His Wassermann at this time was plus minus. This test was repeated several times, and the following week it became plus. Two days later he received a salvarsan injection, after which the blood inhibited completely. In these cases with intensive treatment, all clinical accidents are averted and the reaction is more readily permanently changed.

In the secondary stage of syphilis with the outbreak of cutaneous or mucous membrane manifestations, the reaction is positive in 100 per cent. of cases and may continue so indefinitely in untreated cases. That it becomes attenuated and even negative after a lapse of years in a certain proportion of cases without treatment, we know from findings in cases with tertiary clinical manifestations and negative serological findings, and also in the case of women who have had repeated abortions or definitely syphilitic children, but have themselves never suffered from any symptom of the infection. In

such cases, although the Wassermann reaction may be negative or only weakly positive, we are justified in resorting to a provocative injection of salvarsan to bring out a positive reaction.

The question of a differential diagnosis between the secondary eruption of syphilis and other skin affections which simulate it is often puzzling even to the trained dermatologist. Those which come under consideration are usually pityriasis rosea, drug rashes, forms of toxic erythema, and certain cases of acute generalized psoriasis. The presence of concomitant manifestations of the disease, such as adenopathy or mucous membrane involvement, or the persistence of the primary lesion, enables us to make a diagnosis. Scaling syphilides sometimes cannot be differentiated objectively from psoriasis. I have noted, however, that in scaling syphilides with clearing in the centre, pigmentation is left which gives a clue to their nature; while in psoriasis, pigmentation, if it occurs at all, is exceedingly rare. The final appeal in all these cases is the Wassermann reaction which makes the diagnosis positive.

In the latent period of the disease, the positive Wassermann is the only symptom of the infection, but scars of former lesions and the persistence of a pigmentary syphilide or leucoderma of the neck, which may persist for two years or longer after disappearance of the secondary rash, is often a helpful indication of what has gone before. Statistics covering the positive reactions in the latent stage are of little value, since we must take into account early or late latency, the amount of treatment, the length of time since cessation of treatment, and whether some of these may not be cured cases.

Many of the late latent cases show strongly positive reactions during active treatment with mercury and salvarsan, and it may be that we have fast or permanent fixation in these cases, which we are unable to influence by repeated courses of treatment. Such reactions remain double plus. In cases that show tingeing, it means that treatment is beginning to be effective and with further treatment we may be able to bring about complete hemolysis. In some, however, only incomplete hemolysis or an indeterminate plus minus reaction is accomplished. This indicates the need of additional treatment if the amount preceding has been inadequate; if it has consisted of several courses, it is well to let the patient rest for several months, as it frequently happens that, after intensive treatment, the reaction gradually grows weaker over a period of months. If an interval of six months or longer has elapsed, and it is still plus minus, it is advisable to give a provocative salvarsan injection. Should the reaction become stronger, then we have an indication for continuance of treatment, but if it remains unchanged, probably little significance can be attached to it and it may be disregarded. In tertiary cases with lesions, I have found that about ninety-five per cent. give positive reactions. Here again we are confronted with the questions of the amount and kind of treatment, immediately preceding the test or at a more remote period. In the tertiary cases in which negative reactions were obtained, the patients had been under some form of treatment, so that the statistics in these cases have little value.

Especially in tertiary cases with gummatous lesions, the Wassermann reaction is of great importance to differentiate from other conditions, as tumors. This corroborative testimony is conclusive in lesions situated on the skin. When the mucous membranes or viscera are involved, we are dealing with a more complex problem, for the luetic may have a carcinoma independent of his syphilitic lesion, or it may be engrafted on a leucoplakia of the tongue or cheeks, several cases of the latter having come under my observation recently. One of them was in a man, aged thirty-seven years, who had contracted lues six years previously. He had a marked leucoplakia of the left cheek with a papilloma, which he had noticed but four months before, involvement of the lymph nodes of the neck, and a strongly positive Wassermann reaction. Histological examination showed a prickle cell epithelioma of very malignant type and a syphilitic lesion of the lymph nodes, the latter being very suggestive of the possible resting places of the spirochete.

Leucoplakia usually excites the suspicion of a luetic process, but it is not infrequent to see it independent of the infection, the Wassermann remaining persistently negative even after a provocative salvarsan. In connection with the case just cited, I might mention that of another man, aged forty-eight years, who gave no history and who had never exhibited any evidence of lues. He had been an excessive smoker since his twelfth year. His left cheek was the site of a leucoplakia beginning about three quarters of an inch from the oral commissure and continuous with a papilloma, which extended to opposite the last molar tooth, where it was ulcerated. The Wassermann reaction in this case was negative and the microscopical examination confirmed the diagnosis of a prickle cell epithelioma.

Leucoplakia in nonsmokers or in women where the influence of tobacco smoke cannot be invoked, in the absence of syphilis, is exceedingly rare. In these cases there must be a lowered resistance on the part of the mucosa to irritants which would not be effective except under conditions of this kind. I recently saw a woman, forty-seven years old, with an extensive leucoplakia on the dorsal surface of the tongue, chiefly on the left side, and on the mucous membrane of the cheek along the line of the closed teeth. There was nothing in the history of herself or her husband pointing to lues, and both gave a negative reaction. Notwithstanding, she was given a provocative injection of salvarsan, but her reaction continued negative. There is then a small group of cases for which we have at present no etiological classification.

Other forms of cutaneous disease which sometimes simulate gummata very closely, are tuberculosis, sporotrichosis, blastomycosis, and persistent bromide eruptions. The latter may cause proliferation of the epidermis and vegetating growths, which progress serpiginously and persist for an indefinite time. Iodide eruptions also may produce erythematous and incrustated lesions, which are difficult to differentiate from similar ones produced by the infection, as well as deep seated infiltrations which are not unlike cutaneous gummata. They are, however, more acute in their development, are

accompanied by more inflammatory phenomena, and disappear on the cessation of the drug.

THE PROVOCATIVE WASSERMANN REACTION.

The reactivation of a negative Wassermann reaction by an injection of salvarsan, as first suggested by Gennerich and Milian, is now such a well known biological phenomenon that it has found a place in the routine of diagnosis and treatment of syphilis. To apply the test, the patient is given an intravenous injection of 0.3 gram of salvarsan, and the blood is taken on the succeeding days for a week. Different authorities report positive findings on various days, from the first to the twentieth. In my own experience, the majority of reactions have been obtained twenty-four hours after the injection. Occasionally in patients under treatment with a negative reaction, it may be delayed until three or more injections have been given. An instructive case illustrating the value of the procedure is the following:

CASE. A., aged forty-six years, had luetic infection in 1886, indifferent treatment until 1910, when he began systematic courses of mercurial injections extending over two years, and one salvarsan injection. In July, 1912, he discontinued treatment and did not present himself again until December 6, 1913, complaining of numbness of the right thigh and left arm. Neurological examination showed hyperactive knee jerks; right ankle jerk absent, the left diminished; the left pupil was fixed to light, poor to accommodation; the right sluggish; station, gait, and sensory apparatus were normal. His serum reaction was negative. A lumbar puncture made, January 2, 1914, gave eight cells, a faint excess of globulin, and a negative Wassermann reaction. January 5th, he was given a provocative dose of 0.3 gram salvarsan intravenously. His serum examined on the following day showed complete inhibition and has continued strongly positive to the present time during active salvarsan and mercury therapy. This case is probably one of beginning tabes of the root type.

It would have been interesting to have performed another lumbar puncture after the provocative reaction was obtained in the blood, to ascertain if the same phenomenon occurred in the spinal fluid, but this the patient was disinclined to permit. Provocative reactions are obtained in the fluid, two to ten days after the treatment, but with what regularity I am not prepared to say, owing to the difficulty of carrying out the procedure in private practice.

THE LUETIN REACTION.

In 1911, Noguchi called attention to a cutaneous reaction which he obtained in inoculated rabbits and individuals infected with syphilis by the endermic injection of a suspension of killed *Spirochætæ pallidæ*. In the preparation of the emulsion, a mixture of fluid and solid cultures of different strains of the spirochete is rubbed together, the whole heated for one hour at 60° C. and 0.5 per cent. tricresol added. Of this suspension 0.03 to 0.05 c. c. is injected endodermically in the arm. A positive reaction appears within four or five days, but may be delayed three or four weeks. Noguchi described three types of reaction in the positive cases—a papular, pustular, and torpid. In the negative cases, a small erythematous area appears after twenty-four hours at the site of injection, unattended by pain or itching, subsiding in forty-eight hours, and leaving no induration. In some individuals, slight papule formation may take place, but it is of no significance. The positive papular type reacts by the production of a

large indurated papule in twenty-four to forty-eight hours, situated on a red base. This increases during the next three to four days, when recession usually sets in with the disappearance of induration within a week. The pustular form begins in the same way as the preceding, central softening and pustulation taking place after three to four days. The pustule ruptures and becomes crusted, the margin remaining indurated. The crust falls off, induration recedes, and healing takes place with very little scar formation.

In the torpid form, the erythema which follows the injection fades within three to four days, then after ten or more days the process lights up and goes on to small pustule formation. The injection is not accompanied by constitutional effects, excepting slight rise of temperature, which may be present in positive cases for a day. Positive reactions do not occur in the primary stage, and in the secondary only when treatment has been given. They are more frequently obtained in latent and tertiary stages, the reaction depending on specific sensitization which only comes late in the disease. Nichols and Craig (*Studies of Syphilis, Bulletin No. 3, War Department, June, 1913*) report that there may be a provocative reaction similar to the Wassermann reaction after salvarsan. In a comparative study with the Wassermann reaction, they obtained in their secondary cases under active treatment twenty-three per cent. positive Wassermann and thirty-eight per cent. positive luetin reactions. Their latent cases gave twenty-five per cent. positive Wassermann and 87.5 per cent. positive luetin. Combined latent and tertiary gave fifty-three positive Wassermann and eighty-four per cent. positive luetin. Noguchi's (*Journal of Experimental Medicine*, xiv, 1911) results were as follows: Manifest tertiary affections positive in 100 per cent.; latent in ninety-four per cent. and hereditary in ninety-six per cent. He too was under the impression, that in the latent and tertiary cases the luetin reaction was more constant than the Wassermann. My experience with luetin as a diagnostic agent has not given as uniform results as the Wassermann reaction, but this may be partly explained by the fact that the original Wassermann was employed in my cases and also more sensitive antigens, namely those fortified with cholesterolin.

LUMBAR PUNCTURE.

Another link was added to the diagnostic chain of lues, in 1906, when Wassermann and Plaut discovered that the spinal fluid of paretics reacted positively to the Wassermann test. This was followed by a new line of investigation on the neurological side of syphilis, which however was not placed on a practical basis until 1910, when Hauptmann and Hössli demonstrated that the amount of spinal fluid, 0.2 c. c., the same used for the blood test, was inadequate to give the reaction in the vast majority of cases with involvement of the central nervous system. They showed that five times that quantity or one c. c. with titration down to 0.2 c. c., was entirely safe, gave quite constant findings, and enhanced the value of the test, which up to this time was more frequently negative.

Spinal puncture in the hands of the properly

trained is a simple procedure not followed by untoward symptoms if all precautions are observed, but certain rules must be insisted upon. The patient should, to obviate such unpleasant symptoms as headache, nausea, vomiting, and giddiness, be kept in bed flat on his back for at least twenty-four hours. It has been said that patients with a normal fluid are more apt to suffer from headache than individuals with a definite pathological condition, but I have, on several occasions, met with severe headache lasting for several days, in tabetics as well as in normal individuals who had disregarded the caution to keep absolutely quiet. In cases of cerebral tumor, the greatest care must be exercised, as here the withdrawal of the fluid is fraught with considerable danger. Nonne mentions several cases of sudden death.

The puncture should always be performed with the patient in the recumbent position, whether on the right or the left side being a matter of personal preference. The back is bowed out by approximating the knees and chin. The skin is sterilized and anesthetized endermically with a two per cent. novocaine solution. A needle, nine to ten cm. long, and of No. 16 to 17 calibre, is introduced between the third and fourth or fourth and fifth lumbar vertebræ, which is below the cord, and about eight to ten c. c. of fluid are withdrawn.

The examination of the fluid consists of the estimation of pressure, the cell count, globulin test, and the Wassermann reaction. The pressure of the fluid is estimated by attaching a graduated manometer tube to the puncture needle and reading the height to which the fluid rises. The pressure varies a good deal under normal conditions and with movements, crying, etc. Only a definite increase, such as occurs with tumors or acute meningitis, is of diagnostic value.

The chambers for the cell count should be prepared at the bedside immediately after the fluid is withdrawn, as the cells settle very rapidly if it is left standing. The counts are made with the Thoma-Zeiss chamber and pipettes used for the ordinary leucocyte count. Two chambers should always be prepared. The diluting fluid, ten per cent. acetic solution, is drawn to mark I on the pipette and the spinal fluid to mark II. This is mixed, and after throwing away the fluid in the capillary part of the tube, a drop is run on the counting stage, a cover glass is placed on the slide, and the cells on the ruled surface are counted. As the chamber is one tenth mm. in depth, the total count gives the number of cells in nine tenths c. mm. of diluted fluid. To get the number of cells in a c. mm., we multiply by ten and divide by eight.

For the globulin test, Noguchi's butyric acid reaction is the most satisfactory. Two tenths of a c. c. of spinal fluid is boiled over a flame with 0.5 c. c. of ten per cent. butyric acid in normal salt solution; 0.1 c. c. of a four per cent. caustic soda solution is added, and the mixture heated again. The result is watched for ten minutes and then read at the end of one half hour and twenty-four hours. The scale of reading runs from an opalescence which is negative, to a coarse flocculent precipitate interpreted as a double plus reaction.

The technic of the Wassermann reaction is the same as on the blood, except that a titration is performed on amounts varying from one c. c. to 0.05 c. c., or even lower.

Normal spinal fluid is a clear, slightly alkaline liquid having a specific gravity of 1.006 to 1.008. It is a secretion of the choroid plexus and ventricle ependyma, having as its principal constituent sodium chloride with traces of carbonates and phosphates, dextrose, urea, and a faint trace of albumin. It is practically free from cellular contents, up to five cells per c. mm. being considered normal. The daily amount secreted averages 120 to 150 c. c., but in morbid conditions this is subject to considerable variation.

What is the significance of an increase in the constituents of the spinal fluid, and how are we to interpret it?

According to Nonne's teaching, zero to five cells are normal; six to ten are borderland cases, and over ten constitute a pathological increase. A pleocytosis of the cerebrospinal fluid then usually indicates meningeal involvement, but occasionally in other infections where the meninges take no part, as Landry's paralysis, pernicious anemia, and herpes zoster, a pleocytosis may be present. However, an increase in lymphocytes combined with other findings, is strong presumptive evidence of syphilitic disease.

A lymphocytosis is useful in differentiating cerebrospinal syphilis and general paralysis from other conditions, as neurasthenia and alcoholism; but it is more difficult to differentiate tabes, paresis, and cerebrospinal syphilis from one another on the cytological count alone. This in my experience fluctuates within very wide limits, not only in paresis, but in tabes, so that statements found in textbooks, that five to twenty cells is a probable indication of paresis; twenty or over of tabes; and over 100 of cerebrospinal syphilis; have no value from a differential standpoint and show the fallacy of attaching too much importance to one feature alone. In paresis I have found a cell count as high as 280 and in tabes ranging from zero to 247. It was formerly taught that lymphocytosis in tabes and general paralysis was uninfluenced by antiluetic medication, and that this method was useful in diagnosing cases of pseudotabes and pseudogeneral paralysis. This we now know to be untrue, as with properly directed treatment the cell count is more readily influenced than either the globulin content or the Wassermann reaction. In a case of cerebrospinal syphilis with 746 cells, the number was reduced to 174 by one intraspinal injection of 1.5 mg. of salvarsan. In a case of tabes, the cell count fell from 128 to 19 after an intraspinal injection of one mg. The cells are also markedly diminished by intravenous treatment alone, but this is much slower, as in a case with 150 cells the count dropped to fifteen, after five intravenous injections.

The globulin or phase I reaction of Nonne and Apelt, occurs exclusively in patients suffering from organic nervous disease and is therefore of significance in differentiating between functional and central affections. While a moderate lymphocytosis may be met with in individuals who were once infected with syphilis, and in whom the central nervous system has been spared, in Nonne's experience

in thirty to forty per cent. of cases, phase I is never present unless there is coincident nervous trouble. Its presence will not assist in differentiating between specific and nonspecific disease, but in general it may be said that the reaction is stronger when syphilis is the etiological factor. It is met with in infectious meningitis, in spinal cord tumors, and, to a less extent and weaker, in cerebral tumors. In other brain and cord affections it is weaker and not so constant. Recently I obtained the reaction in a case of leprosy.

It is estimated that globulin is present in eighty to 100 per cent. of cases of syphilitic nervous disease, the variability in figures depending probably on antecedent treatment and remoteness from period of infection. Plaut reports twenty-eight cases of cerebral lues, of which only eleven were positive, and adds that, while a negative reaction does not militate against luetic disease, a positive reaction is to be taken as a serious symptom. Nonne is credited with saying that the endarteritic forms usually give a negative reaction. The cases which have come under my observation, diagnosed as cerebral and spinal endarteritis, have with only one exception reacted negatively to phase I, unless an accompanying meningitis was present. This was a case of spinal endarteritis or transverse myelitis with four cells and a strongly positive globulin reaction and negative Wassermann. In the blood the Wassermann was double plus.

It is generally agreed that the reaction is stronger and more constant in paresis than in other affections. There is usually a parallelism between phase I and a pleocytosis, though this is not invariable, and the latter may be missing or very low when the former gives a strong reaction. With a high cell count, however, it is marked. In a case of syphilitic meningitis I saw at the City Hospital with a pleocytosis of about 2,000, the fluid coagulated solid.

The Wassermann reaction in the blood is estimated by Nonne and Hauptmann to be positive in eighty per cent. of cases of cerebral lues. The more recent the infection, the more apt is it to be positive, while in old cases its strength depends on the activity of the process. In paresis the blood is positive in nearly 100 per cent. and this is used as a differential point from other forms of cerebral disease. In tabes the reaction is present, from Nonne's and Swift's figures, in sixty to seventy per cent. From my own about sixty-six per cent. gave a positive reaction. In the spinal fluid the reaction is positive in paresis in 100 per cent. of cases with amounts over 0.2 c. c., and the majority will titrate lower down than other types of cerebrospinal lues. This point is considered a diagnostic feature by many authorities or as an indication that the type will eventuate in paresis or tabetoparesis.

In tabes, the reaction in the fluid depends on the activity of the process, being strongly positive in the early cases with a cell count and positive globulin, and negative in those cases where purely degenerative changes are left. It is not possible at the present time to give a characteristic serological picture for cerebrospinal lues, tabes, and paresis. Bearing in mind that there are transitional or borderland forms, it is necessary to supplement laboratory findings with careful and minute clinical examinations. To obtain a proper conception of the serological findings in early tabes, repeated examination of the

fluid should be made in all patients presenting symptoms pointing to involvement of the nervous system.

SUMMARY.

To summarize: The Wassermann reaction is one of the most important symptoms of syphilis, the interpretation of which can come only from experience—prolonged experience and careful comparison of laboratory results with clinical observation. There is great necessity for the standardization of the technic. All modifications introduced up to the present time, have proved inferior to the original method and cannot therefore supplant it.

A positive Wassermann is pathognomonic of a luetic infection with the following reservations: Partial or transient complement fixation is sometimes seen in leprosy, yaws, and cachectic states, but it is obvious that, with the exception of leprosy which is the only disease to present any perplexity in this climate, the clinical diagnosis would offer no difficulties. In the cases of leprosy which have come under my observation the reaction does not occur uniformly, some cases giving the reaction at one time and not at another, or negative and indeterminate with one antigen while inhibition may be complete with another. An indeterminate or weakly positive reaction is of value as an indication for treatment, but is of little importance for diagnosis unless as a concomitant of other symptoms, when it may in many cases be brought out by a provocative injection of salvarsan.

In interpreting negative reactions, one must bear in mind that they may occur with limited tertiary affections, in old infections with the disease limited to the central nervous system, and in women with repeated abortions, or syphilitic children in whom the infection is remote or has been treated. Alcohol, taken prior to the test, will sometimes prevent the fixation of complement; individuals who are addicted to its use, should therefore abstain for several days before the blood is to be examined.

In the primary period of syphilis, every effort should be made to establish a positive diagnosis. If the dark field examination is negative and the clinical picture doubtful, repeated Wassermann examinations should be made, as they are usually positive before the outbreak of the secondary rash.

The Wassermann is positive in the secondary stage in 100 per cent. of cases, and is of value in differentiating between early syphilitic eruptions and dermatological affections which simulate them. In the latent stage it is a valuable guide to the effect of treatment. It is impossible at the moment to give the percentage of cases which will remain refractory to treatment and to say to what extent we are justified in continuing to treat such patients.

Untreated tertiary cases with manifest symptoms give a positive reaction in from ninety-five to 100 per cent. of cases. The test is here of diagnostic import in differentiating luetic affections from tumors or other surgical conditions, and supplies the etiology in cases of repeated abortions where no history of syphilis is obtainable.

The provocative reaction is of great aid in cases with suspicious lesions and a negative reaction. It should be applied in all treated cases where the reaction has been negative for a period of a year or

more, to determine if a cure has taken place. If it becomes positive, there is an indication for renewal of treatment, and if it remains negative, the provocative should be repeated within a year, following the policy of Gennerich.

All patients with symptoms pointing to involvement of the central nervous system, should have a lumbar puncture, as well as the latent cases with persistent positive reactions, to determine if there is a latent process in the cerebrospinal system. The puncture is of value, not only in making a differential diagnosis between various neurological diseases, but as an index of the activity of a syphilitic process and a control of the effect of treatment.

The findings in syphilis of the nervous system are as follows: In tabes the reaction in the blood is positive in sixty to seventy per cent. In the spinal fluid, phase I and lymphocytosis are usually marked in about 100 per cent. of well developed cases with active manifestations. The Wassermann is positive with larger amounts of fluid, and about twenty per cent. give a reaction with 0.2 c. c. or less. In the early forms of the root type, the serological picture may be practically negative. Whether these cases will give positive findings later on, only further observation and time can tell. In the degenerative forms, where all activity has subsided, the results are negative.

In tabetoparesis and paresis, the picture is about the same, i. e., a positive reaction in the blood in about 100 per cent. of the cases; in the fluid, a positive phase I and a variable lymphocytosis with a positive Wassermann in larger amounts in 100 per cent., and with 0.2 or less in about ninety-five per cent.

In cerebrospinal lues the reaction in the blood is positive in seventy to eighty per cent., phase I is usually positive, pleocytosis is variable, complement fixation is positive in larger amounts, a smaller percentage fixing with 0.2.

In cerebrospinal arteritis, the blood may or may not give a positive reaction. The findings in the fluid may all be negative, excepting the globulin reaction unless there is an accompanying meningitis.

8 WEST SEVENTY-SEVENTH STREET.

THE MEDICAL TREATMENT OF INTESTINAL STASIS.*

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Every medical generation has a nomenclature peculiar to itself. My grandfather (1819-1856), gave much thought to what was termed a "torpid liver," his son (1849-1906) laid many of his patients' woes to "biliousness," and especially to constipation. They both made use of a pill which was inherited from the former's preceptor, and consisted of two grains of powdered socotrine aloes, the same quantity of powdered gamboge, a grain of calomel, one quarter of a grain of scammony, and one third of a grain of potassium nitrate. Two or three of these pills taken at bedtime produced re-

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sults; at least, results so apparent that therapeutic nihilism never has been popular, nor has the Christian science movement been recognized in that community. Through two generations at least it has been recognized that systematic poisoning has resulted from the retention in the intestine of excrementitious material. The third generation, in addition to attempts to obviate stasis, has studied the problem of preventing the production of toxic material in the intestine, the first paper having been presented in 1887.

By chronic intestinal stasis is meant that the passage of the contents of the intestinal canal is delayed sufficiently long to result in the production, in the small intestine especially, of an excess of toxic material, and in the absorption into the circulation of a greater quantity of poisonous products than the organs which convert and excrete them, are able to deal with. In consequence, there exist in the circulation materials which produce degenerative changes in every single tissue of the body, and lower its resisting power to invasion by deleterious organisms.

The fundamental cause of intestinal stasis became effective when *homo sapiens* was differentiated from the other primates and assumed the upright posture, entailing upon his descendants all the resulting mechanical disadvantages. This should have been the golden age of surgery for the relief of this condition, but apparently the opportunity was neglected. Then came the inclination to disregard the injunction contained in *Genesis* III, xix, and the disposition of man to sit upon his haunches to survey the works of creation, and so men added the effects of sedentary life to those of posture. That this condition of stasis had early attracted the attention of scholars, is evident from the *Charaka-Samhita* (A. D. 775) in which six hundred purgatives are enumerated. And, finally, the alleged refinements of civilization, including the artificial feeding of infants, the wide separation of place of production and consumption of foodstuffs, and the abominations arising from cold storage, complete the modern concept of intestinal stasis, and emphasize its pathological sequelæ.

From the standpoint of the physician, the causes which can be remedied by him resolve themselves into four categories:

1. Insufficient peristaltic action of the intestinal wall.
2. Errors in diet.
3. Dryness of the intestinal contents resulting from deficiency in the secretion of the intestinal fluids, especially the bile.
4. Weakness of the muscles of the abdomen, due to overstretching from various causes.
5. Undoubtedly partial stenosis of the bowel caused from within or from without by the pressure of displaced organs, abdominal effusions, peritoneal bands or adhesions which interfere with the normal passage of fecal matter, belong to the surgeon.

The diet should consist of substances which leave behind a considerable undigested residue, to which should be added fruits and green vegetables. Whole wheat or rye bread is preferable to white, while substances which contain tannic acid should be avoided. One of the best additions to the dietary

is one to four heaping tablespoonfuls of wheat bran suspended in a glass of cool water after the two principal meals. Agaragar, in half ounce doses, taken morning and night, eaten like a breakfast cereal with milk or cream, is useful, but not to the same extent as bran. This, to be effective, requires, in addition, two grains of the extract of *Rhamnus purshiana* every second night. In artificially fed infants care should be taken that the protein content be kept as low as is proper, and the fat be administered in sufficient quantities, so that conditions favoring stasis and secondary toxemias in later life may not be produced. Decomposing and fermentable foodstuffs are to be avoided, and generally all cold storage foods, especially poultry and game.

Insufficient peristaltic action must be combated by observing a regular time for evacuation, observing any inclination to defecation, and by the use of various "setting up" exercises and, whenever possible, athletic sports. The use of one fiftieth of a grain of physostigmine sulphate, twice daily, which ordinarily is not a cardiac depressant, with the addition of one thirtieth of a grain of strychnine sulphate may sometimes be necessary.

Dryness of the intestinal contents can be obviated by the use of several glasses of water drunk at various times between meals. The habitual use of laxative mineral waters is to be avoided. From time immemorial, oils have been employed, partly for direct laxative results, partly for action upon the bile, and largely for purely mechanical purposes. The oils and fats of animal and vegetable origin were undoubtedly the first to be so employed. In more recent times the mineral oils have been administered solely for their mechanical effects. That petroleum compounds, when given internally, pass unchanged through the intestinal canal, was proved by Randolph and Dixon, in 1885, by Hutchinson, in 1899, and confirmed by Reyburn, in 1901. In recent years the white Russian mineral oil has had considerable vogue as a lubricant, preventing intestinal putrefaction and absorption of toxic products and for softening the intestinal contents, and it is to be found in the pharmacies under various names and in varying quality. The best specimens are of a specific gravity of 0.870 to 0.940, odorless and tasteless, neutral in reaction and nonirritating, do not contain the fluorescent and other lighter hydrocarbons nor sulphur compounds, and are not adulterated with fixed oils or fats of animal or vegetable origin. In practice, the liquid petrolatum (*petrolatum liquidum*) of the pharmacopeia, which is a mixture of hydrocarbons, chiefly of the methane series, obtained by distilling off most of the lighter and more volatile portions from petroleum, and purifying the residue, is very satisfactory—in that it is effective and one has confidence that the product is constant in composition and of established purity. It is not acted upon by either acid or alkaline digestive fluids and is practically unabsorbable.

When administering liquid petrolatum for considerable periods of time—and it is usually so given—it is well to give five or ten grain doses of calomel about once in seven days, followed by two drams of Rochelle salt in a full glass of artificial vichy the next morning. The amount of the oil given should be one tablespoonful before each meal, or larger

doses may be administered once daily, preferably after the evening meal. It is best given cold with cold water with possibly the addition of a little orange juice. In case the liquid petrolatum causes oily movements, which may even be involuntary, the amount should be reduced. It is a matter of experience that after a time a much smaller dose is equally effective. Although I have, for many years, been applying Metchnikoff's theories to practice, I have by no means achieved the success which has rewarded my efforts when directed by the methods mentioned in this paper.

High colonic irrigations at a temperature of 112° F., once or twice weekly, administered by an expert nurse, a gallon of normal saline solution being employed, the rectal tube inserted into the bowel six to eight inches, the bag three feet above the rectum, may be substituted for calomel.

Weakness of the abdominal muscles by overstretching from various causes calls for massage, manual percussion, faradic electricity or the static induced current, whichever is most convenient. As to the various ptoses, it must not be forgotten that they are merely isolated features in the etiology, but just the same they require attention. With proper attention to detail and after careful instruction, various abdominal supporters, the Rose plaster or the Gallant corset, can be readily applied by the physician, with much benefit to the patient. If the ptosis involves several organs, the result is likely to be more satisfactory than after isolated and therefore incomplete operations.

The keynote of Lane's contention is intestinal stasis plus toxemia. He is undoubtedly right in his contention, but whether the toxemia is a direct consequence or an indirect sequence of effects on the nervous system, or on the ductless glands, particularly the adrenals and thyroid, and possibly the pituitary, is not quite so clear. And whether we may go so far as Lane would have us, and attribute to intestinal stasis and the resulting toxemia so many and so diverse end results, which we have hitherto regarded as constituting distinct clinical entities, is not, at the present time, determined. If these radical opinions are finally accepted, a revision of our nomenclature is certainly in order. Clinically, however, the results are undoubted.

Coming now to the mechanical causes of stasis, Jackson's membrane, Lane's kink, Morris's cobwebs, Codman's drag, and the other named obstructions and adhesions, the physician believes these to lie well within the province of the surgeon, and while these structural defects may and do exist without giving rise to symptoms, we must agree that the dictum of Morris in his paper on Peritoneal Adhesions, presented at the last meeting of this society, is sound: "We should reserve the operation (he is speaking of ileosigmoid or ileorectal short circuiting), for those cases in which really good and proper medical resources have been applied for a sufficient length of time without giving a high degree of relief." This statement applies with even greater force to total colectomy.

In the hope that we may employ really good and proper medical resources for a sufficient time, and give a high degree of relief in all cases in which this is possible, this paper has been written.

679 MADISON AVENUE.

GENERAL PARALYSIS OF THE INSANE.*

Recent Developments in the Diagnosis and Treatment.

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Developments of the past few years have added so materially to our knowledge of the etiology and diagnosis of syphilis, that future methods of diagnosis and treatment must differ radically from those hitherto employed. While this is true of the treatment of syphilis as a general disease, it is doubly true of those various manifestations grouped under the term of cerebrospinal syphilis. We can now positively include in this group the cases of tabes dorsalis and paresis which have caused so much uncertainty and speculation concerning their relation to syphilis since 1857, when Esmarch and Jessen first reported cases of paresis which were believed to have followed syphilis. Gradually this conception of the supposed relation found added support, and Krafft-Ebing's epigrammatic statement that "syphilization and civilization" were responsible for paresis, found many believers, and their faith was strengthened by the evidence of his often reported inoculation experiment upon paretics.

The great majority of observers have come to share the belief that paresis developed only in syphilitics. Ford Robertson has been one of the notable dissenters, and has presented the result of many studies to prove that *Bacillus paralyticus* was the active cause of the disease. His work was neither so conclusive nor so exact as to win many supporters, and the writer, after seeing many futile efforts to obtain the organism from brain, cerebrospinal fluid, heart's blood, liver, and spleen (though it was repeatedly found as a saprophyte on the mucous membranes), joined those who considered his assertions unwarranted.

Fournier first formulated the clinical conception of parasyphilis, and believed that paresis, tabes dorsalis, progressive muscular atrophy, epilepsy, severe cases of neurasthenia, and other conditions might develop from this hypothetical parasyphilitic state. Gradually the range of disorders arising from parasyphilis has been largely restricted to paresis, tabes, and optic atrophy, though by some Erb's spinal paralysis and some cases of lateral sclerosis have also been regarded as of parasyphilitic origin. Gradually the unity of paresis, tabes, and optic atrophy has been established by clinical and pathological evidence, the three conditions so often being found in the same patient that the distinctions have been preserved largely for convenience in recording the type of disorder in the so called parasyphilitic group. The common diagnosis of "tabetoparesis with optic atrophy" illustrates the relation of these symptoms, though each syndrome often occurs independently of the others, yet cannot be separated into different disease entities except by the most arbitrary differentiation. Now, in the light of recent discoveries we can sweep away the term of parasyphilis and all the vague speculative theory founded upon that concept, and

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realize that tabes dorsalis, paresis, optic atrophy, generally, and possibly some types of muscular dystrophy should be grouped with the gummatous deposits and affections of the meninges and blood-vessels, that have previously been considered as clear cases of cerebrospinal syphilis.

The events that led to this logical deduction are of interest and began with the discovery of *Treponema pallidum* by Schaudinn, in 1905. Six years later, Noguchi gave the first convincing evidence that the organism had been grown in pure culture, though two years before Schaudinn's discovery, Metchnikoff and Roux had succeeded for the first time in transmitting syphilis to lower animals, thus starting the modern methods of investigation which have been so prolific in advancing our knowledge of the disease. By the discoveries of these, and many other research workers, the older views founded upon clinical observation have been thrown on the medical dump. Profeta's law, Colles's law, and much of the clinical teaching of former times now have merely historic interest, and again have the laboratory workers added to their rapidly accumulating laurels, placed effective means of diagnosis at the command of all, and, further, have inspired the hope of a more successful therapy.

Unfortunately, many years must elapse before we can be certain that present methods of treatment will be any more effective in preventing the late effects of syphilis than the methods formerly employed. Neurologists have never shared the cheerful optimism of practitioners who have promised a "cure" to the patient with an initial lesion. They have recognized clearly the latency of the disease in many cases and have too frequently seen symptoms of fatal disorders ten to thirty years after supposed "cures," to allow any false hopes as to the efficacy of any treatment, new or old, in preventing the late manifestations of cerebrospinal syphilis. Even the negative Wassermann reaction following treatment is known to be no sure index to the destruction of all spirochætæ, for it may be followed later by evidences of an active syphilitic process. We must infer, by analogy, that latent syphilis is today as dangerous to health as ever, and can merely trust that our present means of observation and therapy may enable us better to control the disease. Time alone can determine this point accurately. Virchow, in 1858, reached the conclusion that syphilis attacked tissues with the least resistance, a view which subsequent investigations strengthen, and no better explanation can be given for the great diversity of symptoms met in any given series of cases.

The physician is frequently asked by patients in the early stages of the disease as to the probability of occurrence of late lesions of cerebrospinal syphilis, and the study of such statistics as are available justify a comforting reply, though no syphilitic can be given positive assurance of immunity from these serious developments. Unfortunately, statistics have not been kept in such a manner as to enable the formation of definite conclusions concerning the frequency of such developments. Ultimately, figures of the United States army will afford a most reliable index, but more time must elapse before they can be used to answer the question. Nonne's figures are most interesting in connection herewith.

Excluding cases of tabes and paresis, in a review of 72,180 neurological cases at the Eppendorf Hospital, he finds that the diagnosis of cerebrospinal syphilis was made 282 times. In his private practice, the diagnosis was made in something over one per cent. of neurological cases. These figures would indicate that the condition in question is encountered about twice as frequently as cerebral tumor. Doubtless present diagnostic methods will somewhat increase the reported frequency. If asked to give the percentage of syphilitic cases presenting symptoms of the disease in the nervous system, we are obliged to fall back upon the opinions of a few experienced observers. Reumont reported 3,400 cases of syphilis with involvement of the nervous system in 290 cases. Hjeltnan believes that it occurs in from fifteen to twenty-five cases out of every 1,000 infections, and others reach practically the same conclusions. As to the frequency of paresis in syphilitics, Matthes followed all the syphilitics treated at Jena for several decades and found that in less than two per cent. paresis developed. From a correlation of this combination of fact and opinion it would appear that in Europeans some form of cerebrospinal syphilis occurs in about five per cent. of infections.

So far as paresis is concerned there seems to be evidence of a racial immunity, for while syphilis is very common in Turkey, Algiers, Japan, China, Java, Egypt, and Abyssinia, paresis is relatively uncommon. From this fact it would appear that complex factors in the higher civilization increase the tendency to paresis. Alcoholism is unquestionably a predisposing factor of great importance, and a very large percentage of paretics furnish a history of excessive indulgence. A neuropathic inheritance apparently is another important factor. Näcke, after extensive study of the subject, goes so far as to say that paresis does not attack a normal, healthy brain, but only one congenitally weak. Numerous cases are reported of head trauma in syphilitics followed by paresis. But in the attempt to ascertain contributing causes the fact that none can be discovered, in many cases, stands out clearly, and, further, alcoholism seems to be about the only alleged contributory cause over which the patient has any control.

Since Noguchi's report, in 1913, of finding *Spirochæta pallida* in the brains of paretics, his work has been confirmed by many observers, some of whom have gone so far as to open the cranial cavity of living patients with a drill, and obtain bits of cortex in which spirochætæ have been demonstrated by the dark field illumination method. Spirochætæ have also been found in the cord and cerebrospinal fluid. These findings seem to leave little ground for dissent from Kraepelin's assertion: "We can today declare with the greatest certainty that syphilitic infection is necessary for the later appearance of paresis." Noguchi's discovery furnishes the fact hitherto wanting to complete the chain of evidence, and demonstrate that paresis, as long held by Dunlap, is merely a late manifestation of syphilis, though presenting a somewhat different pathological picture from that seen in the hitherto recognized specific cerebral disorders which have been grouped by Nonne under three headings:

1. Syphilitic new growths.
2. Chronic hyperplastic inflammation.
3. Disease of the bloodvessels.

Now we must add to the category the formerly so called parasyphilitic diseases, paresis and tabes dorsalis.

The differentiation of the various pathological conditions arising from syphilis, is no less difficult than formerly. It is comparatively easy to recognize the conditions that may arise early after the infection; but multiple lesions resulting from Hübner's arteritis, gummatous growths, and the type of disease seen in the finer vessels, as described by Nissl and Alzheimer, will furnish a train of symptoms extremely difficult, if not impossible to differentiate from paresis, for it must be remembered that the location, extent, and character of the parietic pathology may be such as to produce almost any symptom ever seen in disease of the nervous system, and that the course of the disease may extend over many years with long periods of remission. Furthermore, cases have been reported in which autopsies have shown combinations of parietic with other specific lesions.

With careful histories, physical examinations, and recently developed study of the blood and cerebrospinal fluid, the difficulty is greatly reduced. The cell count after lumbar puncture has long been used to determine the presence of a pleocytosis, and the cytological study has been advanced by Alzheimer's method of differential count, which affords some help in determining the character of the process. Noguchi's butyric acid test for the protein content in the fluid, was the next aid in diagnosis, and later the Wassermann test for both blood and fluid was added, to complete our present diagnostic methods and to furnish a valuable guide in treatment.

By the routine use of these methods, errors in differential diagnosis between cerebrospinal syphilis and nonspecific disorders are practically impossible, and their interpretation is of material assistance in differentiating the various types of specific cerebral disease. Plaut reported 100 per cent. of positive Wassermann tests on blood serum in 180 cases of paresis, and Boas had the same result in forty-two cases. Noguchi compiled the results of twenty-six different observers who, in the total, found positive serum reactions in 84.5 per cent. of 660 cases and ninety-one per cent. positive findings in 481 spinal fluid examinations. It is quite reasonable to conclude that these latter percentages are much below the correct findings, unless examinations of the serum and fluid were made at repeated intervals, as the writer knows of no case of undoubted paresis which has not at some stage of the disease shown positive findings by one or more of the tests, while the great majority have given positive findings by all four tests. The current literature is rich with confirmatory references and reports upon this subject.

At the Warren State Hospital, for over a year, the Wassermann test has been used for examination of blood serum in all new cases. When positive, this has been supplemented by lumbar puncture and the employment of other methods as a routine measure. Much interesting material has been accumulated, which will ultimately be pre-

sented by the hospital physicians, but a few facts may be of interest now. The percentage of syphilitic cases among our new admissions is of primary interest. During the last year 18.5 per cent. of female admissions showed positive serum on the first test and 22.3 per cent. of the males gave the same result. Over fifty per cent. with positive serum also gave positive fluid reactions, the ratio of positive fluid and serum reaction between men and women being a little better than two to one, which represents the ratio of paresis between the sexes. For the purpose of both study and treatment, we have made repeated examinations of the blood and fluid in nearly all the parietics in the hospital and excepting in two doubtful cases, in which the diagnosis was probably alcoholic pseudoparesis, and a parietic with only one blood examination, diagnosis being confirmed by autopsy, we have found no case with a constant minus serum reaction. Several cases of syphilitic arteritis have given repeated minus serum and plus fluid reactions. No parietics have given a constant minus fluid reaction or negative globulin test, though in a few cases the latter test was negative in most of the examinations. In five cases only did we find a cell count persistently below ten.

As all reasonable means were taken to insure correct clinical diagnosis, and as we were working largely with undoubted cases of paresis, we feel that the results demonstrate the value of these examinations for diagnostic purposes in our work and that their routine employment will secure more accurate diagnosis than is possible by psychiatric or physical examinations unaided, especially in the early stages of the disorder when a correct diagnosis is of the greatest importance both for the proper care of the patient and for the adoption of treatment before it is hopeless to expect improvement. To those familiar with the changes produced in the brain by paresis, it is obvious that if any treatment is to stay the disease process and leave the patient's mental faculties little impaired, it must be adopted at an early stage before permanent destructive changes in the cortex have taken place, for there is practically no possibility of repair in cerebral tissues thus affected. The same observation applies to most of the late cerebral lesions of syphilis.

Two problems are presented for consideration, viz., prevention of cerebrospinal syphilis and treatment of this condition when prevention fails.

1. What can be done after infection to prevent the occurrence of cerebrospinal syphilis? We know that it occurs in a small percentage of cases, both in those well watched and treated and in those with practically no treatment worth consideration after that of the initial lesion. Conditions of living, which may affect all syphilitics more or less unfavorably can be little modified in the average. Heredity and a constitutional neuropathic weakness cannot be altered. Alcohol and all excesses of work or pleasure can be more or less controlled. Every person infected with syphilis should forthwith become a total abstainer from alcohol for the rest of his days. To a correct regimen of living we can but add our best therapeutic efforts and wait for time to solve the question in each case. Form-

erly under the best known methods of treatment, late or tertiary symptoms appeared in a very high percentage of cases thus treated. Post estimated that in sixty per cent. of his cases, evidences of late syphilis appeared after years of apparent "cure" as estimated by the former unreliable clinical evidence. Nichols has confirmed this view by venturing the belief that about thirty-five per cent. of cases in the United States army have been cured, while other army surgeons report a much smaller percentage of cures. A new interpretation must be given to the word "cure" in connection herewith. If syphilis is a specific disease due to infection by *Spirochæta pallida*, the "cure" of the disease must be synonymous with the destruction of the last spirochete and not mere freedom from symptoms for a few years. The latency of syphilis has been well recognized, and we must now regard it as due to the persistence of the spirochete in the body. "Cure" of syphilis can then be determined only by methods which will exclude the possibility of the specific organism surviving in the tissues. Fortunately, recent research has been able to supply us with diagnostic aids in determining this point, and with the Wassermann test we have a fairly reliable index, even as ordinarily employed. The so called "provocative Wassermann test" is still more delicate and compares in accuracy with Noguchi's luetin test. If negative results are obtained by use of these methods, separately employed at intervals, we can be reasonably certain that the patient is "cured." Nichols has formulated the following standard for determination of cure: "One year without treatment, without any suspicious clinical signs, with several negative Wassermann reactions and no positive ones, and with a negative provocative Wassermann reaction and luetin test at the end of the year." The inadequacy of one to four doses of salvarsan is well demonstrated by the fact that only 2.6 per cent. of his cases met this standard following the use of salvarsan alone, in the first year of its use.

The tendency at present seems to favor a short intensive course of treatment combining salvarsan or neosalvarsan, with mercury, two to six full doses, according to the stage of the disease, at weekly intervals and followed by four to eight weeks of intensive treatment by mercury, checking the results by the Wassermann tests and repeating the treatment when indicated.

We must look upon all types of late cerebrospinal syphilis as conclusive evidence of the inadequacy of early treatment. We can avoid repeating errors of the past only by the use of the best means known for controlling treatment, hoping that patients thus treated may be spared from the late manifestations of syphilis. It seems reasonable to expect, with the help of a new and powerful aid to mercury treatment, and with more exact means of estimating the patients' condition, that cerebrospinal syphilis may be greatly restricted in the future. There is no reason for the belief that inadequate salvarsan therapy will be any more effective in this direction than the older therapy.

2. What can be accomplished in the treatment of cerebrospinal syphilis, and what means of treatment are most efficient? Many lesions of both early and

late syphilis, by mechanical damage to nerve tissue, will leave permanent structural defects with greatly varied symptomatology. No treatment will affect the residuals of such lesions. So we are most concerned with those of a progressive type, tabes dorsalis and paresis being the most common examples, and may briefly review some rational developments of treatment, founded upon recent discoveries. In paresis we now know that spirochetes are most frequently found in the gray matter and lymph channels, which are a part of the subarachnoidal space carrying the cerebrospinal fluid. It has long been known that there is practically no filtration of medicinal agents from the bloodvessels into this fluid. Flexner had previously demonstrated that, in the treatment of meningitis, it was necessary to introduce the remedial agent directly into the cerebrospinal canal. In 1913, Wright and Ellis published the result of two years experimental work with intraspinal injections of salvarsanized serum. During this interval several reports were made upon the results of intraspinal injections of salvarsan, both in animals and patients, with general condemnation of the procedure, owing to the serious symptoms. At the present time the only safe method of using salvarsan intraspinaly appears to be the Swift-Ellis method, using the serum of the patient after salvarsan treatment, or, if desired, taking the serum of another person similarly treated. It was found that such injections were well borne, and it was hoped that by this method the fluid might be given spirocheticidal properties and that organisms in the poorly vascularized regions of the brain, and in the subarachnoidal space, might thus be attacked. The salvarsanized serum was shown to have a faint but distinct spirocheticidal effect.

In the employment of this method, the guide for treatment should be the condition of the cerebrospinal fluid. The aim should be to secure a fluid negative to the Wassermann and globulin tests and with normal cell count. It has been assumed that return of the fluid to normal condition would mean that the patient was out of danger, and it was argued that, when examination of the fluid showed the results of a specific process, and treatment brought the fluid back to normal condition, it was fair to assume that the process was inhibited and might possibly be terminated. The treatment logically should be continued until the fluid is normal and should be used as an aid, not as a substitute for other treatment.

Briefly, the technic, as given by Swift and Ellis, is as follows: One hour after an intravenous injection of salvarsan, forty c. c. of blood is drawn and centrifugated. On the following day, twelve c. c. of the serum is diluted with eighteen c. c. of normal saline solution and the mixture heated to 56° C. for one half hour. Then an amount of fluid, varying with the pressure, is drawn by lumbar puncture and the diluted serum introduced. The treatment is repeated at frequent intervals until a normal fluid is obtained.

Enough cases have been reported by different observers to warrant further trial and observation of results, an investigation which is required before definite conclusions can be reached. Some very optimistic reports have been made in cases of tabes,

relief of symptoms being noted in a high percentage of cases. Almost uniform improvement in the fluid has been reported in both tabes and paresis.

The hospital physicians at Warren have accumulated a gradually increasing series of cases, some of which have been under treatment for a year, and the results will be reported after sufficient time has elapsed to justify conclusions. Our cases are largely paretic, and those most familiar with the irregular course of paresis are most loath optimistically to misinterpret a remission, which may, and often does occur with no treatment, as an improvement due to a method whose therapeutic value is still under judgment.

Briefly, the principal points in the diagnosis and treatment of cerebrospinal syphilis have now been mentioned. While we cannot expect to do much for advanced paretics and are not warranted, by present knowledge, in being oversanguine in the treatment of any stage of paresis, yet the old condition of hopeless resignation to the inevitable, has given place to a live interest and a keen hope that cases of cerebrospinal syphilis may be committed before the possibility of improvement has been wiped out by the advance of the disease.

In conclusion, certain facts in connection with syphilis of the nervous system justify special emphasis.

1. The hitherto so called parasyphilitic diseases of the nervous system are now known to be late specific lesions due to presence of *Treponema pallidum* in the tissues affected. The parasyphilitic conception is no longer tenable.

2. A small percentage of syphilitics, for reasons not clearly understood, manifest types of cerebrospinal syphilis which have always been specially resistant to any known treatment.

3. Thorough and intensive treatment, aiming to destroy the last spirochete in the early stages of the disease, affords the best known prevention.

4. The efficacy of early treatment can be determined only by use of laboratory methods, which should be employed with all syphilitics. Relative accuracy in treatment can thus be substituted for doubt and guess work.

5. Study of cerebrospinal fluid is imperatively demanded in the diagnosis of syphilis of the nervous system.

6. Intraspinal treatment offers some hope of checking the disease, and is the only route by which spirocheticidal agents can be brought directly in contact with the tissues bathed by the cerebrospinal fluid. More general application of this measure and longer observation of cases thus treated are needed for the final estimation of its therapeutic value.

Iodine in Drug Habit.—W. B. Parsons, in the *Denver Medical Times* for September, 1913, states that iodine removes the craving for opium, morphine, or cocaine. In a patient who was taking fifty grains of cocaine a day, the desire for the drug was lost in five days upon application of tincture of iodine to small abscesses on the legs, caused by the cocaine injections. The cases in which the measure has been tried are few.

THE PROGNOSIS IN ACUTE APPENDICITIS.

By E. MACD. STANTON, M. D., F. A. C. S.,
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TABLE I.

Results Reported by Those Advocating Immediate Operation.				
Reporter.	Years.	Acute cases.	Deaths.	Per cent.
Denk (14)	1907-1911	467	20	6.2
Burgess (15)	1906-1911	500	40	8.0
Syms (16)	1906-1912	106	8	7.5
McWilliams (17)	1906-1909	687	68	9.8
A. V. and E. Moschcowitz (18)	1903-1906	842	67	7.9
A. V. and E. Moschcowitz	1899-1902	(661)	(135)	(20.4)
Total of recent series		2,602	212	8.1

TABLE II.

Results Reported by Those Advocating Delayed Operation in Severe Intermediate Stage Cases.				
Reporter.		Acute cases.	Deaths.	Per cent.
Ochsner (19)	1904	460	19	4.1
Guerry (20)	1909	280	2	0.7
Stanton (21)	1910	110	5	4.5
Deaver (22)	1912	374	11	2.9
Willis (23)	1913	401	13	3.2
Stanton (24)	1914	116	8	6.9
		1,741	58	3.3

TABLE III.

Analysis of 116 Cases of Acute Appendicitis (Stanton). Treated. Operated. Died.			
Acute diffuse or gangrenous operated in during first 48 hours of attack....	49	49	0
Acute cases with slight peritoneal symptoms operated in after 48 hours....	18	18	0
Acute cases with well marked peritonitis operated in 3d to 5th day of attack	8	8	4
Cases seen after 40 hours with well marked peritonitis. Ochsner treatment	22	20	2
Mild cases. Ochsner treatment only....	2	0	0
Late cases with localized abscess at time of admission to hospital.....	16	16	1
Rupture of old undiagnosed appendicular abscess into general peritoneal cavity. Moribund on admission....	1	1	1
	116	112	8 (6.9%)

TABLE IV.

General Statistics.			
A.—Minningham (25)—Compiled from American Hospital Reports:			
	Cases.	Deaths.	Per cent.
Total acute cases operated in.....	6,147	608	10.0
Acute cases without peritonitis.....	4,565	203	4.4
Acute cases with peritoneal lesions....	1,582	405	25.6
B.—Albu and Rotter (26)—Cases treated in Berlin hospitals during 1907:			
	Cases.	Deaths.	Per cent.
Acute cases operated in.....	1,344	196	14.6
Acute cases not operated in.....	1,021	16	1.6
Total	2,365	212	9.0

Notwithstanding the great progress which has been made in the surgical treatment of appendicitis, hospital reports still show that the mortality of the acute form is by no means what it should be. From the accumulated experience of many operators, I believe that the following conclusions regarding the prognosis of the disease are now generally accepted by most surgeons: 1. The mortality in cases operated in during the first twenty-four to thirty-six hours of the attack is almost nil. 2. Cases without peritoneal involvement or with the peritoneal involvement localized to the immediate vicinity of the appendix can be operated in with safety at any period of the attack, provided they are in the hands of a competent surgeon. 3. Cases with early peritonitis of greater or less extent are best treated according to the method of Murphy, but like all other forms of peritonitis the mortality in appendicular peritonitis, even when treated by the

Murphy method, rises rapidly in cases operated in after the first day of the peritoneal involvement. 4. Late abscess cases should be drained, with or without the removal of the appendix, according to the exigencies of the case and the skill of the operator. The mortality in this class of cases should not be over five or six per cent. at the highest. 5. The bulk of the operative mortality today is encountered in the severe cases operated in during the intermediate stage of the attack, at a period when there is well marked peritoneal infection of more than twenty-four hours' duration.

That the surgical profession is not yet in full accord regarding the best method of handling this latter group of severe intermediate stage cases, is well known to all. The viewpoints assumed by those favoring immediate operation at any stage of the disease are, I believe, fairly stated by the following quotations: Thus Kakels (1) says:

Ten years ago, the mortality was greater than it is today. Then physicians and surgeons alike who were in favor of an operation in cases seen early (twenty-four to forty-eight hours) procrastinated and counselled delay in those cases seen in the later stage of the spreading inflammatory process. Today our views regarding the time to operate have from experience radically changed, and we decidedly incline to the view of a great many others, that an operation should be performed as soon as the diagnosis is made, no matter in what stage of the disease we see the patient.

At the same time, we are not unmindful of, and appreciate the dangers incident to operation in the presence of diffuse peritonitis, and we are fully impressed with the fact that the risks are greater than when the process is localized, yet we believe, from our experience in many cases, that the dangers are overestimated; that with the present technic of ultrarigid asepsis and minimization of manipulation, the risks have been exaggerated. We, therefore, should not be swayed from operating, even if an active or spreading process is going on. Present day statistics do not disprove this assumption, for, as stated above, the mortality, taking a series of cases operated in, in all stages of the disease, has been reduced to about two per cent.¹

It is an unfortunate fact that most of the apparently low death rates reported by writers on the surgery of the appendix are obtained by including chronic and interval cases in the statistics. From the viewpoint of mortality there is no more relation between acute and chronic appendicitis than there is between pneumonia and an ordinary cold, and it is just as absurd for the surgeon to discuss the question of acute appendicitis and then to include chronic cases in compiling his total death rate, as it would be for the physician to include colds in compiling his pneumonia statistics.

Next we have a line of argument clearly stated by McWilliams (2) as follows:

Some of their statistics are alluring (e. g. Guerry), but before being convincing it will be necessary to know how many of the patients, treated in this way, die without localizing the process into an abscess, hence go unoperated on. I have seen no such statistics. Patients who have strength enough to survive the battle are operated upon and the unfit are eliminated. This method seems ideal for the statistics of the operator and perhaps better calculated to minister to the surgeon's reputation than to the safety of the patient. How is anyone to tell in advance whether a given spreading or diffuse peritonitis will not go on to a general and fatal peritonitis? Unquestionably, it will not

do so in the majority of cases, but it is the minority that we seek to save.

And, lastly, the viewpoint graphically presented by Morris (3) and recently seconded by Syms. "The Ochsner treatment is one of the most important things that was ever brought forward, but instead of carrying it out exactly as Doctor Ochsner does, I believe in doing an operation consuming three or four minutes. Get in, snap forceps on the appendix, and put in a little drain. You are not doing much to that patient. You are not lessening his chances very much."

The viewpoint of those opposed to operation during the intermediate stage of the disease in cases accompanied by severe peritoneal infection has been recently very clearly expressed by Doctor Deaver (4) as follows:

If we fail to operate in this early stage, peritonitis results, and, if so rapid and virulent that it marches ahead of the formation of plastic peritoneal adhesions which seek to confine it to its origin, we have a diffuse peritonitis. This peritonitis, moreover, may be no more dependent upon the presence of the infecting focus—in this case the appendix—than are the flames which devour a house dependent upon the match which set it afire. The disease is peritonitis and not appendicitis. The fireman must direct his hose against the house and not turn his chemical extinguisher against the match. Can we treat diffuse peritonitis by operation? From an experience covering the whole development of the modern treatment of peritonitis, I say, No. I have washed, wiped, drained with gauze and with tubes, employed antiseptics, and run the gamut of active procedures proposed for treatment. I can only echo the words of an English surgeon that "the more thorough the operation the more quickly the patient dies." After reducing the treatment to simpler and simpler lines, with corresponding improvement in mortality as each successive procedure was abandoned, I have come to the conclusion that no operation should be done in the presence of diffuse peritonitis, and have in this way achieved better results than by any form of operation, however complicated, however simple. Remember, that these remarks do not apply to local peritonitis, whether confined or unconfined. They apply only to those cases, usually of more than forty hours' duration, in which the clinical evidence of widespread peritonitis is present. Such patients appear generally sick, the face flushed, respiration chiefly costal in type, the temperature elevated to 102° F., though it may be normal. The abdomen may be beginning to distend, the tenderness is general, though usually most marked in the region of the appendix. Peristalsis is brief and tinkling, constipation absolute or, at least, obstinate. Such a patient is not a subject for operation. We cannot drain the entire abdominal cavity, and to remove the appendix, though that were desirable could we "wish" it out, does not aid the body to overcome the infection in the outlying areas where the conflict is being waged that determines the life or death of the patient.

Operation, with its depression of the vital powers and resistance, will tip the scale against the patient. Masterly inactivity, with appropriate treatment, will tide them over the crisis, allow victory in the remote areas of the peritoneum, and localize the infection in the neighborhood of the appendix, where it may be dealt with to greater advantage and with every prospect of success. The treatment is the same as that already spoken of as anatomical and physiological rest. If we treat our patients in accordance with these principles, it is true we shall still have a mortality in dealing with this grave disease, but it will be chiefly the mortality of weakness, of cardiac, pulmonary, or renal complications, and not that of peritonitis, our greatest foe. In this series I lost three cases from peritonitis, which I fear were due to inability to apply correctly these principles. The remainder died of cardiac and pulmonary complications.

In attempting to get a correct insight into the

¹See Chart 2.

²This evidently includes chronic and interval cases, for I have never seen any statistics except those of Guerry showing a mortality approaching two per cent. in a series of acute cases large enough for statistical purposes.

merits of this controversy we can first compare the results as reported by those advocating immediate operation at all stages of the disease with the results reported by those advocating the so called Ochsner method of treatment.

Table I, I believe, gives a fair summary of the results reported in recent years by the first group of operators and Table II, I believe, gives an equally fair summary of the results reported by the Ochsner adherents. In answer to the question raised by McWilliams I would say that Table II does include all cases dying without operation during the period reported, namely, Ochsner, 7 deaths, Guerry, one death, Deaver, 3 deaths, Willis, 2 deaths, and Stanton, one death. The comparative mortality is at least significant, but should be verified by pathological and other data before it is accepted as final. I have at hand many other reports which could have been included in Table I, which tend to show that the mortality even today in *real* cases of acute appendicitis operated in by the average surgeon believing in immediate operation in all stages of the disease is even higher than eight

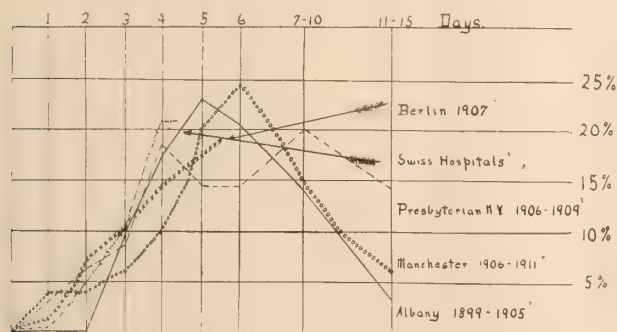


CHART.—Showing operative mortality on different days of disease.

per cent., but it would not be fair to compare this class of data with the results reported in Table II.

Believers in the Ochsner method of treatment all act on the principle that the surgical mortality bears a relation not only to the *extent* of the peritoneal infection but also to the *stage of development* of the inflammatory process as it is encountered at operation. That the operative death rate bears a very definite relationship to the period of the disease at which the operation is undertaken, has been generally recognized for a long time. The remarkable uniformity of statistics collected from widely separated sources, is strikingly shown in the mortality curves plotted in Chart II. In addition to the statistics used in plotting these curves, I have analyzed the data covering different periods of the disease, as reported in communications by a number of other well known surgeons, and always with approximately the same results as regards the operative mortality on any given day of the disease.

I believe, therefore, that we may accept these curves as representing approximately the truth as regards the relative operative risks at different periods of the attack. Furthermore, I am certain that this operative mortality bears a relation to the fundamental *character* of the peritoneal lesion encountered at the different periods of the disease, which is fully as important as, if not of even greater

importance than the question of the *extent* of the peritoneal infection. From pathological studies extending over a period of more than ten years I am fully convinced that such a relationship does exist and that it is the really important causal factor responsible for the curves shown in Chart I.

Space here does not permit me to go into details regarding the sequence of the pathological changes in appendicitis and its complicating peritonitis which have been fully described in two previous papers (5) published by me.

Syms (6), in a recent paper, has suggested that my paper published in 1908 and embracing conclusions similar to those expressed in this paper was written for the purpose of proving Ochsner's theory. As a matter of fact the conclusions were originally reached purely from a pathological viewpoint, from the observation of material originating in a community where every operator at that time believed in immediate operation at any stage of the disease. These conclusions, at that time based on pathological data alone, were very definitely expressed in papers read before the Albany and Schenectady county societies in the spring of 1905. It was while attempting to check my pathological conclusions with reports of clinical experience that I became acquainted with the views of Doctor Ochsner and decided to seek a service in his clinic.

Almost identically the same conclusions are expressed by Aschoff (7) in his classical monograph on the pathology of appendicitis, which I consider to be one of the fairest statements concerning the prognosis that I have ever read.

The following statements concerning the time element in the pathology of appendicular peritonitis are abstracted from a paper soon to be published which will give in detail the results of my studies.

The peritoneal lesion of the first day of the attack is essentially a fibrinous or serofibrinous exudate. On the surface of and in the immediate neighborhood of the appendix the primary exudate seems always to be essentially of a dry fibrinous character. In the cases studied by me, extensive serous or seropurulent exudates have been found only toward the close of the first twenty-four hours of the attack, and then only in patients who had been given strong cathartics soon after the onset symptoms. Even in the presence of a fluid exudate of greater or less extent, at this stage of the disease the general peritoneum is smooth, and aside from a more or less intense congestion of the subendothelial blood-vessels, there is little evidence of a true peritonitis.

From a surgical viewpoint, I believe that the peritoneal involvement of the first day may in nearly all cases be ignored and the abdomen closed without drainage. This assertion is, I am certain, borne out by clinical experience, and bacteriological studies, Kelly (8), Watzold (9), Cohn (10), Aschoff (11), show that in the majority of cases this first day exudate is free from bacteria.

The peritoneal lesions encountered after the first day of an attack of appendicitis may be divided into two sharply defined groups; first, those cases in which the inflamed appendix is protected from the general peritoneal cavity by a zone of fibrinous exudate massing together contiguous intraperitoneal structures, usually the omentum, the head of the

cecum, a portion of the parietal peritoneum, and one or two loops of small intestine; and, second, cases with more or less diffuse peritoneal involvement. It is this latter class of cases which gives to appendicitis its mortality, and it is of the greatest practical importance that we have a clear conception of the sequence of the pathological changes as they occur in this complication of appendicitis.

The time of onset of the more diffuse peritoneal involvement can nearly always be determined from the clinical history. Usually the onset of well marked peritoneal symptoms follows a few hours after the giving of a cathartic on the first or second day of the disease, although we not infrequently find that the acute exacerbation of peritoneal symptoms occurs on the third or some subsequent day—a so called late perforation. Such acute exacerbations are almost invariably the result of giving food or cathartics by mouth or of active muscular movements on the part of the patient. At operation the so called late perforation cases always show peritoneal lesions of different ages, almost invariably a lesion of limited extent in the region of the appendix with a pathological picture corresponding to the day of the disease, and a more or less diffuse lesion with a pathology dating from the time of the acute exacerbation.

Cases operated in during the first twenty-four hours following a so called perforation, show that the first exudate thrown out by the peritoneum under these conditions, is essentially a fluid exudate, and at first of a distinctly serous or sero-purulent character.

A. V. and E. Moschowitz (12), in reporting the pathological findings in 313 cases of appendicitis accompanied by peritonitis, deny that they found any evidence that serous, seropurulent, or purulent peritonitis represents different stages of the same process, because, figuring from onset of the attack of appendicitis, there was only a slight difference in the time at which these three forms of peritonitis were encountered at operation. They believe that it is far more probable that the three forms represent differences in the virulence of the infection, and differences in reaction on the part of individual patients. Similar observations were made by me in my earlier studies, when my data were limited to those found in hospital histories, but this apparent contradiction to the usual phenomena of inflammation promptly disappeared when I began to study cases coming under my personal observation, and was able to determine, not only the time of the onset of the primary appendicitis, but approximately the time of onset of the complicating peritonitis.

The peritoneal surfaces during the first hours of this period are still smooth and, aside from a moderate congestion of the subendothelial vessels, there is little change in the peritoneum itself. In fact except for the extent of the distribution of the purulent exudate, there are few data by which we can determine the true extent of the peritonitis at this early stage.

By the second day, enough leucocytes have reached the exudate to give it a distinctly sero-purulent or purulent character. The peritoneal surfaces now show more or less loss of lustre, with here and there adherent flakes of fibrin, but they

do not, as yet, show the marked roughening seen after the beginning of organization on the third day, and the absence of well defined limiting adhesions is still a noticeable feature in the pathology.

It is during this second day of the peritoneal involvement, that the peritoneal surfaces continue to lose their lustre and that the relatively harmless serous exudate of the first day changes to the distinctly purulent exudate so characteristic of the third day and later cases, and it is at this period that the mortality in operative cases begins to rise very rapidly.

It is well to note here that Murphy (13), in his reports of so called diffuse peritonitis, deals entirely with peritoneal lesions of under forty-eight hours' duration. As far as I know, Murphy does not report a single case of over forty hours' duration, and in a discussion before the Chicago Medical Society, he referred to the third and fourth day lesions as cases of "pocketed" peritonitis, which correspond to my own observations concerning the sequence of changes in peritonitis. In other words, we must remember that the "diffuse" lesion described by Murphy, by the onward march of the pathological process, ends about the close of the second day of a peritoneal infection.

By the third day, the continued fibrin production, together with the leucocytic migration, has resulted in transforming our previously diffuse fluid exudate into irregularly pocketed collections of pus. Limiting adhesions are now fairly well developed in most instances, but the lesions are, as yet, of a decidedly diffuse character, the area involved being much more extensive than at a later period, and there is little or no evidence of the formation of sharply defined abscess cavities. The gross changes in the involved peritoneum are now very noticeable, owing in part to the more abundant fibrin, but chiefly to the changes in the peritoneum incident to the beginning organization, which seems in all cases first to become noticeable on the third day following the involvement of any given area of peritoneum.

If at this stage or earlier, we put our peritoneum at rest by withholding food and cathartics by mouth and administering opiates in suitable quantities, we find that by the fourth or fifth day all fibrinous adhesions are beginning to be replaced by organizing granulation tissue, which is also noticeable over the surfaces of the peritoneum in direct contact with the purulent fluid exudate. This granulation tissue serves, not only to limit, but to encapsulate the pus, and it is from this time on that the formation of definitely defined abscess cavities is observed. These abscesses are at first usually more or less multilocular, but later become more localized to form, usually, one well defined cavity. The first evidence of the formation of a true abscess cavity is observed on the fifth or sixth day following the onset of the infection, although it is not until the seventh or eighth day that the cavities become sharply defined with limiting adhesions firm enough to permit such manipulations as the packing away of the noninvolved intestines, without great danger of accidentally opening the abscess at some undesired point.

The number of cases accompanied by pus outside of the appendix, shows practically no increase after

the third day, and except in those cases giving a clinical history of a later exacerbation of peritoneal symptoms, there is no evidence of an increase in the area of peritoneum involved after this time. On the contrary, after the process of organization is well established, on the fourth or fifth day, there is every evidence of a progressive diminution in the extent of the peritoneal involvement, which becomes less extensive as the abscess cavity becomes more sharply localized by the organizing adhesions.

Returning to the clinical aspects of the subject, I believe that Morris raises the really important question. True, "you are not doing much to that patient. You are not lessening his chances very much," but what good are you doing him? I have tried myself, and I have seen it tried repeatedly, and I must admit that I cannot recall a single case where I have felt, either because of the pathological condition found or because of the postoperative improvement, that the operation did an iota of good.

Let us take, for example, a fourth day appendix with well marked peritoneal symptoms of, say, three days' duration. If put on the Ochsner treatment, the chances are at least ninety per cent. that the temperature, pulse, and general condition will begin to improve almost at once. So uniform is the course of the disease and the improvement under these conditions, that it is practically a twenty to one shot that the temperature will touch normal on the morning of the eighth or ninth day following the onset of the peritoneal symptoms. If the case cleans up without pus, the temperature will remain normal, but if there is pus, we shall continue to have the afternoon temperature so characteristic of a confined abscess. If we wait until this stage to operate, we shall find a true abscess, for no matter how great the collection of pus, the cavity is lined by a layer of granulation tissue. In short, we have a surgically drainable lesion in no way analogous to the diffuse, irregularly pocketed, fibrin lined pus areas which we should have encountered had we operated on the fourth day of the disease.

Suppose that we decide to operate on the fourth day. Inside the abdomen we shall almost certainly find a greater or less amount of pus, the further boundaries of which are marked by fibrinous adhesions, while inside the involved area we have a conglomerate mixture of pus, fibrin, and inflamed peritoneal surfaces—not a true abscess, histologically or macroscopically, and not the type of lesion well adapted to surgical drainage. As for the appendix itself, it is like the lamp which was upset some time ago, no longer a very important factor in the general conflagration. Better snap forceps on the appendix quickly and get out, as Morris says, before you do too much to your patient, so that you will not be lessening his chances too greatly. My own observation of these cases, as operated in by myself and others, has been uniformly a delay of two or three days in the subsidence of the temperature, and a convalescence considerably stormier than in similar cases left alone. Secondary abscesses requiring second operations have been common, and intestinal obstruction due to gauze packs or to displacing loops of gut at an adhesion-forming period, have been particularly common. The only uniformly recognizable improvement due to the opera-

tion, has been in the mental state of the surgeon, for even if the patients died, he could say to himself and the relatives and the family physician, "I operated, I did my best. If I had only seen the case earlier the result would surely have been different."

In Table III, I give a summary of 116 acute cases treated by me. It is worthy of note that one half of the total mortality occurred in a group of eight cases in which I tried to extend the time limits for the application of Murphy's method of treatment into later periods of the peritoneal infection. With one exception, these patients were not as sick as those included in the twenty-two treated by the Ochsner method, and yet if I eliminate this group, even though I include the ruptured abscess case which was operated in only to satisfy the very urgent demands of the family and family physician, the mortality falls to four deaths in 108 cases, or 3.7 per cent.

Table IV is included because the figures are significant when based on such large numbers of cases.

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STATE AND BARRETT STREETS.

THE CONSUMPTION CRUSADE: A PARALLEL.

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In spite of the great intellectual advancement of the human race, and in spite of the accredited power of this faculty to keep under subjection superstition and fear, it must be candidly admitted that the latter, which played such a marvelously wicked career in the early history of mankind, still claims a periodical share in shaping the course of human events. It is fear, and not knowledge that is the bottom incentive of the present consumption crusade. Conceived in terror, on the score of the supposed contagiousness of pulmonary consumption, fanned into life by fanaticism and inflammatory agitation, put to the proof by the whole civilized world, incompetent to meet the exigencies of the emergency for which it was designed, it is now

dying like an animal belonging to a preceding geological period, because it is unfit to survive the present.

It is the aim here briefly to trace the origin and the general deportment of the crusade in its past, and to draw a parallel between its medical history and that of its distinguished successor flourishing in our own time.

This movement (1) began its career in 1754, when the Grand Duke of Tuscany became impressed with the assumed truth of the contagious doctrine of consumption, and with the importance of taking vigorous precautions against the spread of this disease, condescended to deliver an address to the College of Physicians of Florence on this subject, and urged that body to approve his ideas. This appeal was more or less formal, for at that time the rulers of a country had almost unlimited power to enforce any law they chose. After serious consideration of this ducal proposition, the college, which stood very high in the opinion of the Italian profession, not being able to coincide with the duke, made a negative report. Notwithstanding this action of the profession, the government ignored the best obtainable advice and passed an ordinance making it compulsory on all medical men to report every case of phthisis to the health authorities, with the imposition of a penalty of seventy-five dollars for failure.

In every case of phthisis an exact inventory was made of all articles that had been in contact with it for purposes of disinfection. Special vessels of glass or glazed earthenware had to be expectorated in, which were emptied and cleaned frequently. These laws were strictly enforced for thirty-nine years—when on account of a loss of support from the medical profession, they were repealed by the Grand Duke, Pietro Leopoldo, as being “a cause of bitterness, dissatisfaction, and vexation.”

In 1767, the province of Lucca instituted similar laws to those of Tuscany, and in 1772 the Venetian government issued an ordinance, which in effect was to the same intent, except that the selling or disposing of clothing or other articles in previous use by consumptives not properly disinfected, was punishable by death, imprisonment, or the galleys. With a constant squint on the welfare of the people, it was announced with owl-like sagacity that “with the charitable forethought which considers the common health and safety,” medical men were also to be punished for not properly reporting cases, and for greater security secret notifications were encouraged and received, and such espionage was rewarded by the authorities.

The most draconic laws that were ever enforced for the prevention of consumption were introduced by King Ferdinand of Naples, in 1782. In addition to inflicting a penalty of three years in the galleys for trafficking in infected clothing, etc., physicians were fined 300 ducats for failing to report phthisical cases, and given ten years’ banishment for the second offence. Rooms in which consumptives died had their ceilings, walls, floors, doors, and windows torn out, burned, and replaced by new ones. The bedding and furniture shared the same fate, and such houses were not habitable for a year. If the premises were rented, the owner was

imprisoned for three years, and the tenant was exiled. All phthisical people were placed, with or without their consent, in hospitals for incurables, from which the great majority never escaped.

The Neapolitan government enforced all these laws in the most rigorous manner until 1809, when doubts arose in regard to their efficacy, and the health authorities again consulted the medical faculty in regard to the contagious nature of this disease. The latter having in the meantime a change of heart in this respect, the majority decided against contagiousness; and although in the minority, the older and more influential members had sufficient power to sway the government to maintain the laws until 1848. After this, they sank into decay and oblivion, for Uffelman (2) states that while visiting Naples in 1880, no one was able to give him the slightest information in regard to these decrees, although he had personal commendations to the then existing health authorities. Laws of a like character were also enforced in some parts of Spain and Portugal, about the same time.

Notwithstanding the fact that these prevention laws were so warmly advocated and so earnestly applied for long periods by the medicopolitical rulers of two of the southern peninsulas of Europe, there is not an atom of evidence that they ever reduced the death rate of this disease, or alleviated its suffering in the least; but on the contrary they inflicted intolerable distress and injury.

Brehmer (3), of Goerbersdorf, says “concerning a diminution in the death rate from pulmonary consumption by these measures in Naples and Portugal, medical historians of that period are ignorant.” Doctor de Renzi (4), the historian of Italian medicine, relates that the injury which had been inflicted on Naples by these laws was simply indescribable, and denounces the Neapolitan medical faculty in the severest terms for participating in and encouraging their practical application. Dr. A. L. Pierson (5) writes of a Neapolitan hospital which he visited in 1834: “One can hardly realize that so much has been said and written to recommend this city as a residence for consumptives, when some of the best informed Neapolitan physicians estimate the deaths from consumption among the residents at one fourth of the whole mortality.” One of the standard medical publications (6) of the world states that Doctor Spattuzzi and Doctor Soma, in making a complete investigation of the mortuary returns of Naples about 1860, found that one sixth of all the deaths were due to consumption; and Doctor de Renzi marveled greatly, in 1863, that the city of Naples was fully as liable to this disease as either London or Paris, though the salutary conditions of the climate should render it far less common.

In America this movement started in the early nineties, and swept over the country like a tidal wave. Being thus fairly launched, and in order to make itself at least more conventional, it adopted the tactics of the Grand Duke of Tuscany when he consulted the Florence School of Medicine concerning this same question, in 1754; and sought official recognition from the College of Physicians of Philadelphia, the oldest, most renowned, and

most celebrated medical institution in America. The college, like its predecessor the Florence school, rejected the proposal, and instead passed the following resolution: "The College of Physicians of Philadelphia believes that the attempt to register consumptives and to treat them as the subjects of contagious disease would be adding hardship to the lives of these unfortunates, stamping them as outcasts of society. In view of the chronic character of the malady, it could not lead to any measures of value not otherwise obtainable."

This resolution was at that time regarded by the friends of the crusade as a marked retrogression, and as a bar to the achievement of a wonderful boon to humanity, but when viewed in the light of the stern and unbending facts of past history; of how this cold blooded movement ostracizes millions of our fellow countrymen at the present day; of the millions more who are to share the same fate; of its responsibility for the increased death rate of this disease during the last dozen years; it reads like an inspired prophecy.

Life is sweet and sacred, and it is only natural that it should be preserved and defended, but when, to effect this end, an appeal is made to human passion wrought to the breaking point by fear and terror, it must not be forgotten that the greatest wrongs and cruelties in the world have been perpetrated by calling this agency into play for the purpose of rescuing people from purely fanciful and imaginary dangers. The employment of such a mechanism for the prevention of disease is extremely hazardous, and any one who reads the signs aright must own that if the consumption crusaders had not been obsessed with their own importance, and had in good faith accepted the opinion of the College of Physicians of Philadelphia in 1890, the world would have been saved from the terrible misery and distress which it has already experienced, and which it will yet experience before its failing vitality becomes totally extinct.

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SOME EUROPEAN CLINICS.*

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The following paper was written from a few notes made during a three months' European trip in the early part of 1914, and the writer apologizes for its brevity, offering in excuse the fact that his was primarily a pleasure trip, and attendance at clinics was only a side issue. These few facts are written with the hope that they may be of interest to some of my fellow practitioners.

LONDON.

In this immense city with its numerous fine hospitals, the ordinary tourist is handicapped by the fact that most of the surgical clinics are held in the

afternoon, for most of us prefer to work in the morning and holiday after lunch. At Guy's Hospital one may usually count upon seeing work any afternoon. The great drawing card at this hospital to the visiting surgeon is that surgical superman, Sir W. Arbuthnot Lane, whose never failing courtesy and kindness cannot be forgotten by any one who has had the pleasure and privilege of seeing him at work. His short circuiting bowel operations and his bone work are his most interesting procedures. He short circuits in cases showing the earmarks of intestinal stasis; for instance, one case was that of a woman aged thirty-two years, constipated, nervous, and with marked staining of the skin. If the colon sags markedly, instead of doing the short circuiting operation, he removes the colon. In chronic ulcer of the stomach, he also does one of these operations, following it by liquid paraffin treatment. Of the liquid paraffin treatment he speaks highly in gastric ulcer cases and in chronic constipation, making the statement to the writer that many cases of ulcer of the stomach may be cured, temporarily at least, by rest and liquid paraffin. One woman operated upon in the presence of the writer, had first been operated upon by Mr. Lane eight years before for appendicitis, which operation relieved her for three years. Then, her symptoms returning, he did a short circuiting operation with a side to side anastomosis between ileum and sigmoid, giving her good health for another three years. Again she complained of pain in the abdomen. He opened the abdomen and found that at the ileosigmoid junction the ileum had kinked, causing obstruction. He relieved the kink and sewed the mesentery in such a way as to prevent a recurrence of the obstruction. He stated that now in all cases he does a side to side anastomosis, and always stitches the mesentery of the ileum in place to prevent sagging. His bone work needs no praise from me, but it is marvelous to watch him open up fractures, replace fragments, plate them, and close up the wounds with great rapidity, at the same time appearing to be in no hurry, without once putting his gloved finger in the wound. To use his own words, he "always operates on fractures of all kinds, and at once, as there is no danger." This is no doubt true for him, but not for all of us. In one case of a T shaped fracture of the patella, he made a straight incision, protected the edges with gauze, coapted the three fragments with his own forceps, put in two plates, fixing both lower fragments to the upper, and closed the wound with clips, the whole taking fifteen minutes, and nothing had been in the wound except his frequently sterilized instruments. The small amount of bleeding he ignored, for as a principle he tries to leave no catgut or other ligature material in the wound. It is beautiful work as he does it. On being questioned as to the percentage of plates later removed, he stated that he removed none. At one of the clinics he demonstrated on the skin of our arms that his stomach and bowel clamps, which have concavo-convex blades, do no injury to the tissues. He takes great pleasure in arguing points with his visitors, making even the youngest feel perfectly at home, and one just naturally leaves his clinic believing that no more masterful surgeon or more charming man

*Read before the Thunder Bay, Ont., Medical Society, June 11, 1914.

exists. He stated that he was looking forward with much pleasure to the Clinical Congress of Surgeons in July.

In the same (Guy's) hospital are a number of other fine surgeons. The writer saw Mr. Dunn perform a very able operation for removal of a carcinomatous tongue through the neck, using intra-tracheal anesthesia. Another afternoon the clinic of Mr. Fagge was attended. One case was that of a woman which was diagnosed simply as "abdominal pain," but in which he removed an adherent appendix and gallstones, and relieved a kink at the cecum. One interesting statement made by Mr. Fagge was that "while hematemesis is suggestive of gastric ulcer, it is no proof, for it may be found when the only lesion is appendicitis." Mr. Bellingham Smith was, like the others mentioned, most kindly, and he is well worth witnessing at his gynecological operations, which he performs with admirable deftness and rapidity. All of these men are aseptic in their technic, and visitors, who are allowed on the floor, wear gowns, caps, and masks, and wash their hands before entering the operating room. Drop method ether is used a good deal. Guy's buildings are old looking, but the operating department is new, clean, and aseptic.

St. Thomas's Hospital is a fine collection of buildings; the entrance is decorated with marble busts of past masters. Here the writer saw Mr. Marriage perform a mastoid operation, which was as interesting as this operation usually is to the general surgeon. The anesthetic was chloroform and ether, followed by nitrogen. An interesting case operated in by Mr. Battle was that of a man who had had dysentery in the tropics, and now complained of pain in the right chest accompanied by expectoration of fifteen or sixteen ounces a day of foul matter. The diagnosis was abscess of the lung. Intratracheal anesthesia was used and an incision was made in the axilla, removing two inches of rib. The abscess was found three inches from the surface of the lung, and a tube inserted. The technic at this hospital is excellent, all the up to date accessories being employed, and this is roughly true of most of the European clinics. In this regard one might easily imagine oneself in an operating room in Chicago, New York, Toronto, or Fort William.

A profitable afternoon was spent at Middlesex Hospital, watching the work of Sir John Bland Sutton, whom the writer had the pleasure of seeing at Chelsea Hospital ten years ago. He did not, in 1914, appear any older or any less the surgeon than in 1904. Sir John was, as is the custom with all the London surgeons, late. If any of them ever come at the time called for the operations, the writer failed to discover it. Sir John quickly and beautifully removed a strangulated parovarian cyst. His closure of the abdomen was as follows: 1. Through and through linen, not tied; 2, interrupted linen in peritoneum, tied; 3, tied through and through sutures; 4, continuous linen in skin. This made a very pretty closure. Another case at his clinic was that of a woman who had been sent into the hospital for the removal of a fibroid of the uterus, and whom he was to examine under ether. On examination no fibroid was found, but he said that it was a case of tumor of the bladder. Hematuria prevented him using the

cystoscope satisfactorily, so he dilated the urethra with graduated dilators and inserted his finger into the bladder, finding an egg sized polypus. He remarked that some objected to this method of examination, but "I have been doing it for five and twenty years without injuring a patient." As he had not the patient's consent for an operation on the bladder, he said that he would have to obtain it and then he would go in suprapubically. In his clinic no caps or masks were used by himself or assistants, the "sisters" wearing caps. In all the London hospitals, iodine is largely used. An amusing thing in most of these hospitals is the small *pot de chambre* shape of the pus basins.

DUBLIN.

In the Irish metropolis two hospitals were visited, but unfortunately no operations were on at the time. The far famed Rotunda was gone over, in company with a courteous house surgeon, who showed the massive building with its fine operating room, delivery room, good laboratories, and large, airy, clean wards. The hospital is nonsectarian, and is in charge of Doctor Jellett, who succeeded Doctor Tweedy, whose writings are widely read. They have very little sepsis after labor, and their treatment is an intrauterine douche, perhaps only one, followed by autogenous vaccines prepared in their own laboratories. In front of the hospital is a pillar erected in honor of Parnell, that stout Home Ruler, on the base of the pillar being the following quotation from one of his speeches which seems apropos during the Irish troubles of today: "No man has a right to fix the boundary of the march of a nation. No man has a right to say to his country, 'thus far shalt thou go and no further.' We have never attempted to fix the ne plus ultra to the progress of Ireland's nationhood and we never shall."

PARIS.

There are many good clinics in Paris, but they are not much attended by Americans or Canadians, except French Canadians whose knowledge of the French language is an open sesame to them. The Paris surgeon's native courtesy makes him welcome the visitor royally, but generally speaking, to get the best from the clinic one must know some French. During a fairly lengthy stay in Paris only two prominent clinics were visited, in addition to a morning spent at the Pasteur Institute. At the Hôtel Dieu, that oldest of the hospitals of Paris, Doctor Potherat, chief of the service, a surgeon of the old school, welcomed the writer, regretting his inability to speak English. The writer's rather limited knowledge of French, by the way, was of much service, not only in France, but throughout Europe. The technic here was excellent, the surgeon and assistants wearing gown, cap, and mask, and all, except the surgeon, rubber gloves. The abdominal cases were prepared with alcohol and iodine. The operator worked quickly and showed rapid judgment in a difficult case of fistula after an abdominal abscess, using a rectus incision to open the abdomen. The wound was closed with continuous catgut and clips. One old fashioned instrument was used by this handsome old surgeon, in the form of a pointed hook which he thrust through the tissues, threaded, and withdrew, doing this as

rapidly as another could use a needle. Despite the age of the Hôtel Dieu, the operating rooms are quite modern. In the quadrangle are a number of monuments, among them one "to their dead comrades, victims of their devotion during their internships in medicine in the hospitals of Paris from 1802 to 1902."

Doctor Doyen's clinic is one of the most popular in Paris. His private hospital is an immense and elaborate institution in the rue Piccini just off that most beautiful promenade, the avenue du Bois de Boulogne. No sign or mark on the building distinguishes it from the many beautiful private mansions in the neighborhood. That the institution is well known was evidenced by the unhesitating manner in which the chauffeur of a hailed taxicab landed the writer at Doctor Doyen's door, with that nerve racking, corner skidding rapidity known best to the Parisian chauffeur. Most of the others present were French, with a sprinkling of Austrians, one of whom spoke highly of this clinic. The waiting rooms and studies are decorated with busts and paintings, and contain books. On one of the walls of the operating room is a large crucifix, no doubt to inspire faith and hope in the minds of the patients, and perhaps for the same pious reasons which caused a great man like Pasteur to be religious in the highest sense. Doctor Doyen, who has the appearance of a good natured, well to do, comfortable farmer, showed us perhaps a dozen cases of cancer in which he had operated in the past seven years, some of them quite recently, by excision followed by what he called electrocoagulation. They were good results, but some showed large defects in the area of the previous cancer. He seems very well satisfied with his own results. He operated in a number of cases by this method, one being exceedingly striking. It was that of a large carcinoma involving the right ear and surrounding tissue, making a swelling the size of a fist. He first exposed quickly the carotid, probably to be ready to tie it if necessary. Then he made an incision completely surrounding the tumor and the ear, removing both very rapidly. In dissecting away some glands, he cut a piece out of the side of a vein, immediately stitching the vein with fine silk. After tying the necessary vessels, which were very few considering the magnitude of the operation, he curetted the surface, then used the electricity, thoroughly cooking the surface into a dry eschar, and finally covered the wound with a dry powder dressing. It was a beautiful and rapid piece of work in a hopeless looking case. After his operations, he demonstrated on a piece of raw beef the effects of varying currents of electricity with different electrodes, showing well his power to have whatever effect he wished, and convincing one of the value of electricity used properly in these cases. The spectators wore gowns, and in addition there was a glass screen between the operation and the visitors. Doctor Doyen at times loses his temper with his assistants in true Latin fashion, but in this he cannot equal some Italian surgeons, who appear at times on the verge of physically maltreating their assistants.

The Pasteur Institute in the rue Dutot is worthy of a visit. The whole neighborhood is named after Pasteur, and in addition in another section of the

city is a monument in his honor. Paris is assuredly one of the cities which honor their scientists. In front of the institute is the statue of a boy fighting with a wolf, probably representing little Meister or little Jupille, his first two patients for the prevention of hydrophobia. Inside the institute are the usual features of a research laboratory, rabbits, mice, guineapigs, and smells, but most important are the earnest workers in their laboratories. They treat here fifteen or twenty patients daily for the prevention of hydrophobia, and as I came out a pair of anxious parents with a frightened child rushed in to participate in the gift that Pasteur gave to the world. All about, one recognizes the veneration in which the master was held. Near the entrance to his tomb, which is in the building, are two silver wreaths, one "from the Institut de Pasteur to its chief," and the other "to Pasteur from the students of France." The sarcophagus is exceedingly beautiful, and is in a crypt of marble and varicolored mosaic. The tomb was built by his children, and contains also the body of his loving and loved wife. Worked into the mosaic are the following: "Faith, Hope, Charity, Science"; and on the other side, "Blessed is he who carries in himself an ideal of beauty, and who obeys it, an ideal of art, an ideal of science, an ideal of patriotism, an ideal of the virtues of the Gospel." The institute is at present in charge of Doctor Metchnikoff and Doctor Roux.

BERN.

This beautifully picturesque Swiss city is the home of Dr. Theodor Kocher and his son. From the hotel one sends a card with a request to attend the operations, and the following day Doctor Kocher has a message telephoned to let one know the hour and the place to attend. At the hospital the visiting surgeon is given every welcome. Both father and son speak English. The writer saw both operate at the Insel Spital. The details are excellent, gowns, caps, masks, and gloves being employed, the assistants wearing cotton gloves over the rubber ones. Most goitre operations are done under local anesthesia, novocaine one per cent. with adrenaline; the line of incision only is injected, yet no complaints come from the patients during the operation. Many forceps are used, arresting all bleeding as the operation proceeds; generally slow and careful work is done. To children and nervous patients ether is given with a modified Clover inhaler, which is also used in other operations. Both father and son operate in the same room at the same time, and a spectator can watch the two operations, if he does not wish to see too many details. Dr. Theodor Kocher is a small old man with a pleasant, smiling face, which gives a hearty welcome to the visitor.

ROME.

In this romantic old city of the Cæsars and the Popes, one very entertaining morning was spent attending the operations of Professor Bastianelli at the Policlinico Umberto, a fine, large, two storied building, erected in 1893. Professor Bastianelli, who speaks English fluently, and whose kindness is unbounded, has a large service, doing many operations three mornings a week—Tuesday, Thursday, and Saturday. Iodine preparation is used exten-

sively in this clinic, as is also ether by the drop method, although occasionally chloroform is used. The operating table is that of Janetti, of Turin. It stands on a central pivot and can be put into any position. Professor Bastianelli spoke highly of some of the American surgeons, particularly of Murphy, whose joint work he lauded enthusiastically. Among the cases operated in was one of ulcerating tuberculous glands in the neck. He dissected them out, and sewed up the wound tightly, using catgut and silk. He stated that he rarely, perhaps twice yearly, operated for tuberculous glands. He does not use tuberculin, but injects about the affected glands iodine solution, one per cent., with potassium iodide, two per cent. He says that "this is an excellent remedy, as it takes about two years to effect a cure, and in Italy with its warm sun and the Mediterranean, tuberculous glands get better in that time anyway." Another case was one of gangrene of the skin, caused by the previous surgeon thinking that he had a case of broken arm, and putting the arm in a plaster of Paris bandage, the swelling causing an ischemic paralysis and sloughing of the skin at the elbow. Then the arm was allowed to heal in a flexed position. Doctor Bastianelli had previously remedied this by a large flap from the belly wall, and he was now completing the separation of the skin. The man could almost completely straighten the arm, giving a fine result. The professor showed us a number of other cases of skin grafting by the same method.

FLORENCE.

Two mornings were spent at the old Santa Maria Nuovo. The arched front of the building is decorated with many old frescoes, very artistically done, but one of them, namely, the *Slaughter of the Innocents*, I thought slightly inappropriate for the front of a hospital, and especially did I think this when, on entering this 2,000 bed hospital, I saw the good work done. The time was most pleasantly spent with Professor Machiti, who spoke no English, but spoke French fluently. No one could be more courteous than he. Among other operations, he did three hernias by the Bassini method, which, he told the writer, he found the most satisfactory, under novocaine lumbar anesthesia. He uses this form of anesthesia entirely in operations below the nipple line, and has had no complications, "*jamaïs, jamais!*" He never uses any other suture material but silk, and in the three operations he tied only one vessel. For most bleeders he grasps the base of the vessel and fat with an angioclasp resembling a curved artery forceps, and twists the tip of this mass. He is careful to get a dry wound, and he has had only two per cent. of recurrences. In this clinic gowns, cap, and thick rubber gloves are used. The operator's hands are prepared with soap, sterile water, and ether, and the patient with six per cent. iodine. The gowns, caps, and gloves were not changed between operations. The operating room was old but good, but the amount of water that is thrown carelessly about in some of these operating rooms is appalling to an American or a Canadian. At times one almost fears having to swim to safety. Under spinal anesthesia the patients did not experience any discomfort, though his manipu-

lations were no gentler than they would be under general anesthesia, but, he says, it occasionally causes temporary paralysis of the sphincter ani. The patients recover from its effects in one or two hours. Professor Machiti used no needle holder, even when working in fatty depths, and he did his work rapidly and accurately. In fact the needle holder is not much used in Europe outside of Vienna.

VIENNA.

In this great centre one can see many operations, but a large percentage of them are done by assistants or by the assistants of the assistant. In von Eiselsberg's clinic during four or five days' attendance, von Eiselsberg was seen only once. The technic is the same as that seen at Chicago, or Rochester, or New York. Goitre is usually done under local anesthesia, using the patient's voice to protect the recurrent nerve. The sitting up position for operations on the head and neck is also much employed. Iodine is much in evidence in the preparation of patients, and the ether drop method is used. The warmth of patients during operations is apparently not considered essential. The spectators are gowned, and are expected to keep absolute silence. Michel's clips are used for the skin. The operations by the young surgeons are naturally slow, and diagnosis is not any more perfect than one might expect. In one case a child had portions of two ribs removed for an empyema which did not exist, or, at least, was not found. These young operators are neither better nor worse than other young surgeons. The right rectus incision is used in appendix cases.

The writer did not have the good fortune to see any work in Hochenegg's clinic, and after only eight days spent in Vienna does not think that criticisms would be fair, but from the surgical work witnessed he does not think that there is any necessity for a young surgeon to leave the American continent to see good surgery. The American Association of Vienna is of much use to the postgraduate student, particularly in case of a long stay. In talking with a number of the members who have spent some time in Vienna, they expressed the opinion that the surgery there is not at all extraordinary, in fact that in general work Vienna is much overrated, only really excelling in pathology, eye and ear work, and in x ray teaching. The pathology should be especially good, as all fatal cases must be examined post mortem. The writer spent one morning in the post mortem room of the Krankenhaus, and saw five autopsies, and he understands that there are daily about this number. On leaving the hospital and regaining the Ringstrasse, one may spend a few elevating moments in the court of the immense University of Vienna. In this court are innumerable marble busts of past professors, among them those of Nothnagel, Billroth, Skoda, and Krafft-Ebing. As one saunters about the court and corridors and notes the groups of students, some hurrying to their work, others lounging about, careless or anxious as may be, one is wafted back through the years that have gone to those happy, careless, never to be forgotten (and unfortunately, never to be recalled) student days. In Vienna, a knowledge of German is needed to get the best out of the work.

FREIBURG.

At the Clinical Congress of Surgeons in Chicago, in November last, a number of us had the pleasure of meeting Professor Krönig of Freiburg, and for this reason, as well as for the fact that this little German city stands high clinically, it was a great privilege to spend a couple of days in this charming and beautiful spot. From the hotel the directions of the concierge were quite German: "Follow Bismarckstrasse till you come to Rheinstrasse, and then go to number seven, to reach the hospital." Unfortunately, Professor Krönig was just leaving for his Easter holidays, but he welcomed his visitor as an old friend. His assistant, Doctor Hausfeldt, demonstrated some of their work to me, a great deal of which consists in the treatment of cancer (in both male and female patients), with radium, mesothorium, and Röntgen rays; they think the results very promising. They have employed the treatment for only two years, but are very hopeful for the future, although they make few positive statements. Frequently they operate first, then use their treatments. The hospital is the university clinic, and the buildings are quite up to date. Professor Krönig's private patients occupy a large wing of the building. The treatments are very costly, and Doctor Krönig jocularly remarked that at times it is necessary to watch the patients when they have in some part of their bodies a valuable tube of radium.

THE USE OF SCOPOLAMINE-MORPHINE IN LABOR.

A Preliminary Report, Based upon a Study of 100 Cases, with a Detailed Report of Every Tenth Case.

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In 1906, Gauss, of Freiburg, published the results of his observations in 500 cases in which he used a combination of scopolamine hydrobromide and morphine to induce a state of semiconsciousness during labor. This mental state he termed *Dämmer Schlaf* (twilight sleep). The studies of Gauss stimulated a general interest in this subject, and very soon numerous articles from the various obstetric clinics appeared. Some surgeons, chief among whom were Krönig, Zweifel, Beruti, Newell, etc., confirmed the work of Gauss and credited to this method all that he alleged for it; others, especially Hocheisen, not only denied its efficacy, but attributed to it elements of danger to both mother and child. Notwithstanding the adverse criticism brought forth, Krönig, Gauss, and their coworkers at Freiburg adopted this procedure as a routine form of treatment. In 1907, Gauss published a second article reporting 1,000 cases, and in the spring of this year an extensive study covering a series of 5,000 cases.

In order to have a better conception of the action of these drugs, we must first differentiate between

objective pain, by which we understand uterine contraction, and subjective pain, that which is experienced by the mother. Any method which has for its object the elimination of subjective pain must under no circumstances interfere with the objective pain. The central nervous system is the seat of pain perception. Impulses are conducted to and from it. The degree of pain depends both upon the ability of the cortex of the brain to receive, and upon the nerve trunks to conduct. If by any method we are able to minimize either the perceptive power or the degree of conductivity, pain may be markedly diminished and even entirely abolished.

The action of scopolamine is chiefly upon the central nervous system. It quiets the cerebrum and diminishes the perception of pain, without apparently influencing the contractility of the uterus. Labor, therefore, may progress uninterruptedly and the patient may not only fail to recollect pain, but may even be entirely unaware of it.

Clinically, the patients may be divided into three groups: 1. Patients in whom we obtain both amnesia and analgesia, that is abolition of memory and diminution of pain; 2, patients in whom we obtain analgesia without amnesia; 3, patients who entirely fail to respond to the treatment.

In order to obtain the best possible results with this method, certain cardinal requisites must be strictly observed. It is absolutely necessary that the patient be so placed that she is free from all disturbances. A physician or nurse must be in constant attendance. The effects of the drugs should be carefully watched so that they are repeated at proper intervals. Light in the room should be so arranged that the patient is not disturbed by it. The fetal heart sounds should be carefully studied. Solutions should be obtained from reliable chemists and should be accurately standardized. They should be perfectly clear, never contain any sediment or flocculence, and should preferably be put up in ampoules, each containing the quantity required for a single injection. In instituting this method of treatment, it has been our good fortune to obtain the services of Dr. K. Schössingk, who was one of the assistants in the clinic at Freiburg.

TECHNIC.

Treatment is begun only when the patient shows definite signs of active labor. The patient is then put to bed in a dimly lighted room and an initial dose of 0.00045 gram, or approximately 1/160 grain of scopolamine hydrobromide is injected intramuscularly. This is preceded by a hypodermic injection of one half grain of morphine-narcotine meconate.¹ The effects are now carefully observed with special reference to pulse, respiration, pupillary reaction, fetal heart, and intensity and frequency of uterine contractions. A second injection of scopolamine is given about one hour after the first. About half an hour after this injection, memory tests are brought into play. The patient is shown some object, such as a doll or a watch, and a short while later she is asked whether she saw the particular object in question. She may be asked whether she had a hypodermic injection. Any test of mem-

¹The morphine was in the form of a proprietary preparation, which is chemically morphine-narcotine meconate and contains 32.2 per cent. of the alkaloid.

ory will do. The repetition of injections is now primarily gauged by the degree of amnesia present. The interval between injections is approximately from one to one and a half hour. The average normal case requires five to seven injections, although at times it may be necessary to give only two or three, or as many as twelve or fourteen.

After the completion of the first stage, with the presenting part on the perineum, one c. c. of pituitrin is often given to hasten delivery. As soon as the child is born, the cord is quickly ligated and severed and the infant is removed to another room. The mother, after being made comfortable, generally falls into a deep sleep, to awake from two to four hours later usually, in complete ignorance of the fact that she has given birth to a child.

In this series of 100 cases in the obstetric services of the Jewish Maternity and Lebanon Hospitals, we had eighty-three per cent. in which there was amnesia with analgesia; eight per cent. in which there was analgesia without amnesia; and nine per cent. in which the treatment failed to induce the desired effect.

Oligopnea is a condition often seen in these babies, but in five to ten minutes they resume good heart action and normal respiration. Resuscitation is unnecessary, for apparently they do best when let alone. In this series eighty-one per cent. of babies cried spontaneously; sixteen per cent. had varying degrees of oligopnea; and three per cent. were asphyxiated. The infant mortality was two per cent.; one child died from melena neonatorum and the other was premature with spina bifida.

OPERATIVE PROCEDURES.

In this series labor had to be artificially terminated in twelve per cent. of cases. In two cases the breech presented and delivery was accomplished by bringing down a leg. In nine cases forceps were used; of these two were median and seven low. Three were persistent occipitoposterior positions; one was a severe cardiac case, in which it was deemed advisable to terminate labor quickly; one case of nephritis with marked edema was also quickly delivered with forceps. Four cases were delivered artificially because of tedious second stage. In these last mentioned cases the perineum was bulging, with caput showing and practically all that was necessary was extension of the head with the forceps blades. The instruments were then removed and the women allowed to deliver spontaneously.

Anesthetics.—Ether was the anesthetic used where artificial delivery was performed. The patients were quickly narcotized, taking the ether very readily and consuming only small quantities of it.

Post partum hemorrhage.—We have seen no excessive bleeding in any of our cases.

Convalescence.—It is interesting to note how little these patients are physically affected by labor. The exhaustion that usually accompanies labor in primiparæ is entirely eliminated.

We shall now briefly report every tenth case of this series in order more fully to illustrate the technique followed.

CASE I.—Mrs. E. K., aged twenty-five years, para III, admitted in labor, June 16, 1914. Cervix three fingers dilated, head unengaged, membranes ruptured, cervix thick.

First injection, 6.30 p. m., scopolamine grain 1/160, morphine grain one sixth; restlessness quite marked. Second injection, 9.30 p. m., scopolamine grain 1/400, morphine grain one sixth; still quite restless; pulse 108, color normal, respiration 28; fetal heart 140; frequency of pains, three minutes; duration of pains one half minute. Third injection, 10.55 p. m., scopolamine, grain 1/400.

Patient delivered spontaneously 11.22 p. m., oligopnea of child, lasting three minutes. Placenta expelled spontaneously. Mother very restless, had to be held down during pains. Condition, following day, good. Case only partially successful. Mother did not recollect the time of birth of the child, but remembered having had pain.

Result: Amnesia without analgesia.

CASE X.—Mrs. A. M., aged twenty-nine years, para V, admitted in labor, June 27, 1914.

First injection, 4.40 p. m., scopolamine grain 1/160 and morphine-narcotine meconate grain one half. Cervix was three fingers dilated. Right occipitoanterior position, head engaged, membranes intact, cervix moderately thick. Second injection, 5.45 p. m., scopolamine grain 1/400 given. Patient very quiet, pulse 84, respirations 22, color normal, frequency of pains, three minutes, duration of pains one half minute. Third injection, 7 p. m., scopolamine grain 1/400.

Patient delivered of normal child, 7.50 p. m. Placenta expelled spontaneously.

Result: Amnesia and analgesia.

CASE XX.—Mrs. S. D., aged twenty-four years, para II, admitted June 30, 1914, os two thirds dilated, cervix thin, head engaged, membranes intact.

First injection, 2.10 p. m., scopolamine grain 1/160 and morphine-narcotine meconate grain one half. Second injection, 3.10 p. m., scopolamine grain 1/400. Pulse 74, respirations normal, color normal, frequency of pains, four to five minutes, duration of pains one minute. Patient very quiet. Third injection, 5 p. m., scopolamine, grain 1/400.

Patient delivered of normal child, 5.15 p. m. Pituitrin, one c. c., was given at 5 p. m.

Result: Complete amnesia with analgesia.

CASE XXX.—Mrs. B. M., aged twenty-three years, para I, admitted July 6, 1914. Cervix two thirds dilated and very thin, head engaged, membranes intact; pulse 96, respirations 26, color pale; fetal heart 140.

First injection, 5 p. m., scopolamine grain 1/160 and morphine-narcotine meconate grain one half; pulse 78, color pale, frequency of pains, every four minutes, duration of pains one half minute; fetal heart 150. Second injection, 6.30 p. m., scopolamine grain 1/400; pulse 96, color pale; fetal heart 146. Pains every three minutes, duration one half minute. Third injection, 6.35 p. m., scopolamine grain 1/400; general condition about the same, patient very quiet. Fourth injection, 7.15 p. m., scopolamine grain 1/400; condition about the same, pains, every three minutes, lasting one half minute. Fifth injection, 8.30 p. m., scopolamine grain 1/400.

Patient delivered of normal child, 10 p. m. Placenta delivered by Credé method.

Result: Complete amnesia with analgesia.

CASE XL.—Mrs. S. G., aged twenty-three years, para I, admitted July 14, 1914. Five fingers' dilatation, head engaged, cervix thin, membranes intact.

First injection, 5.40 p. m., scopolamine grain 1/160 and morphine-narcotine meconate grain one half. Pulse 100, face flushed, respirations normal; frequency of pains, every three minutes, duration of pains three quarters minute; fetal heart 150; patient quiet. Second injection, 6.40 p. m., scopolamine grain 1/400; pulse 84, face flushed; fetal heart 150. Third injection, 7.55 p. m., scopolamine grain 1/400. Fourth injection, 8.55 p. m., scopolamine grain 1/400. Fifth injection, 9.45 p. m., scopolamine grain 1/400. 10.20 p. m., morphine-narcotine meconate grain one half. Sixth injection, 10.25 p. m., scopolamine grain 1/400.

Patient delivered, 10.45 p. m.; oligopnea, lasting five minutes; cord around the neck.

Result: Amnesia with analgesia.

CASE L.—Mrs. S. K., aged twenty-three years, para I, admitted July 21, 1914; cervix three quarters dilated, head engaged, membranes intact; pulse 92; respirations normal; fetal heart 154.

First injection, 12.50 p. m., scopolamine grain 1/160 and morphine-narcotine meconate grain one half; pulse 80, respirations 26, face flushed, pains every five minutes, lasting one half minute; fetal heart 154. Second injection, 1.40

p. m., scopolamine grain 1/400. Condition remained about the same, patient moderately quiet. Third injection, 2 p. m., scopolamine grain 1/400.

Patient delivered of normal child, 2.25 p. m.

Result: Amnesia with moderate analgesia.

CASE LX.—Mrs. C. H., aged twenty-two years, para II, admitted July 28, 1914. Os fully dilated, membranes intact, head slightly engaged; pulse 84, color normal, respirations 26, pains every three minutes, duration three quarter minute.

First injection, 1.35 p. m., scopolamine grain 1/160, and morphine-narcotine meconate grain one half; pulse 82, respirations 22, color normal, pains every three minutes, lasting one minute; fetal heart 150; patient very quiet. Second injection, 2.30 p. m., scopolamine grain 1/400; pulse 80, color normal; fetal heart 148; pains every four minutes, lasting one minute. Third injection, 3 p. m., scopolamine grain 1/400.

Patient delivered of normal child, 3.17 p. m.; placenta expelled spontaneously.

Result: Complete amnesia and analgesia.

CASE LXX.—Mrs. A. N., aged twenty-three years, para I, admitted August 2, 1914; cervix two thirds dilated, head engaged, membranes intact; pulse 60, color normal, respirations 24; pains every five minutes, duration three quarter minute.

First injection, 9.45 a. m., scopolamine grain 1/160, and morphine-narcotine meconate grain one half; pulse 60, color normal, respirations normal; fetal heart 140; patient quiet. Second injection, 11.25 a. m., scopolamine grain 1/400; face flushed, otherwise general condition unchanged. Third injection, 12.05 p. m., scopolamine grain 1/400. Fourth injection, 12.45 p. m., scopolamine grain 1/400. Fifth injection, 2 p. m., scopolamine grain 1/400. Sixth injection, 2.45 p. m., scopolamine grain 1/400. At 3.20 p. m., there was a second injection of morphine-narcotine meconate grain one half, and at 3.30 p. m. one c. c. of pituitrin was injected.

Patient delivered with forceps, 5.45 p. m., occipitoposterior position; oligopnea, lasting only a few minutes.

Result: Complete amnesia with analgesia.

CASE LXXX.—Mrs. M. K., aged thirty years, para II, admitted August 11, 1914. Cervix dilated four fingers, head engaged, membranes intact; pulse 80, color normal; fetal heart 144; pains every three to four minutes, duration one minute.

First injection, 6 p. m., scopolamine grain 1/160, and morphine-narcotine meconate grain one half; pulse 88, color normal; fetal heart 130; pains every three to four minutes, duration one half minute; patient quiet. Second injection, 7 p. m., scopolamine grain 1/400; pulse 90, respirations 24, color normal; pains every three minutes, duration one half minute; patient very quiet. Third injection, 8.30 p. m., scopolamine grain 1/400. Fourth injection, 9.30 p. m., scopolamine grain 1/400. Pituitrin, one c. c. injected 10.30 p. m., scopolamine grain 1/400. Fifth injection, 10.30 p. m., scopolamine grain 1/400. 10.30 p. m., pituitrin, one c. c. injected. Pituitrin one c. c. repeated 1.30 p. m.

Patient delivered spontaneously of normal child, 11.45 p. m.

Result: Complete amnesia with marked analgesia.

CASE XC.—Mrs. P. M., aged twenty-five years, para II, admitted August 16, 1914; cervix four fingers dilated, head engaged, membranes intact, cervix thick; pulse 102, color normal, respirations 22; fetal heart 134; pains every five minutes, duration one half minute.

First injection, 9.20 p. m., scopolamine grain 1/160, and morphine-narcotine meconate grain one half; pulse 88, face flushed, fetal heart 134; pains every three minutes, duration one half minute; patient quiet. Second injection, 10.10 p. m., scopolamine grain 1/400; pulse 88, face flushed; pains every three minutes, duration one half minute; patient quiet. Third injection, 11.55 p. m., scopolamine grain 1/400; pulse 88, face flushed; pains every two minutes, duration one half minute. Fourth injection, 1 a. m., scopolamine grain 1/400.

Patient delivered of normal child, 1.15 a. m.

Result: Amnesia with analgesia.

CONCLUSIONS.

Standard solutions are absolutely essential to the success of this treatment. The facilities should be such that the patient is not unduly disturbed. The

treatment does not affect the first stage of labor, but the second stage is somewhat prolonged. Pain is markedly diminished in all cases, while amnesia is present in the greatest number of patients. This treatment does not in any way interfere with any other therapeutic measures which may be deemed necessary for the termination of labor. The fetal heart sounds must be carefully watched; sudden slowing calls for immediate delivery when possible or the discontinuance of the treatment. Oligopnea, sometimes present, produces no ill effects, for the babies quickly resume normal respiration and good heart action. We have noticed no excessive hemorrhage under this form of treatment.

Finally, judging from our observations and experience, we feel that this method of treatment should be given a fair trial. It is only the varied experience of competent men that will tend to settle this extremely interesting subject. It is the duty of the medical profession to set the public aright on this very important question. For our part, we believe that this mode of treatment relieves the woman of the agonies of labor and in addition instills a feeling of confidence which materially aids her in passing through the trying ordeal.

62 WEST EIGHTY-NINTH STREET.

THE VALUE OF THE ABDERHALDEN TEST FOR CANCER.*

BY ISAAC LEVIN, M. D.,
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(From the Department of Cancer Research of the Montefiore Home.)

An early diagnosis of cancer will probably always present the most important factor in combating the disease. The search for a serum appears to be the most promising line to the majority of the investigators of the subject. In order to be specific for cancer, the test must be positive in a high percentage of cases, and at the same time must be negative for all other clinical conditions. All attempts to obtain such a test have failed up to the present, notwithstanding the vast amount of work done.

Abderhalden's test for the diagnosis of pregnancy is considered to be specific by a great many investigators. While nonpregnant individuals may give a positive reaction, a negative test seems to be absolute proof that the individual is not pregnant. In view of this applicability of the pregnancy test Abderhalden (1) himself and several other investigators attempted recently to utilize the method for the elaboration of a diagnostic test for malignant diseases.

In order to form a correct estimation of the results, it is necessary to give a brief review of Abderhalden's conceptions of the mechanism of his serum reaction in pregnancy. The following observation served as the basis for the development of the test. When foreign proteid substances like gelatin, casein, gliadin, etc., are introduced directly into the circulation of an animal, there appear in its blood serum proteolytic ferments capable of splitting up the introduced substances and thus rendering them innocuous to the organism. Abderhalden at first

*Read at the meeting of the New York Pathological Society, May 13, 1914.

thought that these ferments are formed by the leucocytes. In his most recent publication he (2) brings forward experimental evidence which seems to indicate that these ferments are derived from the cells of the pancreas and the intestinal wall. These cells form and mobilize the same ferments in the course of normal digestion of food. Only in the latter instance the ferments appear free in the digestive tract, while upon introduction of foreign proteids into the circulation, the ferments are mobilized directly into the blood serum. These ferments are *not specific* in their action and are capable of splitting up all kinds of proteid material.

Abderhalden then took up the question whether similar ferments would be mobilized into the blood serum upon the introduction of proteid substances native to the organism, but which under normal conditions do not appear in the blood. Schmorl, Veit, and others have shown that chorionic epithelium enters the circulation during pregnancy. These cells present substances which are not only native to the organism, but are produced by the organism itself. At the same time they are not present in the serum under normal conditions. It appeared to Abderhalden that these chorionic cells circulating in the blood of pregnant women may mobilize ferments into the blood serum. Investigation showed this supposition to be correct. There are present in the serum of pregnant women, ferments which split up the proteid substances of the human placenta and which cannot be found in the serum of a nonpregnant individual. These latter ferments, in contradistinction to those mobilized by introduction of foreign proteid substances, seem to be *specific* and do not split up any other substances but the placental proteids. The free circulation of the chorionic villi in the blood does not occur with sufficient frequency to explain the apparently constant presence of the specific ferments in the serum. Abderhalden thinks that chorionic epithelium may remain *in situ* and send into the circulation proteid material, which may be then split up either by a nonspecific ferment derived from the pancreas, or by a specific ferment produced by the same chorionic cell and mobilized into the circulation. He further argues that any somatic cell in the course of its metabolism may mobilize into the circulation both its own proteid material and its own specific ferment capable of digesting the former. Again when a somatic cell dies within the organism, it is split up into various proteid substances, which enter the circulation. During this process of disintegration, there may be mobilized into the circulation the so called autolytic ferments, which may have a specific action on the proteid material of the disintegrated cell. Thus there may be present at any time in the serum a great variety of ferments, both specific and nonspecific in their action. Is it possible that the sum total of their combined activity may be a proteolytic action specific for a given proteid substance and blood serum? This is the crucial question in the whole problem.

The specific proteolytic action of the ferments present in the serum of pregnant individuals on placental tissue seems to be well established, though L. Michaelis and Lagermarck (3), Oeller and

Stephan (4), and a few others maintain that the same ferments capable of splitting up placental proteids are occasionally found in other diseases, in normal individuals, and even in males. Abderhalden states that the test was proved to be correct in at least 1,500 cases of pregnancy in Germany alone. In any event a negative test seems to exclude pregnancy completely.

P. Hirsch (5), Rosenthal and Bieberstein (6) have shown experimentally that there may appear in the serum of animals, ferments which act specifically on proteid material of certain organs. In view of all this, it is *a priori* possible that there may appear under pathological conditions in the serum, specific ferments acting on the proteid of the diseased tissue. The serum of a cancer patient may then be found to contain specific ferments acting on cancer tissue. Such a ferment, in order to be fully specific and of value for purposes of diagnosis, should not be present in any but cancerous serum.

The results obtained thus far by the different investigators on the subject are very contradictory. Epstein (7), Gambaroff (8), and later with improved methods, Guggenheimer (9) and Abderhalden himself found nearly always positive results with carcinoma serum and negative with serum of noncancerous individuals. On the other hand, Markus (10), Fränkel (11), Halpern (12), and Oeller and Stephan (4) found a positive reaction only in from thirty per cent. to seventy-five per cent. of the carcinoma cases, while a certain number of noncarcinomatous serums reacted positively with cancer tissue. The latter investigators came to the conclusion that with the present methods the test cannot be considered specific for carcinoma.

The present investigation was undertaken in order to form an estimate as to the adaptability of the method for clinical purposes, and furthermore to investigate whether radiotherapy would influence the content of specific ferments in the serum of carcinoma patients. The latter phase of the problem has not only a practical but a theoretical interest. It is known that Röntgen rays destroy carcinoma cells. If the ferments of the serum which split up carcinoma tissue are derived from dead cells, i. e., are autolytic, then they ought to increase after radiation. On the other hand, if the ferments are mobilized by the carcinoma cells in the course of their life metabolism, then they ought to diminish after treatment, and the Abderhalden test must show it. A few weeks ago, while this investigation was in progress, there appeared an article by Oeller and Stephan (4) in which they consider the same subject. They observed the appearance of ferments in the serum of patients after radiation, which showed a negative reaction before treatment.

The results of the present investigation were obtained by the aid of the dialyzation method. Briefly, the test consists in the following: Human carcinoma tissue is boiled in a prescribed manner in distilled water, to which is added acetic acid. Small bits of the tissue are placed, together with a certain quantity of serum, in a dialyzer of porous parchment paper. The latter is shown in a preliminary test to be permeable for peptone and not permeable for albumin. The dialyzer with its contents is put

into a glass tube containing sterile distilled water. The water in the tube is covered with toluol against bacterial contamination, the tube is covered with a sterile cotton plug, the whole placed in an incubator and incubated at 37.5° C. for sixteen hours. Then the dialyzer is removed from its container, and ten c. c. of the dialysate, free from toluol, is mixed with 0.2 of a one per cent. solution of ninhydrin and boiled. Ninhydrin is a substance which gives a colorless solution with water, but, when mixed with a solution containing albumin, peptone, or aminoacids, gives a violet color on boiling. The more proteid substances there are in the solutions, the deeper is the color. Since the dialyzer is not permeable for albumin, a violet color indicates that the serum contained ferments which split up the coagulated proteid substances of the boiled carcinoma tissue. Control tests with identical dialyzers must show that neither the serum alone nor the tissue alone contains any dialyzable substances. All the minute details of the test and all the possible chances for error can be found in Abderhalden's most recent publication (1).

The tests of the present investigation were done under strict guidance of the rules laid down by Abderhalden. The tissue used was adenocarcinoma of the breast and it served for all the cases. Some investigators controlled their results by using also non-carcinomatous tissue. This seems to the writer to be superfluous. The question to be investigated, is whether there are present in the serum of the patients, specific ferments capable of splitting up coagulated proteid matter specific for carcinoma tissue. Serum was obtained for the test from thirteen cases of carcinoma, four cases of sarcoma, twelve cases of pulmonary tuberculosis, and eight cases of light nervous ailments.

The results of the tests are as follows: Of the thirteen carcinoma cases twelve were positive and one negative. The sarcoma cases were all positive. Of the twelve tuberculous cases five were positive and seven negative, and of the last series four were positive and four negative. Subsequent tests taken in carcinoma cases after several Röntgen treatments did not show any difference in the ferment contents of the serum.

The analysis of the results shows that, while the test is most frequently positive in carcinoma, it cannot be considered actually specific, since the same ferments seem to appear in the serum of noncarcinomatous individuals. Abderhalden asserts that results negating his conclusions are due usually to faulty technic. But the same faults which increase the number of positive results in noncarcinomatous individuals, would also have shown the number of positive cases in carcinoma to be greater than in reality. Furthermore, the test, while consisting of a great many steps, is not difficult of execution. The real difficulty lies in the complexity of the phenomena involved in the problem. Carcinoma tissue used for the test consists of cancer cells, connective tissue, and bloodvessels, and consequently must contain different proteid substances, some of which may possess characteristics of carcinoma tissue, while others may be analogous to normal tissue. The serum, on the other hand, may contain a variety of specific and nonspecific ferments. All these may combine to

give a positive ninhydrin reaction. The remedy offered by Oeller and Stephan, which is to take, instead of carcinoma tissue, emulsions of normal cells homologous to the organ in which the primary carcinoma developed, could not serve the purpose. Ferments which may also attack normal organ cells cannot be specific for carcinoma. At best they can show that carcinoma cells are structurally identical with the organ cells in which they grow, and then we may never hope to obtain a specific diagnostic method for carcinoma. In normal pregnancy the conditions are comparatively simpler and easier to handle. Nevertheless, the applicability of Abderhalden's test for the diagnosis of pregnancy, and the results of the experimental work on animals, indicate that action of the specific ferments may dominate the results in a given case. It is imperative, therefore, that a great deal more research, both clinical and experimental, be done before a decision can be reached as to the applicability of the test for the clinic. The proteid substance which the ferments split up, must be made to be more clearly specific and the test itself must be finer and not depend on the behavior of the dialyzer. All these matters are the subject of further research of the writer. But for the present, the method belongs to the research laboratory and not to the clinic.

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119 WEST SEVENTY-FIRST STREET.

ARTIFICIAL PNEUMOTHORAX IN PULMONARY TUBERCULOSIS.*

By CHARLES R. KINGSLEY, JR., M. D.,
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Fundamentally the value of artificial pneumothorax is based upon the fact that rest is the best treatment for tubercle in any part of the body. To produce rest for the affected lung of the tuberculous patient, a special procedure must be employed which causes temporary compression and solidification of the whole or part of the organ. The simplest and most practical method of securing pulmonary rest, is by filling the pleural cavity with nitrogen gas at proper intervals until the lung has little or no respiratory excursion, allowing a reparative fibrosis to heal collapsed ulcerating cavities and gradually to convert a diseased, edematous organ to a dry, healthy one.

For a successful result, the choice of case for this treatment is of the greatest importance. In the first place, the patient should have every opportunity to improve under the usual hygienic, climatic, dietetic, and symptomatic treatment. Failure or

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unsatisfactory progress after two or three months should be positive demand for interference, if the case be a suitable one. Bilateral phthisis, provided sufficient healthy lung remains to carry on respiration, is not a contraindication. Since the majority of chronic cases have bilateral pulmonary involvement, it is of interest to bear in mind that about two thirds of a healthy lung may perform the respiratory function. The side showing the primary, or in doubtful cases the most severe infection, is chosen for the operation. Frequently the course of a secondary invasion in the opposite lung is favorably influenced by the suppression of the primary focus of infection. In acute rapidly progressing unilateral cases we should not delay treatment. Another type of case in which this procedure is of great value is the one with hemoptysis or with chronic sanguineous expectoration.

Very many contraindications prevent treatment by this method; the most important are extensive involvement of both lungs and extensive pleural adhesions. We have often noted at autopsy the extreme density of such adhesions in cases of chronic phthisis and readily comprehend the futility of expecting to procure collapse of a lung so bound to the chest wall. In fact, it seems best to abandon treatment where, after trying various interspaces, but a small quantity of nitrogen can be injected (100 to 200 c. c.). Of course myocardial, renal, or other constitutional disease offers insurmountable difficulties.

The technic of injecting nitrogen gas into the pleural cavity is simple in cases uncomplicated by pleural adhesions. Only two dangers have to be avoided. The first is gas embolus, the needle entering the lung and the gas being expelled into a vein. This cannot occur, provided the operator makes certain that his needle point is in the pleural cavity before gas is allowed to flow. The second is pleural reflex shock due to puncturing the pleura or to a rapid stretching of pleural adhesions. This may be avoided with proper anesthesia of the needle tract and, if necessary, in nervous patients, a preliminary hypodermic dose of morphine. Briefly, the routine method most commonly employed is as follows: A point of good resonance and breath sounds is chosen, if possible in the lower axillary region at the sixth intercostal space, anterior to the latissimus dorsi. The skin having been prepared with tincture of iodine and alcohol, two per cent. novocaine is injected endermically and the hypodermic needle is then pushed through the intercostal space and pleura, injecting as it goes, even into the lung. Using one of the larger needles, a tiny skin incision has to be made, but with a medium sized hypodermoclysis needle this is unnecessary, the thrust being made into the chest at once. A little experience teaches the feel of the needle as it penetrates the pleura. On removing the obturator, air can be heard sucking in at the needle head, provided the point has entered the pleural cavity. Connecting with the water manometer a negative rise is obtained from five to twelve cm. with well marked respiratory excursions. The needle is safely in place, and nitrogen may be allowed to enter. Small manometer oscillations indicate the needle in the lung, pleura, or plugging with blood.

Haste is no object and time should be taken until wide negative oscillations proclaim a free track. After each 100 c. c. of nitrogen introduced, a reading of the manometer is taken; with pleural adhesions where the needle is in a limited cavity, we may be astonished at the rapid change from a negative to a marked positive pressure after the introduction of but 100 to 300 c. c. A pause of several minutes may give reduction of the pressure due to gradual extension of the gas through the confined pleural space or to stretching and giving way of lesser pleural adhesions; if not, it may be necessary to attempt injections in other interspaces, particularly over portions of the lung least diseased. At times better results are obtained in other interspaces and again no pleural cavity can be found even with repeated exploration in different levels.

The first injection of nitrogen may be from 300 to 800 c. c. This is painless unless pleural adhesions are encountered, when complaint of severe pain in the chest may enforce caution or abandonment of the attempt. Reinjections may be given, in the absence of reaction, on the following day and subsequently two to three times a week until a positive pressure of from four to six cm. is obtained. This pressure has been found sufficient to keep the lung compressed and quiet. To maintain this, injections are made according to the rate of absorption of the gas. These average once a week for about two months, then once in two weeks, and after four months once a month to six weeks. In hemoptysis, where the object is to arrest hemorrhage, 1,000 c. c. may be the primary injection with subsequent daily injections until cessation of bleeding.

Immediate favorable results appear in well chosen cases. Chronic pyrexia often declines or disappears after three to four injections. Sputum which at the onset is usually increased, especially in cases with vomiting, is lessened in quantity and may disappear altogether. The patient gains in weight and strength, is often able to resume his occupation, and ceases to become a dangerous distributor of tubercle bacilli.

How long should compression be maintained? At present the consensus makes this a period of years. The lung may be allowed to expand at the termination of one year, and if physical signs are absent all is well; if they persist, compression is to be resumed with another observation taken after months or a year. In some cases, circumstances dictate a shorter course of treatment, which may at least set the patient on his feet with a renewed chance for recovery by the usual methods. When pleural adhesions interfere, injections have to be given more frequently, and results depend entirely upon the extent of collapse obtained in the diseased lung.

During the compression period complications may occur, the most common being pleural effusion. So long as this is not excessive, it helps maintain compression and need not be disturbed. In case cardiac displacement or excessive intrathoracic pressure results, fluid must be withdrawn and its bulk partially replaced by oxygen, with the object of aiding absorption. As a rule, effusion disappears in a few weeks or months spontaneously.

Tachycardia may compel abandonment of treatment for varying periods, but guarded injections and digitalis may obviate this difficulty. Myocardial insufficiency is a serious complication and compels one to discontinue treatment.

The end results of artificial pneumothorax are somewhat difficult to give in figures since no advanced case of phthisis can ever be said to be cured, and because treatment by this method has not been in use for a sufficient length of time to enable various writers to be definite on the permanency of the relief obtained. One thousand cases have been reported with a symptomatic cure in forty per cent. Unfortunately there is only a relatively small number of tuberculous patients who are truly suited for this method of treatment; accordingly, the indiscriminate operator will be discouraged with his results. He who confines himself to strictly unilateral cases with little or no pleural adhesions, may count on a temporary or permanent relief in probably fifty per cent.

My experience with this treatment is based on eight cases, three in private practice and five at the Sea View Hospital. These have been uniformly of the advanced hopeless type, having more or less involvement in the comparatively sound lung. A few of them have not been devoid of interest and with this preface I will briefly report them:

CASE I. A young man had gone from bad to worse for a year with a severe phthisis, and when first seen had consolidation of his right lower and middle lobes with cavity formation also a marked infiltration at the left base. His temperature for months had ranged from 103.8° to 101° F., he was emaciated and too weak to sit up in bed. From November 21, 1912, to February 21, 1913, he received sixteen injections of nitrogen in intervals determined by his condition. A partial right pneumothorax was obtained, pleural adhesions preventing compression of the entire lung. Improvement was noted, the temperature ranging between normal and 101° F.; expectoration was less profuse; he gained in weight and strength and was able to leave his bed. Unfortunately this patient went away and in the absence of treatment died in a few months. He had been given a fighting chance, and prolongation of pneumothorax might have lengthened his life indefinitely.

CASE II. A case of sudden hemoptysis, in a previously healthy young man, was so severe that it was decided to use pneumothorax after all other treatment had failed. He received three injections. The first 1,000 c. c. practically controlled the hemorrhage. On the second and fourth days he received 1,000 and 800 c. c. respectively. His intrathoracic pressure was then 3 cm. and he was doing well. On the sixth day he suddenly became dyspneic, cyanotic, coughed up a quantity of blood, and died in a short time. The cause of his death was a matter of speculation since no autopsy was obtained.

CASE III. A more favorable case was that of a woman, aged thirty-two years, married, with two children, the youngest one year old. Tuberculosis was the cause of death of a brother and two paternal uncles. The first indication of failing health was during lactation with the second child, when she noticed weakness. During the last of April, 1912, she contracted influenza, which developed into a pneumonia with absolute consolidation of the left lower lobe. After a course of two weeks, resolution had failed to occur. On May 26th, I first saw her. She looked very sick, was thin and weak, her temperature was 102° F. She had constant cough with profuse purulent expectoration. Her left lower lobe was entirely consolidated, the remainder of the chest was clear, except for a few crepitant rales in the right middle lobe. The sputum showed from 8 to 12 tubercle bacilli to the field; the blood showed leucopenia with relative lymphocytosis; the urine was normal. Artificial pneumothorax was commenced June 22, 1912. There were no pleural adhesions, and a complete

left pneumothorax was obtained. After the first four fillings there was elevation of pulse and temperature, but in two weeks the fever left never rising above 99° F. Cough gradually disappeared and the sputum lessened. In two months she was about the house as usual. Pleural effusion developed in November and the increasing pressure caused dyspnea, palpitation, and a sense of anxiety. She was tapped four times and a total of 4,000 c. c. was removed. Nitrogen fillings were continued until May, 1913, when the lung was allowed gradually to expand during two months. It became apparent, however, that the lesion was merely arrested, since with return of pulmonary activity, moist rales could be heard at the left base. Tubercle bacilli reappeared in the sputum, and she seemed to be losing ground. Accordingly, compression was resumed and continued to date. She was now receiving from 500 to 900 c. c. at intervals of a month to eight weeks. The invasion of the right lung vanished; there was no sputum and she felt well. This was at least a symptomatic cure but its permanency will have to be determined later.

At the Sea View Hospital, we have chosen five cases in the women's ward for treatment. Two of these are favorable, unilateral lesions with prospects of brilliant results. Three cases have bilateral lesions with pleural adhesions and are progressing slowly. We have had one case also where no pleural cavity could be found. With increasing time and a more acute service, there will be a great opportunity to try out this treatment in regard to the permanency of the results.

NEWER TEACHINGS CONCERNING DISEASES OF THE GASTROIN- TESTINAL TRACT.*

BY MARK I. KNAPP, M. D., LL. M.,
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XI.

DISEASES OF THE PHARYNX.

Acute pharyngitis. This is of a very common occurrence and is usually, although wrongfully, ascribed to a "cold." In my experience, pharyngitis, both acute and chronic, is due to a chemical irritation proceeding either directly from irritating ingested matter, or, secondarily, from chemical irritations issuing from the stomach, esophagus, nose. Being already chemically irritated, the existing cause might perhaps be a sudden exposure to a draught. But, in the vast majority of cases, shifting the blame upon a "cold" is simply to acknowledge one's ignorance of the true cause. The common cause is the excitation of the pharyngeal mucous membrane by volatile acids or by alcohol, or by a combination of the two. Children are especially prone to this affection in which cases the irritation proceeds from regurgitated, fermenting gastric contents. The acrid nasal discharge may also, through the posterior nares, reach the pharynx and inflame it. The same causes may operate also in the adult but, as a rule, here the direct irritation of the pharynx is due to highly spiced food or salads, fermented liquors, etc. Strong tea and coffee are also to be included in the list of irritants.

The acute form of pharyngitis involves usually, not only the pharynx, but also the uvula and the

*See JOURNAL for September 12, 1914, page 512.

tonsils. All these structures become reddened and swollen, the swelling being most pronounced in the uvula and fauces. The most prominent symptoms are pain and painful swallowing, elevated temperature, general lassitude, headache, loss of, or lessened appetite, and vomiting, although this symptom is not constant. The acute attack is usually initiated by chills in the evening. The following morning, the patient feels a sense of dryness and tension in the region of the pharynx, a sensation of heat and scratching, accompanied by pain on swallowing either solids or fluids. The swelling of the uvula causes its elongation, which becomes an additional mechanical irritant. The movements of the head become painful and the submaxillary glands are swollen. This latter occurrence is to be explained upon the physical theory of gravitation; the acrid secretions of the mouth travel down Wharton's ducts into the substance of the submaxillary glands, causing irritation and inflammation.

The prognosis is good. Not often does pharyngitis interfere with the daily pursuits of the individual, and the disease runs its course in a few days. I have seen a case in which the redness and swelling disappeared over night, the patient remaining up all night and gargling every fifteen to twenty minutes. By continuity this disease may spread through the Eustachian tubes and so involve the middle ear, which may lead to serious complications.

Diagnosis is made by inspection. The tongue is depressed with a strong spatula and, in doing this, the physician should never stand in front of the patient. The patient should be seated and the physician should stand at his right side. The patient's tongue is now depressed and the examiner bends down for the inspection, always ready to get out of the patient's reach, should he involuntarily eject some matter from his mouth. The tonsils, fauces, uvula, and pharynx will then be seen to be red and swollen and perhaps slightly covered with a thin grayish coat.

As to treatment, very little medication is necessary. Always begin with a cathartic, of which calomel is the best. A wet towel wound around the neck, over which comes a dry towel, the two being then left over night, may prove very good. Locally, tannin and glycerin, a teaspoonful to a glass of warm water, one to three per cent. chlorate of potassium, or three to five per cent. of alum, should be used as a gargle, as often as the case seems to require, every two or three hours or oftener, if necessary. Internally there seems to be no better drug than iron, of which the tincture, six to fifteen drops at a dose, every three or four hours, gives the best results. This drug is given in combination with glycerin and water, well diluted. During the acute stage, the best diet is milk, some bland soup, but no beef extracts or beef tea, and soft boiled, scrambled, or fried eggs, cool water, and cool lemonade. No solid food and no meat should be given. After the acute stage has subsided, a mixture of hydrochloric acid is to be given in combination with nux vomica or the tincture of cinchona. My usual prescription is: *Acidi hydrochlorici, tincturæ cinchonæ compositæ*, of each 15 grams; *tincturæ nucis vomicæ*, 6 grams; *syrupi zingiberis*, 30 grams; *aquæ ad* 200 grams. A tablespoonful in water is given at meals. If there

is high temperature, the patient should remain in bed. This prescription is for an adult.

Chronic pharyngitis. If the irritating agencies which cause the acute attack, continue or are often repeated, the condition becomes chronic. Among the chief causes are organacidia gastrica, chronic alcoholism, the excessive use of sharp, seasoned food, and excess in the use of tobacco. Some trades predispose to it, such as stone cutting, work in chemicals or flour, milling, mining, etc. The three varieties most commonly differentiated, are, 1, the simple chronic pharyngitis, in which the mucous membrane is of a dark red color, hypertrophic, and covered with a glossy or mucopurulent secretion; 2, the atrophic pharyngitis, *pharyngitis sicca*, in which the mucous membrane is pale, tense, occasionally hyperemic and velvety looking, covered with a tenacious mucus; and, 3, the most common, the follicular variety, which derives its name from the enlarged follicles upon the mucous membrane. As a result of the chronic irritation, the tonsils become hypertrophied, the secretions within the glands thicken, become calcareous, calcify, and form stones. The calcareous matter in turn becomes irritant to the tonsils; or the secretions within the follicles may decompose, thus giving *fetor ex ore*. Adenoid vegetations in the nasopharyngeal space are the result of chronic pharyngitis.

As to symptoms, the patients complain of a burning sensation, dryness, tension, pressure, tickling, scratching, soreness, or rawness. The symptoms are especially aggravated in the morning and are intensified in a dry, dusty, smoky atmosphere and after prolonged use of the voice. The sufferers also complain of a dry, hacking cough, and have symptoms of dysphagia, i. e., the act of swallowing is painful; the voice easily gives out, and prolonged speaking is impossible. On inspection, the thick tenacious, glossy mucus is seen attached to the pharyngeal wall. The most usual complications are affections of the nose, then of the frontal cells, the Eustachian tubes, the middle ear, and the larynx; the affections of all of these parts are due directly to the spreading of the inflammatory condition of the pharynx.

The prognosis is good, if the proper source of the irritation is recognized and eradicated. It usually persists for years, however, and causes damage to the neighboring parts and tissues, before the cause is finally eliminated. What subsequently may have to be operated upon as a mastoiditis, with all the danger attending such an operation, may be obviated by proper recognition and appreciation of the original cause, the pharyngitis. This, of necessity, carries with it also the recognition of the cause of the pharyngitis in the first instance. Periods of comparative ease alternate with periods of suffering; all depending upon whether the original cause is, for the time, abated.

As to treatment, immediate attention should be directed to the cause, which in chronic pharyngitis, lies in the gastrointestinal tract; this must be thoroughly searched and the proper remedies given. Where hypertrophic conditions exist as a result of the pharyngitis, they will have to be treated surgically. Locally, the same drugs may be used as in the acute cases.

Therapeutic Notes.

Treatment of Chronic Icterus.—J. Castaigne, in *Bulletin de l'académie de médecine* for December 9, 1913, calls attention to the fact that tertiary syphilis is capable of causing an obstructive jaundice. Sometimes the manifestations suggest a protracted catarrhal icterus, without pain or tendency to cachexia. In one case under the author's observation, on the other hand, the jaundice was so deep and rapidly progressive as to suggest pancreatic cancer; the surgeon found instead sclerogummatous involvement of the liver. In still another case there were attacks of pain simulating true hepatic colic, with transient and later permanent jaundice. In two cases specific treatment caused the disturbances completely to disappear. In one of these, the first salvarsan injection caused a pronounced deepening of the jaundice (ascribed to a species of Herxheimer reaction), which disappeared, however, after subsequent injections.

Concluding, the author warns that in progressive obstructive icterus apparently indicating operative intervention, syphilis should be thought of in cases where the etiological diagnosis is uncertain, before the operation is decided on. If the various diagnostic means now available show the patient to be syphilitic, specific treatment should be tried, and if success attends it, an unnecessary operation, attended with some risk because of the patient's precarious condition, will have been avoided.

Treatment of Acne punctata.—In *Quinzaine thérapeutique* for December 10, 1913, is recommended the following lotion for use in this condition:

℞ Resorcinolis, ... }
Sulphuris loti, .. } āā gr. lxxv (5 grams);
Aquæ coloniensis, ...5v (150 grams).
M. et ft. lotio.

The affected area may with advantage be rubbed with soap and water. Washing with a solution of borax is also useful:

℞ Sodii boratis, ...5i-iss (30-50 grams);
Cum aqua fervente, ...Oii (1 litre).
Solve.

Overnight, a little of the following ointment should be kept over the affected area:

℞ Betanaphtholis, }
Camphoræ, ... } āā gr. iiss (0.15 gram);
Resorcinolis, .. } āā gr. iiii (0.2 gram);
Saponis, ... }
Cretæ præparatæ, ...gr. viiii (0.5 gram);
Sulphuris præcipitati, ...gr. xxiii (1.5 gram);
Petrolati puri, ...3v (20 grams).
M. et fiat unguentum.

Simultaneous internal use of powdered charcoal may be of value.

Comparative Value of Cardiac Remedies.—T. C. Janeway, in the *Archives of Internal Medicine* for March, 1914, calls attention to the special value of digitalis in cases of well compensated mitral disease in which auricular fibrillation, with marked tachycardia, sets in acutely. Dyspnea is generally inconspicuous in these cases, the symptoms being great exhaustion on exertion, dizziness, and a tendency to syncopal attacks. The tachy-

cardia and symptoms can be controlled by digitalis within forty-eight hours, and under long continued digitalis medication such patients may maintain a very fair working ability for several years.

In chronic mitral disease with gradually developing insufficiency, general venous stasis, edema, and fibrillation, the rapidity and completeness of functional recovery under digitalis are in almost direct proportion with the heart rate. In rheumatic mitral disease with fibrillation, if the rate is normal or slow, benefit from digitalis may not appear until after a week or more, or unless accessory measures such as the extreme fluid and salt restriction of the Karell diet—which the author has found of the utmost value—have been instituted.

As to dose, the author has not found the large doses used by Mackenzie and Cushny to be necessary; he prefers a dose equivalent to not more than one and a half grain (0.1 gram) of the leaves every four hours. This is continued until the pulse rate falls to near 60 or becomes bigeminal; or, failing this, until absorption of edema is complete or toxic symptoms ensue. The drug is then stopped and not resumed until increasing rate or pulse deficit, or disappearance of coupled beats, is observed, usually in from five to ten days. Then one half or three quarters of the daily amount given before will control all symptoms.

In certain cases with normal heart rhythm, particularly those with cardiac insufficiency secondary to prolonged high blood pressure, the author has seen digitalis followed by as speedy relief of symptoms as in fibrillating cases. No dangerous increase in blood pressure from digitalis in these cases is to be apprehended; in fact, the pressure usually shows a striking fall under it. When digitalis alone does not effect prompt improvement, the caffeine diuretics, given intermittently in small doses—two grains (0.12 gram) of caffeine, ten (0.6 of theobromine sodium salicylate, or three (0.2) of theophylline, for three doses, repeated only after one or two days' interval—may remarkably increase the urinary output, with absorption of edema, not only in cardiac and renal disease, but occasionally even in the ascites of hepatic cirrhosis.

In cases of primary myocardial insufficiency refractory to digitalis bodies alone, combined digitalis and caffeine medication, or one drug of the caffeine series alone, should be tried. In paroxysms of dyspnea, nitroglycerin or the nitrites may temporarily relieve or cut short the attack. In acute pulmonary edema in such patients, nitroglycerin, together with caffeine hypodermically, is of service.

In mitral disease with regular rhythm, improvement under drugs is slow; but digitalis, administered up to the point of producing toxic symptoms, does seem to improve the dyspnea.

When, in emphysema, an attack of asthma leads to acute insufficiency of the right ventricle, caffeine often acts surprisingly well.

In all hearts with regular rhythm the use of digitalis should be more cautious than in fibrillating hearts. Certain types of extrasystolic irregularity are improved by digitalis; others may be made worse. Frequent extrasystoles in insufficient hearts indicate caution in the use of digitalis.

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OUR AMERICAN SPAS.

One inevitable result of the European war has been the closing of the various continental watering places. Since the discovery of radium, the beneficial effects of a sojourn at one of these resorts, once considered to be purely psychic, are now generally attributed to radioactivity of the springs, setting aside for the moment the obviously tonic and alterative effects of open air life, gentle exercise, and restricted diet. In all of these advantages numerous American watering places fall no whit behind those of Europe. We have the picturesque scenery, a more varied choice of climate, equal professional skill in the prescription of regimen, and, to complete the program, waters of appropriate saline nature and of thoroughly tested radioactive qualities. Dr. Ernest Zeublin, of the University of Maryland (*Maryland Medical Journal*, May and June, 1914), is firm in his good opinion of the value of radium salts in the treatment of arthritic conditions, even in obstinate cases of arthritis deformans, and discusses carefully the subject of radioactivity in spring waters, artificial solutions prepared for drinking purposes, baths, etc. The United States Government has full information in its possession concerning the saline content and radioactivity of

our various springs, and the medical profession would welcome this knowledge judiciously scheduled for reference. The findings of the New York State commission concerning the Saratoga springs would also furnish valuable material for consideration.

Dr. Rupert Blue, surgeon general of the United States Public Health Service, is quoted in the newspapers as stating that there are in this country springs "that possess amazing curative properties," and that our gouty and rheumatic population need feel no alarm at the temporary closing of the celebrated resorts of Carlsbad, Baden Baden, Nauheim, Wiesbaden, etc. It is averred that our people have been spending \$80,000,000 annually in these foreign spas in search of relief for chronic conditions vaguely referred to the nervous system and to faulty metabolism, and an excellent opportunity is now presented to the medical profession to draw attention to the fact that there is absolutely nothing lacking at our health resorts to bring about therapeutic results as striking as have ever been achieved abroad. The State and Federal authorities should lend their aid in this propaganda, for they can do much to assist private capital in adding to the attractiveness of such resorts. The mere avoidance of sumptuary legislation is not enough; there should be intelligent constructive supervision.

THE BLOOD PRESSURE IN INFECTIOUS DISEASES.

A number of attempts have been made of late to correlate blood pressure changes in the acute infections with the general conditions, favorable or unfavorable, existing in individual cases at the time, and even, from repeated blood pressure tests, to secure definite prognostic indications. Up to the present, it must be admitted, these attempts have not been particularly successful, different observers often reaching divergent or even contradictory conclusions. Weigert, in 1911, after a study of the blood pressure in thirty-five cases, declared that no definite rule applies to the blood pressure curve in pneumonia and that, consequently, pressure tracings in this disease are devoid of prognostic value. The late G. A. Gibson, on the other hand, is well known to have maintained that "a pressure appreciably below the normal in pneumonia is invariably of evil omen," and that "when the arterial pressure, expressed in mm. Hg., does not fall below the pulse rate, expressed in beats to the minute, the fact may be taken as of excellent augury, while the converse is equally true." L. H. Newburgh and G. R. Minot (*Archives of Internal Medicine*, July, 1914) have recently reported observations tending to discredit

Gibson's assertions. Recording the blood pressure in fifteen cases of lobar pneumonia, they found the systolic pressure in the fatal cases—five in number—continuously higher than in those that ended in recovery. As for the relation of pressure to pulse rate, the systolic pressure was observed to rise above the pulse rate in two of the five fatal cases, Gibson's rule thus being in error in forty per cent. of instances, while among the ten cases of recovery the pressure failed to rise above the pulse rate in five cases—an error of fifty per cent. These results were almost exactly reproduced in another series of thirty cases. On the whole, it was clearly apparent that death in pneumonia may occur whether the systolic pressure is rising or falling and whether it is above or below the pulse.

As for the pulse pressure, or difference between the diastolic and systolic pressures, Newburgh and Minot deemed it inadvisable to reach definite conclusions from their fifteen observations, although a general tendency toward an increase in the pulse pressure as the crisis approached; was noted in cases that were to terminate favorably. Probably of greater significance, though no stress is laid on it by these investigators, is the fact that the diastolic pressure in the favorable cases showed a progressive though slight fall, while the systolic pressure remained practically level. In the cases ultimately fatal, this reduction in diastolic pressure was not witnessed, a slight tendency in the opposite direction, in fact, being manifest.

That observation of the diastolic pressure is actually of prognostic value has been strongly suggested lately by J. S. Schwarzmänn, of Odessa (*Zentralblatt für innere Medizin*, August 1, 1914), who reports his sphygmomanometric experiences in no fewer than eighty cases of infectious diseases, including patients not only with pneumonia, but also typhoid fever, acute peritonitis, acute rheumatism, severe influenza, etc. This author definitely asserts that where the diastolic pressure rises in infectious diseases—a change which may be ascribed to paresis of the vasomotor centres, resulting in dilatation of the intraabdominal vessels, accumulation in them of blood, depletion of the peripheral vessels, and contraction of these vessels on the reduced content of blood in the effort to propel it better, with consequent further increase in diastolic pressure—an indication of marked severity of the case is afforded. Thus, among numerous other instances, in a patient with acute peritonitis the diastolic pressure was found to have risen from the normal ninety cm. of water to 120 cm., recession to ninety cm. following later as the patient's condition improved. Whenever, in less immediately threatening cases, the systolic pressure becomes subnormal, Schwarzmänn

relies upon the diastolic pressure to ascertain whether the lowering in the systolic pressure is due to vasomotor paresis or impairment of the heart action. If the diastolic pressure descends with the systolic, the recession of the latter is due to impairment of vascular tone—in which event a dicrotic pulse is also noted—whereas if the diastolic pressure rises or remains stationary, the lowered systolic pressure is due to cardiac weakening. Thus, observation of the absolute changes in both the systolic and diastolic pressures appears to be of greater value than mere observation of the relation between the two—the pulse pressure. While Schwarzmänn's studies manifestly do not exhaust the subject, his conclusions seem likely to prove of some service in both prognosis and treatment of acute infectious cases, and at least, have shown that attempts at securing useful information with the sphygmomanometer in these cases should not be abandoned.

MORPHINE SCOPOLAMINE ANESTHESIA.

A second thoroughly *ex parte* account of the Freiburg method of morphine scopolamine anesthesia in childbirth appears in *McClure's* for October. Our readers are aware of our opinion of the attempt to dragoon the medical profession in America into indiscriminating adoption of a procedure which had been tested by competent men in various parts of the country without much enthusiasm, made by a journal which, with the same amiable zeal, once tried to force upon us an absurd theory and treatment of malignant disease. The serene note of infallibility in this second article so impressed the *New York Times* that it fears that many people will consider it a terrible arraignment of the medical profession in America. The arraignment, if it stands, is of the profession all over the world, for even Germany has tranquilly permitted the method to remain in a small corner of a small town of the empire, while it is probable that it has been more frequently used in the United States than anywhere else.

We have the privilege of presenting in this issue of the JOURNAL the first formal report of the new method in America, carried out precisely as advised by Herren Krönig and Gauss and with the same vehicles for the alkaloids. It is important to note that the proprietary preparation referred to contains only 32.2 per cent. morphine, therefore the half grain usually exhibited represents less than one sixth grain of the alkaloid; not improbably the narcotine might be omitted. The subsequent use of pituitrin seems to be a characteristic American improvement, an invitation to Nature to "step live-

ly;" without pituitrin, the second stage of labor is unduly prolonged.

Now that we are independent of the rhapsodies of lady reporters, it is interesting to learn that Doctor Rongy and Doctor Arluck conclude that morphine scopolamine relieves agony and instills confidence in the mother, and that it deserves further trial; it is an anesthetic pure and simple. The mortality, two per cent., would have been the same without the drugs. The oligopnea of the infants seems to be unimportant; and three asphyxiated babies recovered. It is significant that ether is required in addition to the alkaloids when forceps are used.

Of importance, however, in the face of the triumphant lay hymning of this method, are the nine per cent. of mothers in whom the method failed of effect. This percentage, we fear, is likely to be larger when labor takes place without the ideal surroundings of the hospital. If nine per cent. of mothers are doomed to continue to bring forth their children in sorrow, we may count upon an energetic antistrophe from this part of the chorus that will ring in the ears of some now exultant reporters. It is only fair to state, however, that the authors of the communication in this issue and their assistants believe that the troublesome and puzzling lack of amnesia and analgesia and the cessation of labor pains were due to improperly prepared solutions of scopolamine. No such drawbacks seem to have been experienced after the use of stable, sterilized solutions put up in ampoules. Trials are now being made with hyoscine hydrobromide instead of scopolamine; and it may well be that with a few more clever American improvements—like the great saving of time already secured—we shall have a workable anesthetic technic of inestimable value in a large number of cases.

THE IMPERIAL CANCER RESEARCH FUND.

The twelfth annual report of the Imperial Cancer Research Fund has been issued; it includes the report of the research and laboratory work during the previous year, and we advise those interested to obtain a copy from the secretary, Mr. Frederic G. Hallett, as we can give only the briefest summary of its contents. The investigators have been bothered less than formerly with imaginary cures for cancer, and reinvestigation of the properties of thiosinamin led to negative results. Tumors are being studied in the mouse, rat, rabbit, dog, fowl, and guineapig and a warning is issued to confirm suspicious tumors by the microscope. The hypothesis that pyorrhœa alveolaris may lead to cancer is completely discredited and other suggestions from

the lay press are politely dismissed. Three tumor strains in mice have manifested the power of converting normal tissue into malignant; the cause remains obscure. Resistance to cancer growth apparently exists, but its nature remains a mystery. Investigations into the properties of tumor cells indicate how independent the cell is of influences proceeding from its environment and they narrow the etiological issues still further to alterations proceeding from within the cell mechanism and not awakened by external factors. As to early diagnosis, no method is satisfactory and a warning is given concerning too great reliance upon the Abderhalden reaction. The study of the age incidence of cancer is of the utmost importance; it is not yet decided whether cancer areas and cancer houses exist—the investigators think not, however—nor is it known whether cancer is actually increasing in frequency. As to heredity, there are no reliable data as regards cancer in man. It is not believed that cancer can be transferred from one species to another.

VACATION TYPHOID.

Summer and the vacation season are over and the inhabitants of the cities are returning to their winter's work in school and in business. Presumably they went away to rest and to obtain a supply of health and energy that would carry them through the coming months. This sounds well and appeals to the imagination, but how frequently are the results contrary to what was anticipated. Men, who have taken little or no exercise for months, indulge to excess in strenuous sports, become thoroughly fatigued, and return in worse condition than when they started. This is particularly the case among those who go away for a few days or a week or two. They are anxious to do as much as can be crowded into their vacation.

It is unfortunate that the majority of pleasure seekers, in making out their plans, omit all thought of the sanitary conditions in the places they visit. Attractive as the country is, the cities in many respects lead when considered from the point of view of healthfulness. In the city there is an active board of health which takes particular pains to keep pure the water and milk supply so that all may drink in safety. But such is not the case in most rural districts, where there is little if any control; any cows may be kept under any conditions and water from all sources may be used.

The consequence is that of the thousands who go away healthy there come back a not inconsiderable number who either have had typhoid or in whom it develops after their return. The water looked good and was used, but as the well was placed improperly

the supply was contaminated. The favorite swimming place was adjacent to sources of pollution, and infection occurred.

These are the patients who later become dangerous foci in the city and help to continue the disease either with active cases or what is more dangerous, as typhoid carriers. In most of the larger cities, there is a distinct rise in the number of typhoid cases at this time of the year, and the great majority of these infections occur during vacation periods.

Typhoid fever really has ceased to be an urban disease, and now lurks in the rural districts, from which it must be dislodged before the cities can be kept free.

THE HIGH PRICE OF FLOUR.

Chemists have repeatedly called attention to the extravagance of the American public in respect to foods, and have seen in this one of the causes of the high cost of living. Again and again they have pointed out that cheaper cuts of meat, for example, are fully as nourishing as filet and porterhouse steak and that all that is needed is education as to the proper method of cooking.

What is true of meat applies also to many other foods. Just now, for example, wheat flour has advanced considerably in price, being quoted at \$6.75 a barrel. Exactly the same amount of nourishment in the form of rye flour costs \$5, a saving of \$1.75 a barrel.

Why, asks the August 29th issue of the *Weekly Bulletin* of the department of health, should Americans continue to prefer wheat flour when rye is equally nutritious and very much cheaper? Or why should they not learn, like the Scotch, to make oatmeal, which is even more nutritious and also much cheaper, a staple article of diet? Or why disdain delicious and wholesome corn meal, highly nutritious and about two thirds the price of wheat flour?

TYPHOID INOCULATION IN THE BRITISH ARMY.

In our issue for September 12th, we commented on the fact that typhoid inoculation is optional in the British army, although experience with American troops has proved that there is no longer any doubt as to its efficacy or its harmlessness. In the *Lancet* for August 29th, there is a strong plea from Professor G. Dreyer and Dr. E. W. Ainley Walker, of the department of pathology of the University of Oxford, that, notwithstanding the heavy labor involved, typhoid inoculation be made at once compulsory throughout the British army. According to the writers, cholera and dysentery are even more dangerous than typhoid, but considerable protection can be conferred against them also by suitable vaccines; as to typhoid, they say that the facts are indisputable and plain enough to be within the comprehension of every intelligent person. There is no kind of question that inoculation properly carried out is protective against typhoid fever.

RECOVERY IN EPILEPSY.

Dr. W. P. Spratling and Dr. D. C. Mann, of Welaka, report (*Journal of Florida M. A.*, September, 1914) cures in two cases of epilepsy. Case I was of a white boy, eighteen years old, fisherman by occupation, who to save himself from chilling, was accustomed to drink two or three big cupfuls of strong coffee before going into the water. Case II was of a lad of sixteen years, his fits being attributed to delayed puberty and adenoids. In the second case the adenoids were removed, but the good results in both cases depended on careful dieting and supervised exercise. The bromides were not exhibited, but instead pure bromine (the writers call this a gas!) suspended in a heavy oil and made palatable *secundum artem*. This mixture is said not to have caused acne nor to have given rise to digestive disturbances.

PHENOMENA OF GUN DEAFNESS.

Dr. Athole Ross writes in the *Lancet* for September 5, 1914, on the prevalence of gun deafness among artillery men. He points out that the shock to the membrana tympani does not follow the law of simple proportion. The same impulse, it appears, is communicated by a nine pounder cannon at seven feet distance as by a sixty-four pounder at ten feet. This fact seems to be unknown to artillery men, who therefore approach the small guns too closely and suffer accordingly.

News Items.

Changes of Address.—Dr. William Van P. Garretson, to 53 West Eighty-fifth Street, New York.

Dr. Charles R. Jenkins, to 509 Bainbridge Street, Brooklyn.

Dr. Herman Friedel, to 318 Second Avenue, New York, after October 1, 1914.

Dr. Charlotte Blum, to Hunt's Point Building, 1,018 East 163d Street, New York, After October 1st.

Dr. Philip Sussman, to 13 St. Mark's Place, New York, after October 1st.

Dr. H. B. Jones, to 332 Lafayette Avenue, Brooklyn, N. Y.

The European Fund of the Red Cross Society.—Subscriptions to this fund received by the New York Branch of the American Red Cross Society amounted to \$158,162.70 on Tuesday, September 22d.

American Röntgen Ray Society.—At the fifteenth annual meeting of this society, held in Cleveland, Ohio, during the week of September 14th, Dr. Alfred L. Gray, of Richmond, Va., was elected president. Other officers were elected as follows: First vice-president, Dr. A. Howard Pirie, of Montreal; second vice-president, Dr. D. R. Bowen, of Philadelphia; secretary, Dr. W. F. Manges, of Philadelphia; treasurer, Dr. Leonard Reu, of Buffalo; chairman of the executive committee, Dr. George C. Johnston, of Pittsburgh.

The War and Continental Medical Journals.—The war has had serious effects on our exchanges. *Wiener medizinische Wochenschrift* has been the most regular, but not sufficiently so to make it useful to our readers. *Münchener medizinische Wochenschrift* is greatly reduced in size and spasmodic in its arrival. *Semaine médicale* has suspended publication and *Presse médicale* is reduced to a small feuilleton, containing mainly articles on war time surgery. Most of the French and German surgeons seem to have been drawn into the armies and no medical meetings are being held, the principal source of original communications. The *Deutsche medizinische Wochenschrift* and the Berlin periodical of similar name, have not been received since war was declared.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, September 28th, North Branch of the County Society, St. Agnes Hospital Clinical Society; Wednesday, September 30th, County Medical Society; Thursday, October 1st, Obstetrical Society; Friday, October 2d, Kensington and Southeast Branches of the County Society.

Additions to the Visiting Staff of the Philadelphia General Hospital.—On Saturday, September 12th, Director Harte, of the Department of Public Health and Charities of Philadelphia, announced the following physicians to be added to the visiting staff of the Philadelphia General Hospital: Dr. Alfred Hand, Jr., Dr. Theodore Le Boutilier, Dr. William Drayton, Jr., Dr. John B. Carson, Dr. Harry C. Deaver, Dr. E. G. Alexander, Dr. George S. Crampton, Dr. Albert C. Sautter, Dr. Clarence W. Schaeffer, and Dr. John P. Gallagher.

Personal.—Dr. Edgar F. Sewall has been appointed school physician of Somerville, Mass., to fill the vacancy caused by the death of Dr. Robert F. Gibson.

It is reported that Sir William Osler, regius professor of medicine at Oxford University, has been made an honorary colonel in the British army. This appointment gives Sir William an important place in the medical forces of Great Britain during the war, but it is not stated whether or not he has gone to the front.

Dr. Charles L. Bonifield, of Cincinnati, was elected president of the American Association of Obstetricians and Gynecologists, at the annual meeting of this association held recently in Buffalo, N. Y. Dr. J. H. Branham, of Baltimore, retired as second vice-president of the organization and was succeeded by Dr. K. J. Sayres, of Pittsburgh.

Michigan State Medical Society.—At the annual meeting of this society held in Lansing on Friday and Saturday, September 11th and 12th, under the presidency of Dr. Guy L. Kiefer, of Detroit, the following officers were elected: President, Dr. Reuben Peterson, of Ann Arbor; first vice-president, Dr. Louis W. Toles, of Lansing; second vice-president, Dr. A. W. Hornbogen, of Marquette; third vice-president, Dr. C. D. Munroe, of Jackson; fourth vice-president, Dr. V. A. Chapman, of Muskegon; counselor for third district, Dr. S. K. Church, of Marshall, delegates to American Medical Association, Dr. L. J. Hirschman, of Detroit, and Dr. H. H. Randall, of Flint; alternate delegates, Dr. J. D. Brock, of Grand Rapids, and Dr. A. E. Gall, of Pigeon, Mich.

The nominating committee was made up of Dr. S. B. Young, of Caseville; Dr. A. S. Kitchen, of Escanaba; Dr. W. B. Wallace of Manton; Dr. J. Walter Vaughan and Dr. W. A. Bird, of Detroit. Next year's meeting will be held in Grand Rapids.

Association of Military Surgeons.—The twenty-third annual meeting of this association will be held in Cincinnati, September 29th and 30th and October 1st and 2d. The program which has been arranged is unusually rich, the papers covering a wide variety of subjects and the topics selected for general discussion being of exceptional interest. Among the subjects to be discussed are the following which should prove of interest to medical officers of all the services: The Relation of the Medical Military Forces of the United States to Medical Research; the Necessity of a Uniform Organization of the Medical Department of the Several States and Territories; the Importance of All States and Territories Adopting the Records and Forms Now in Use by the Medical Department of the Regular Army; the Importance of Devoting More Time to the Preliminary Training of Medical Officers and Members of the Sanitary Troops. All sessions will be held at the Hotel Gibson, which has made special rates for the members of the association. An elaborate program of entertainments has also been arranged for visiting members and their friends. The officers of the association are: President, Brigadier General Charles Adams, of Chicago, National Guard (retired); first vice-president, Colonel Jefferson R. Kean, United States Army; second vice-president, Surgeon General Rupert Blue, United States Public Health Service; third vice-president, Medical Inspector George A. Lung, United States Navy; secretary, Brigadier General Samuel C. Stanton, Illinois National Guard; treasurer, Major Herbert A. Arnold, Pennsylvania National Guard; assistant secretary, Assistant Surgeon General William Colb Rucker, United States Public Health Service.

Adenoids and Tonsil Operations at Children's Clinics.—The Department of Health of the City of New York maintains four clinics for the operative treatment of adenoids and enlarged tonsils in school children whose parents are unable to afford the services of a private physician. Operations are all done under anesthesia, and the children are kept at the clinics until the following day. Heretofore the operations were done only three days a week, but the large number of patients applying for treatment has necessitated daily operations. During the week ending September 5, 1914, 137 nose and throat operations were performed at these children's clinics. The average number of operations performed for the three weeks preceding the inauguration of daily operations was 77.

A Carnival of Safety in Philadelphia.—The Home and School League, of Philadelphia, has arranged a carnival and convention of safety, which will be held at Convention Hall, September 26th, 28th, and 29th. The object of the carnival is to educate the public in matters relating to hygiene, sanitation, and alimentation, and an effort has been made to group the elements of danger, not only from the causes specified, but from hundreds of others, for the sole purpose of giving a comprehensive exhibition of factors of safety which would antidote them. Physicians have been asked to give the carnival of safety the support of their presence and encouragement.

Southern Health Exhibition.—In connection with the forty-second annual meeting of the American Public Health Association, in Jacksonville, Fla., November 30th to December 5th, there will be held a Southern Health Exhibition from November 27th to December 6th. At this exhibition will be shown material covering a wide range of subjects pertaining to health conservation, such as rural sanitation, typhoid, hookworm, tuberculosis, pellagra, malaria, school construction and medical inspection, infant and child hygiene, midwifery, vital statistics, milk and water supply, food and drug inspection, habit forming drugs, insect carriage of disease, fly eradication, plague prevention, rat extermination, and laboratory work, together with modern sanitary apparatus of every description. Aside from the general exhibition several especially attractive features have been arranged by the executive committee and a number of subjects pertaining to sanitary science will be exhibited for the first time. Dr. C. E. Terry, of Jacksonville, Fla., is chairman of the executive committee; Dr. H. Hanson is secretary, and Dr. P. C. Perry is treasurer.

News of the Medical Schools.—Dr. H. A. Stephenson, formerly assistant to Dr. J. Whitridge Williams, dean of the medical faculty and professor of obstetrics at Johns Hopkins University, has been appointed instructor in obstetrics and gynecology at the Stanford University Medical School, San Francisco. Dr. C. H. Bailey, of Columbia University, has been appointed instructor in pathology in the same institution.

The following faculty changes in the University of Illinois, College of Medicine, have been announced: Dr. D. A. K. Steele, appointed senior dean and head of the department of surgery; Dr. Charles Spencer Williamson, professor of medicine and head of the department; Dr. Charles Sumner Bacon, professor of obstetrics and head of the department of obstetrics and gynecology; Dr. Julius Hays Hess, associate professor of pediatrics and head of the division of pediatrics; Dr. Norval Pierce, professor of otology; Dr. Joseph C. Beck, associate professor of laryngology and rhinology and head of the division; Dr. Oscar Eugene Nadeau, instructor in surgical pathology; Dr. A. O. Shoklee, associate professor of pharmacology; Roy L. Moodie, Esq., instructor in anatomy, and Dr. C. S. Smith, instructor in physiological chemistry.

By the will of Liberty E. Holden, who died a few months ago, the medical department of Western Reserve University, Cleveland, Ohio, will receive nearly \$1,000,000, the fund to be known as the Albert Fairchild Holden Foundation.

Opening exercises for the sixty-fifth regular school year of the Woman's Medical College, Philadelphia, were held on Wednesday, September 16th. Dr. Clara Marshall, dean of the college, presided, and an address was delivered by Dr. Harriet L. Hartley, clinical professor of surgery. Higher standards of entrance requirements have been established at this college. Dr. Laura Hunt has been appointed professor of otology, to succeed the late Dr. Emma E. Musson.

Pith of Progressive Literature.

DERMATOLOGISCHE WOCHENSCHRIFT.

August 29, 1914.

Treatment of Eczema with Hot Baths.—Cæsar Philip says that he is accustomed to treat many cases of eczema of the hands, which in his patients seems to be an occupational disease. He has obtained good results in the following way: Whatever the form of the eczema, the patient washes his hands for half an hour morning and night in hot soap and water, as hot as can be borne. The hands are then thoroughly dried and Unna's compound ointment of resorcinol (resorcinol, ichthyol aa 5.0, acid salicylic 2.0, petrolatum ad 100.0) is spread thinly over the diseased parts, covered with a thick layer of cotton and bandaged on, or if the bandage is impossible because of the daily work, gloves are worn. This treatment is maintained for from four to eight days until the eczematous layers of the skin have been cast off and the itching has completely disappeared. For another week the hands are bathed in the same way for a quarter of an hour in the evening and then covered with a simple zinc paste or ointment, with the addition of oleum rusci day and night. A complete healing is usually obtained in from ten to fourteen days and it is only in rare cases that he has to treat recurrences, for which the same treatment is repeated.

ARCHIV FÜR SCHIFFS UND TROPEN-HYGIENE.

August, 1914.

Salvarsan in Tropical Diseases.—Grothusen prefers the intravenous to the intramuscular injection in the treatment of negroes, not only because it acts more quickly, but also because it does not frighten the patient so much. He reports one death from a total dose of 0.85 gram of salvarsan divided into three doses given intravenously in a muscular syphilitic. A cure was obtained from a single injection in 83.1 per cent. of the cases of frambesia, but several injections were needed in 16.9 per cent. Three recurrences took place within a year among eighty-three patients suffering from frambesia, and one of these had two recurrences in spite of treatment. He describes the *nutombo* form of frambesia, in which the soles of the feet alone are affected, not the palms of the hands. Salvarsan proved completely inefficient in four cases of trophic ulcer, and he found it of no effect in relapsing fever among the blacks. In this last finding this author differs from Klemm.

Treatment of Relapsing Fever with Salvarsan.

—Klemm says outright that salvarsan is a specific against relapsing fever. It may be given by either intramuscular or intravenous injection during an attack to shorten it. It may be given without danger when the fever is high; the temperature sinks by crisis, rarely by lysis, without producing signs of collapse. A permanent cure can be expected only when the remedy is given in the first attack, if possible on the first day, and a large dose injected into the veins. If given in subsequent attacks, or by intramuscular injection so that the effect produced upon the parasite is slow, or if administered in small dose, a permanent effect is never obtained; on the contrary, recovery is delayed.

LYON MÉDICAL.

June 7, 1914.

Removal of Cancerous Growths of the Orbit.—Rollet reports six cases of cancer of the orbit in which, after periods ranging from one to eight years subsequent to radical operation, no recurrence had taken place, with one exception. In this case, exophthalmos began to return over six years after the operation, but the growth of the recurrent mass was manifestly slow. The author lays stress on the advisability of early operation in these cases to retain the visual function; in two of his cases, although the operative result was entirely successful, vision had already been abolished through optic atrophy. In cases exhibiting exophthalmos without an apparent tumor, the author always performs an exploratory orbitotomy, first securing the lids together with two silk sutures, then making a curved incision outside of the orbital margin, breaking through the orbital septum, exploring with the finger, and finally shelling out the tumor. Even where the growth is palpable from the exterior, the incision should be, not over it, but at the orbital margin. In most instances, the growth is in a pocket between fascia and periosteum, and can therefore be easily removed. The prognosis is relatively favorable. In none of the author's cases was the least lymphatic involvement noted.

Freund's Operation in Emphysema.—Savy and R. Leriche report the case of a man sixty-eight years of age, with marked emphysema and slight pulmonary sclerosis, in whom excision of the left second, third, and fourth costal cartilages brought marked relief for over three months. The author considers the value of Freund's operation in simple emphysema conclusively shown by this case. X ray observations showed the truth of Freund's statements as to the existence of lesions of the costal cartilages in emphysema.

June 21, 1914.

Treatment of Acute Diffuse Peritonitis.—L. Arnaud reports the case of a man who had been kicked in the abdomen by a horse. When seen, twenty-four hours later, the patient showed no symptoms nor signs except pronounced rigidity. Upon the basis of this sign alone, the significance of which has been emphasized by Hartmann, a laparotomy was done, with the result that the small intestine was found perforated in two places, and a mixture of pus and fecal matter free in the peritoneal cavity. After resecting the perforated area of intestine about sixty grains of ten per cent. camphorated oil was introduced into the peritoneal cavity and the wound closed without drainage. Prompt recovery followed. Arnaud favors closure without drainage in all cases of diffuse peritonitis but the most severe, provided the source of the peritonitis, e. g., a perforation or a diseased appendix, can be completely eradicated and there is no doubt in the operator's mind that the sutures introduced in the gut will hold. Drainage does not prevent residual abscesses; such abscesses should be carefully watched for, whether drainage is used or not, and when found, appropriately dealt with. All patients should be placed in Fowler's position after operation, evacuation of the bowels secured, and palpa-

tion, including rectal and vaginal examination, under anesthesia if necessary, practised daily. Where the peritonitis is recent and there is little fluid in the peritoneal cavity, attempts to cleanse this cavity are superfluous. Where, on the other hand, much fluid, or pus, or false membrane is found, cleansing and drying of the peritoneum is indicated. Cleansing with gauze sponges is unwise, and irrigation is useful only in perforative cases in which much fecal matter and food have entered the peritoneum. In the average case the author uses an aspirator devised by Villard. In the few cases in which drainage is deemed advisable he uses merely a rather rigid rubber tube, dipping down into Douglas's pouch through a narrow suprapubic opening.

REVUE DE MEDECINE.

July, 1914.

Traumatic Shock or Asthenia.—R. Benon holds that from the purely clinical standpoint traumatic shock must be considered to be essentially asthenia, the latter, in turn, displaying two fundamental symptoms—amyosthenia, or a general muscular weakness with rapidly oncoming fatigue, and slowing in the processes of thought with impeded recollection of past events. The condition may be due either to physical pain, to concussion of the brain, to violent emotion preceding or, less often, following the traumatism, or again to a combination of these factors. Completing the clinical picture, and at times closely related to the asthenia, are symptoms such as constipation, indicating intestinal asthenia; bradycardia, or less frequently, tachycardia, each dependent upon asthenia of the heart muscle; slowing of breathing and general muscular action; headache; a sensation of heaviness in the head, tinnitus, and frequently general weakness and backache. In the more severe form of traumatic asthenia, actual stupor supervenes, in some instances after a period of complete unconsciousness. In the diagnosis, posttraumatic amnesia and mental confusion must be excluded. The prognosis of traumatic shock or asthenia should be guarded, especially from the medicolegal standpoint. Uncommon but grave complications, immediate or, less frequently, delayed, may occur, comprising protracted but curable traumatic asthenia; chronic traumatic asthenia; traumatic asthenomania, and periodical asthenia. Where the third of these conditions has existed, intermittent mania or periodic asthenomania, alternate or cyclic, may appear later.

Hepatitis Causing Edema.—P. Le Damany asserts that hepatitis is a frequent cause of edema, generally of the lower extremities, lumbar region, and peritoneal cavity (ascites), and sometimes extending to the thorax, arms, neck, and face. General anasarca appears usually at a late stage in hepatitis, but may also be noted at the beginning, in the precirrhotic period. Of thirty-six cases of hepatitis under the author's observation, seventeen showed edema. No constant cause was discernible in these cases; the majority were instances of alcoholic cirrhosis, but others were syphilis and tuberculosis of the liver. Among cases closely similar in other respects, some showed edema and others did not. There was constancy of time relationship between subcutaneous edema and ascites. In most instances,

the degree of edema followed rather closely that of the functional efficiency of the liver as regards urea production. Observation conclusively showed that edema was of neither renal nor cardiac origin. The author divides the cases into three groups, according as the edema is acute and yields rapidly to treatment, appears more slowly and yields only gradually or incompletely, or occurs at an advanced stage of the hepatic disease and persists unmodified until death. The cause is obscure. Evidence, however, shows it to be, at least, not of mechanical origin, but rather due to some form of intoxication arising through insufficient liver function, probably of protein substances, the resulting morbid products passing with relative difficulty through the kidneys and being therefore got rid of, diluted with saline fluids, in the subcutaneous tissues.

Radicular Sciatica and Its Treatment.—Dobrokhotoff reports twenty-two cases of primary radicular sciatica, different from ordinary sciatica, with involvement merely of the trunk of the nerve, being accompanied by symptoms of disease of the spinal nerve roots, sensory disturbances with a special, characteristic distribution, and motor disturbances, consisting of paresis, paralysis, and muscular atrophy. Sensory disorders were noted in all of the author's cases, and motor disturbances in six. Dobrokhotoff refutes Déjerine's view that Valleix's points and tenderness of the nerve trunks are not perceptible in this condition; these phenomena were, in fact, noted in twenty of his twenty-two cases. The author describes the treatment by mud and salt baths applied in his cases at Saki, in Crimea. In view of the distressing and persistent nature of the affection, the fact that distinct relief was afforded in most instances is in favor of this treatment, which the author advises in all cases before surgical measures are resorted to.

BRITISH MEDICAL JOURNAL.

August 29, 1914.

Causes of Blindness in Children.—N. Bishop Harman classifies the causes of blindness in a series of 1,100 children into three groups: Injury or destruction of the cornea through surface inflammations; inflammation within the eyeball or optic nerve; congenital defects of the eyes. Surface inflammation involved the eyes of 351 children, and of this number no less than 266 had ophthalmia neonatorum, giving a proportion for this disease of twenty-four per cent. of the total cases of blindness. Only forty-seven cases were due to purulent conjunctivitis of later years, and thirty-eight to phlyctenular keratitis. Syphilis was the cause of 190 cases of interstitial keratitis, of 126 cases of disseminated choroiditis or other blinding lesion of the posterior half of the eyeball, and of sixteen cases of congenital blindness. Syphilis, therefore, accounted for a total of 343 cases of blindness, or 31.7 per cent. of the whole 1,100 cases, or of considerably more than were due to gonorrheal infection. This is in part the result of the recent more or less general use of some prophylactic agent in the eyes of the newborn to prevent gonococcal infection. Since 1904 the figures show that there has been a definite reduction in the proportion of cases of blindness due to the gonococcus while the pro-

portion due to syphilis has risen. This rise is attributable mainly to two factors; the reduction in cases due to ophthalmia neonatorum and a greater accuracy in the diagnosis of syphilis, and there is no evidence in the statistics to warrant the conclusion that hereditary syphilis is increasing. The grand result of this examination of causes of blindness, says Harman, is that more than one half of the children owe their miserable state to venereal disease in their parents.

Heredity in Myopia.—James Alexander Wilson's arguments are based upon his analysis of 1,500 consecutive cases. Fifty-nine per cent. of the cases among school children were in girls; the proportion rises toward the age of puberty and continues to increase. Of the total 1,500 cases considered, the females numbered nearly twice as many as the males. A part of this disproportion can be accounted for on the theory that more women than men apply for treatment. Ten per cent. of the patients stated that their visual defect appeared between the ages of sixteen and thirty-five years. The element of heredity has been traced in these 1,500 cases by the search for evidence of myopia in one of the parents or more distant blood relations and was found positive in fifty-eight per cent., twelve per cent. being accounted for by keratitis, and thirty per cent. being eliminated by the impossibility of obtaining evidence. There was evidence of heredity in sixty-five per cent. of the cases of low myopia, in sixty-six per cent. of medium myopia, and in sixty-seven per cent. each of high and very high myopia. The several degrees of myopia and the several occupations of the patients gave about the same evidence of heredity. When the myopia is clearly hereditary it may occur in any degree, but the low degrees are more frequently hereditary than the higher ones. There seems to be no absolute proof of the belief that myopia may be the result of near work alone, and the author believes, rather, that this constitutes the environment which brings out the hereditary predisposition. When both parents are myopic, then the defect is very prevalent among the children; it is less when only one parent is myopic, and still less when the heredity is collateral. There is irregularity of incidence in individual families, but this is to be expected, as one or both parents may carry an unexpressed hereditary tendency to myopia, or one may be hypermetropic; but when taken collectively this irregularity is not evident. Similar hereditary characters were found by the author in the case of hypermetropia and he says: Hypermetropia is the congenital condition, or the starting point, and the line that subsequently divides hypermetropia from myopia is arbitrary. Perhaps these variations should be considered together, and the question would then be the size of the eyeballs, a quantitative character that would probably come under what biometricians call the law of ancestral heredity, or average ancestral resemblance.

Pellagra in Childhood.—Charles R. Box reports an interesting case of typical pellagra occurring in a child four and a half years old who had been born and had always lived in England. The disease made its first appearance when the girl was

only twenty months of age, and the typical eruption on the exposed skin areas had recurred each spring since the onset. In addition to the rash the child showed tremor and jerky movements of the extremities, characteristic of the nervous type of pellagra.

Simple Method for Quantitative Determination of Glucose.—A. F. Dimmock gives his simplified method in the following words: The urine is diluted twenty times, that is, ten c. c. of urine is measured and poured into a 200 c. c. flask; this is made up to the 200 c. c. mark, and the whole well shaken. A solution of potassium carbonate, two ounces to six ounces of distilled water, is filtered and made up to eight ounces. To twenty c. c. of the diluted urine ten c. c. of the potassium carbonate solution are added in a small flask, boiled carefully for three minutes, and when cool made up to a definite amount, say fifty or 100 c. c. with distilled water. In order to estimate the amount of sugar present a solution of pure glucose is prepared, one gram in 200 c. c. of distilled water; twenty c. c. of this and ten of the potassium carbonate solution are boiled together in a small flask for three minutes, and when cool made up to fifty c. c. or 100 c. c. The two solutions are then compared by holding the glass tubes over a piece of white paper at an angle of forty-five degrees. By pouring the liquid from the known solution into a measure glass until the tints of both are alike, and observing the amount of the known glucose solution used, the percentage can be readily determined. For example, if twenty-seven c. c. of the pure glucose solution was required for the solution, then, multiplying by two, we obtain 5.4 as the percentage of glucose in the urine. It is the hope of the author that it will be possible to prepare a colored glass test object for comparison with the unknown urine. Of course it is necessary to remove the albumin from the urine by heat and acetic acid before the test is made. The urinary pigments seem to have no effect, but these could be removed easily by precipitation with lead acetate and filtration.

LANCET.

September 5, 1914.

Signs of Hypothyroidism in Children.—J. Lawson Dick says that a considerable proportion of children who are subjected to operation for enlarged tonsils and adenoids present more or less typical signs and symptoms of rickets. They are often mentally dull, the skin is dry and rough, nasal and bronchial catarrh is frequent, circulation is sluggish, the hair is coarse, the speech defective, the bones are soft, and the incisor teeth frequently are jagged, with defects in the enamel and an exposed edge of dentine. Precisely similar signs are very constant in cases of obvious deficiency of the thyroid secretion, and these children also show signs of hypertrophy and excessive activity of the thymus, or a condition of lymphatism. A further analysis of the relations between thyroid and parathyroids, thymus and frequency of disturbance of these relations in rickets, leads the author to state: This would suggest that in some disturbance of action and interaction of the thymus, thyroid, and

parathyroid glands, we have probably the true explanation of the cause of rickets. Formerly it was taught that if you found that a child had been brought up on the breast you could for all practical purposes exclude rickets. But this has not been the experience of the author, for constantly, in school work, a succession of breast fed children are encountered who are frankly rhachitic. Dick seeks the explanation of this fact in the evidence that the parents of such children have lived in want and unhygienic surroundings and that the mothers were suffering from deficient thyroid secretion during the period of lactation. This depraved condition reacts detrimentally on the children, and its effects are increased after the breast feeding has been ended, by the malign influences of bad living and poor food. The poor quality of the mother's milk is not alone sufficient to explain the occurrence of rickets in these cases, but it is a powerful contributing factor. It is generally recognized among mothers that the children become much stronger when they reach the age of seven years, and this is probably due to the fact that from this age on these children have greater freedom and live in the open air and sunshine of the streets, both of which factors seem to exert a beneficial influence on the development and activity of the thyroid.

BRITISH JOURNAL OF CHILDREN'S DISEASES.

August, 1914.

Auricular Flutter in Acute Rheumatic Carditis.

—Sutherland considers the condition of the myocardium, especially of the left ventricle, of greater importance in the prognosis of acute rheumatic carditis than that of the pericardium and endocardium. Another factor which plays an important part in the cardiac failure is the development of an abnormal rhythm. This may be present and not be detected by the ordinary bedside methods of examination, an electrocardiograph or polygraph being necessary to show arrhythmia. The irregularity may consist in an abnormal rhythm of the auricles, the latter contracting two or three times as frequently as the ventricles. The probable explanation is that the ventricle cannot respond to every one of the auricular stimuli owing to their rapidity. The auricular contractions may reach as high as 400 to 500 a minute in children; in adults no such high rate has been reached. Many of the auricular contractions take place when the ventricle is in systole and, as a result, blood is forced back into the veins. The presence of this abnormal form of rhythm might be indicated by: 1. Attacks of cardiac asthma occurring suddenly without accompanying variations in the cardiac condition; 2, a triple or galloping rhythm heard on auscultation; 3, pericarditis without effusion and without respiratory distress; 4, dyspnea, cyanosis, and enlargement of the liver out of proportion to the physical signs of the heart; 5, the presence of pulsus alternans.

Splenomegalic Anemia with Infantilism.—

Weber reports a case of this kind in a boy who showed marks of infantilism and whose spleen reached down into the pelvis. The urine gave reactions for urobilin and urobilinogen, but not for indican. The blood count showed no great change from the normal; a few normoblasts being present,

however. Moderate swelling behind and below the malleoli of the right ankle appeared in the course of the disease and the blood examination at this time showed the presence of a larger number of normoblasts. At the time of his death there was no jaundice, but anemia and dropsy were present. His early history was that he was very yellow at birth, a slight yellowness of the sclerotics persisting. He had periods of depression in which he became more yellow and passed dark brown urine. Occasionally on blowing his nose blood appeared on his handkerchief, but he never had true epistaxis. He had purpura at the age of five years. Examination of the blood showed the presence of a few normoblasts at times, anisocytosis and polychromatophilia were present, the cells being smaller than normal. The blood serum had no hemolytic action on the red corpuscles of a healthy individual or on the red corpuscles of the patient himself (no autohemolytic action). The blood volume was increased. One sister died at the age of one year and eight months of the same disease. These cases have to be differentiated from the Gaucher type of splenomegaly. In the latter, however, infantilism has never been observed.

PRACTITIONER.

August, 1914.

Leucoplakia.—Arthur E. Parker says that it seems to him that the very pessimistic views as to the inevitable transition of leucoplakia into carcinoma have perhaps been overdrawn. It is a condition to be watched carefully, and one which justly excites uneasiness; but it is another thing to take for granted that it is always the precursor of cancer, and to attack it at once by wide reaching excision of the part itself and of the glands likely to be involved.

The Intermittent Pulse.—B. T. Parsons Smith presents an excellent paper on this subject, of which these brief notes convey a very inadequate conception. He formulates the theory that respiratory excursions influence the heart, causing a rhythmic irregularity of its beat, and that such an irregularity is not pathological in nature. He is convinced that all children exhibit the arrhythmia in varying degree and predominate over the adult because in them the nervous system innervating the cardiac movements is less stable and more easily influenced by stimuli arising simultaneously in the neighboring medullary centres. Next he deals with the intermissions due to prolonged digitalis medication, which he classifies as conduction changes, alterations in rhythm, and variations in irritability. Other agencies that produce similar intermissions are excessive tea or coffee drinking, severe lead poisoning, persistent dyspepsia, and excessive smoking. After a short discussion of sinus irregularities and intermissions, he passes to intermissions due to extrasystoles which he classifies as ventricular, auricular, and premature junctional contractions. Under intermissions due to auricular fibrillation, he points out the following possible fallacies: Auricular fibrillation once appearing does not always remain, the normal rhythm may reassert itself, in fact in some cases the condition is one of a paroxysmal nature. Fibrillation and heart block may be present

together, in which case the pulse is slow and regular. 2. Any attempt to estimate the heart rate by counting the radial pulse usually leads to error, for numerous small beats at the wrist are not palpable, and it frequently happens that the ventricle contracts insufficiently to force open the semilunar valves, in which case no arterial pulse is produced at all. A patient suffering from auricular fibrillation is not necessarily confined to bed; he may be, and frequently is well enough to be up and about, his irregular cardiac action persisting and invariably becoming more marked when any undue exertion is undertaken. He then describes three stages of heart block, and directs special attention to important concomitant signs, remembering the extremely retarded ventricular action of complete heart block—the absolute pulse regularity prevailing, and the paroxysmally occurring pulse retardation, which give rise to intermissions of varying lengths. Two methods are applicable for the diagnosis of the condition: The visual, in which a careful observation at the root of the neck demonstrates two or even three venous pulsations to every one felt in the radial at the wrist; the graphic, by the use of either the polygraph or the electrocardiographic apparatus. A combined tracing by the former instrument brings out lucidly the slowness of the ventricular action and its extreme regularity, as well as an irregular venous pulse, in which the auricular waves follow one another with perfect regularity, not always however being sharply isolated, but at times combining with other waves, either the *c* wave or the *v* wave.

Treatment of Diphtheria.—J. Johnstone Jervis and V. C. Martyn say that it has been stated by some authorities, and is believed by many medical men, that liberal doses of antitoxin are responsible for many of the bad aftereffects or sequels of the disease. This has not been their experience, and they also find that any temporary ill effects, such as rashes or joint pains, are as apt to be produced by a small dose as by a large one. Giving bicarbonate of sodium in severe cases serves two purposes: In all bad cases, especially when the tonsils and fauces are involved, there seems to be a pronounced interference with fat metabolism in the liver, resulting in the appearance of diacetic acid and acetone, especially the latter, in the urine, while at the same time there is a marked accumulation of fat in the heart, liver, and kidneys, and it is to this change, which is progressive, that the vomiting, the irregularity of the heart, and its failure, are probably due. The administration of bicarbonate of sodium subcutaneously, by mouth, or by rectum, has proved of great benefit in many of these cases, and in nearly all it has reduced the vomiting considerably. Further it is grateful to the patient as a drink, and it helps to clean the tongue and throat. Adrenaline chloride is not given to raise the blood pressure, but to keep it from falling. It is therefore given in small doses of constant strength at regular intervals from the very beginning of a case, and its administration is persevered in until the circulatory system has recovered its tone. It is a grave error to give adrenaline chloride or any other substance with a like action toward the end of a case, or in large doses at occasional times only. To

do so is simply to add to the load to be overcome by an already failing heart, and to run the risk of bringing the whole of the machinery to a sudden stop.

CANADIAN MEDICAL ASSOCIATION JOURNAL.

August, 1914.

Infant Mortality.—Alan Brown and George Campbell review what is being done throughout the world to reduce infant mortality. The number of deaths in a thousand infants in the various countries gives an idea of how great mortality is. The mortality ranges in different countries from less than one in ten, to two, three, or even more in ten of the babies born. To reduce this mortality, they suggest first an absolute enforcement of the law requiring registration of births. Next they state that several things are essential to the successful operation of a milk depot. The work must be done by physicians, not by trained nurses or social workers. The physicians themselves must be properly trained for their task, and must be paid for it. The best results cannot be obtained by placing this responsibility on voluntary workers. The milk depot, unless properly conducted, by increasing the facilities for artificial feeding, may tend to discourage maternal nursing and possibly increase infant mortality. While the distribution of clean, pure milk is important, it should be realized that the instruction of the mother and continuous observation of the child play a larger part. Everything possible should be done to encourage breast feeding and to aid it. The inexperienced mother is thus guided not by the advice of ignorant and superstitious relations or friends, but by an intelligent and experienced person who not only tells her what to do, but shows her how to do it. The expenses of conducting milk depots and consultations upon a large scale is so great that private philanthropy cannot be expected to bear it. They should be supported by the municipality. In this way standardization of methods, proper supervision, and cooperation may all be secured. A milk depot and visiting nurse should be available for every twenty thousand inhabitants.

BOSTON MEDICAL AND SURGICAL JOURNAL.

September 10, 1914.

Syphilis.—Abner Post calls attention to the difficulty of estimating the amount of syphilis in the community; in fact it is very much more than a venereal disease. In hospitals there is the difficulty of reconciling the rule that venereal diseases shall not be admitted with the impossibility of excluding their aftereffects; another difficulty is the determining which cases are infectious and which are not. Knowledge of the disease is not taught as it should be in medical schools; in the catalogues of many it is hard to find any evidence that it is taught at all, and when it is taught, emphasis is laid upon its venereal rather than on its character as a chronic and constitutional disease. Too often it passes unrecognized. Few figures on syphilis are available; it is a disease that is purposely hidden and never mentioned by name when it can be avoided. He speaks of the deaths of eighty-six children, all or most of whom died more or less directly from syphilis, and yet syphilis was

returned as the cause of death in only two. The disease is widespread and deserves serious attention.

Syphilis of the Eye in Hereditary Syphilis.—George S. Derby makes the point that interstitial keratitis is one sign of a serious general disease, and that in a certain small, but definite, percentage of cases the ocular process represents at that period of the patient's life the only demonstrable evidence of his hereditary disease. A case of interstitial keratitis is a guide post to a syphilitic focus in the community. Seek out the family and see that all who need treatment are put in the way of getting it. Possibly a certain number of cases of interstitial keratitis and late lesions of hereditary syphilis may be prevented by improved methods for the discovery of syphilis in children, and early discovery means early treatment.

Syphilis of the Bloodvessels and of the Heart.—George G. Sears says: In the veins the adventitia bears the brunt of the infection and a periphlebitis results, which often presents a definite clinical picture that seems to be overlooked more often than diagnosed. Syphilitic disease of the arteries may manifest itself by a general arteriosclerosis, suspicion of its specific nature being more actively aroused the more prematurely it is manifested in the life of the patient. The clinical phenomena are those which are common to the condition, whatever its origin. Endocarditis due to *Treponema pallidum* resembles more closely toxic endocarditis than the common forms due to infection. The subendothelial connective tissue becomes infiltrated, and the most common clinical manifestation is aortic regurgitation, which is more often due to syphilis than to all other causes combined. No symptoms of syphilitic cardiac disease are pathognomonic, but even if a positive diagnosis cannot be made, the importance of inaugurating treatment early is so great that a probability, perhaps even a possibility, that the symptoms are due to syphilis should be met by active antiluetic medication controlled by the Wassermann reaction, though not to the exclusion of one's clinical common sense.—C. Morton Smith says that the importance of primary syphilis of the tonsil is not so much its frequency as the possibility of its passing unrecognized by the physician and unsuspected by the patient. One should always look with suspicion on a sore throat that has lasted over two weeks, which does not respond to the treatment of simple angina, which is accompanied by pronounced glandular enlargement on one side only. Many physicians have failed to recognize or interpret the importance of this sign, which explains why the satellite bubo of tonsil chancre has been incised for cervical abscess and no pus found, or mistaken for tuberculous glands and carefully excised.—E. A. Burnham says that syphilis produces in the lung pathological changes which in turn produce symptoms and physical signs which are identical with those produced by pulmonary tuberculosis, two conditions that are confounded by our most skilled diagnosticians. Great injustice is done the patient, and great suffering often inflicted upon his family by sending cases with lung syphilis to tuberculosis sanatoriums. Greater care needs to be exercised in

differentiating the two conditions, especially when there are signs of infiltration and open lesions in which tubercle bacilli cannot be demonstrated.—David L. Edsall in the relation of syphilis to internal medicine says that there is a much greater frequency of gastrointestinal manifestations of syphilis than we have thought until very recent years. They may be very marked in the entire absence of any of the ordinary clinical signs of syphilis of the central nervous system, or when these signs are very slight. He gives a number of illustrative examples.—Thomas B. Shea in considering what the city should do to control syphilis, says that the disease should be fought along the same lines as tuberculosis. It should be added to the list of diseases declared dangerous to public health and therefore notifiable. Laboratory facilities should be provided and the cases supervised. It should be fought from a health standpoint entirely, with the same methods that are now in use for other infectious diseases.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

September 12, 1914.

The Diet in Typhoid Fever, by L. F. Barker.—This paper was abstracted in our issue for July 4th, page 46.

The Effects of Food on Metabolism in Typhoid Fever, by Warren Coleman.—This paper was abstracted in our issue for July 4th, page 46.

The Use of Atophan and Radium Emanation in the Treatment of Gout and the Arthritides, by A. F. Chace and M. S. Fine.—This paper was abstracted in our issue for June 27th, page 1307.

Focal Infection in the Etiology of General Disease.—Frank Billings finds that to the now well known relation of focal infection as a chief factor in the etiology of acute rheumatism, chronic deforming arthritis, gonorrheal arthritis, malignant arthritis, endocarditis, myositis, myocarditis, septicemia of various bacterial types, pneumonia, tuberculosis, nephritis, and visceral degeneration, we may add certain infectious types of thyroiditis, pancreatitis with or without glycosuria, peptic gastric and duodenal ulcer, and cholecystitis. With the defenses of the body diminished from various causes, the individual may suffer from any one of the infections mentioned, depending on the phase of mutation in pathogenicity, and affinity of the strain of the streptococcus and pneumococcus group, in the focus of infection. These principles are important because proper management may prevent the systemic disease and guide one in its proper treatment. Recognition and removal of chronic foci anywhere in the body is imperative as a prevention of progressive ill health. Thereafter the management must be individual, based on the character and location of the infection. The attempt to immunize the patient against the infection must be attempted by restorative measures, food, pure air, passive and active graduated exercise, hematinic and other tonics, optimistic surroundings, etc. Autogenous vaccines may be used with rational reservation.

Fractional Study of Gastric Digestion, with a Description of Normal and Pathological Curves.—M. E. Rehfuess, O. Bergeim, and P. B. Hawk conclude: 1. By means of the modified gastric tube we

can study the entire cycle of gastric digestion, recording both secretory and motor activity. 2. We can construct a curve which graphically records the entire course of digestion. 3. The amount of the secretion can be measured at any point by complete aspiration and by the character of the specimens obtained. 4. There is no specific curve for the normal person, but three types of curve can be found depending on the rapidity of reaction to a given stimulus, the height of the curve, and descent of the curve. 5. These types may be termed, respectively, the hypersecretory, hyposecretory, and isosecretory. 6. Figures approximating those commonly regarded as hyperacidity are to be found in some period of the curve in a large number of normal persons. 7. A "continued" secretion is described in normal persons which is intimately linked with alimentary and chronic hypersecretion, but can be distinguished from them. 8. The value of this method in various pathological states is emphasized, and a limited number of cases are reported, with their findings. 9. The technic commonly employed for estimating gastric function is entirely inadequate, inasmuch as it indicates but one phase in a constantly changing cycle, and that phase by no means always the high point in the digestive curve. 10. The authors insist on the great advantages of their method, which, correlated with various tests performed on different samples, as well as with special tests described by them, enables one to make a more perfect study of the digestive cycle than has hitherto been possible.

Desiccation Treatment of Congenital and New Growths of the Skin and Mucous Membranes.—W. L. Clark says: 1. Desiccation (with high tension electric currents) is a successful treatment for all accessible benign neoplasms or lesions of the skin and mucous membranes in which destruction of tissues and good cosmetic results are desired. All such lesions may be regarded as precancerous. 2. Desiccation is curative in the great majority of localized malignant lesions of the skin and mucous membranes. In the more advanced cases the efficiency is increased by combining it with the Röntgen rays, attention being paid to accurately measured doses. 3. Desiccation is only palliative in cancerous lesions associated with glandular metastasis, in postoperative recurrences, and in cases too far advanced for operation. The use of desiccation and the Röntgen rays in some of these cases is justifiable, because sometimes excellent results are obtained.

MEDICAL RECORD.

September 12, 1914.

Physiology of Gastric Motility.—W. J. Mallory thinks it apparent that gastric motility is not a simple, but a complex function. Through the autonomous neuromuscular mechanism the stomach is capable of performing its motor functions in an essentially normal manner even when separated from the central and sympathetic nervous systems by section of the vagi and both splanchnic nerves. Normally these functions are modified by many extrinsic influences. Motor impulses, and impulses increasing tonus and peristalsis, pass through the vagus nerves; they are augmented by mental excitement and impaired by physical exhaustion. Inhibitory influences, reducing tonus and peristalsis, pass

principally through the splanchnic nerves; they are increased by mental depression and impaired by the internal secretions of the adrenals. The functions of the pyloric sphincter are under control of conditions in the stomach, are modified by nervous reflexes from the small intestine. Agents that have a definite, therapeutic effect on gastric motility are: Heat and cold applied to the abdomen externally; abdominal massage; atropine, physostigmine, and pilocarpine, either by mouth or subcutaneously; pituitary and suprarenal extracts intravenously. Surgical operations performed on the stomach for the purpose of facilitating the discharge of gastric contents are sometimes only a partial success, or even an entire failure, when planned and executed in conformity rather with anatomical relations than physiological considerations.

Present Management of Syphilis.—C. M. Williams says that every case, especially in the early stages, when the chance of complete recovery is best, should be treated with both salvarsan and mercury, unless there is some special contraindication to one drug or the other; and treatment should be continued in courses of from four to seven weeks, with intervals of about six weeks, until all symptoms have disappeared and the Wassermann reaction is negative.

Neglect of the Aged.—I. L. Nascher says it needed the pen of a Dickens to rouse the public conscience to the neglect of the dependent child. Could some Dickens of our time, with equally forceful and persuasive pen, study and expose the conditions in our almshouses and asylums for the aged, he might with equal success rouse the public conscience to the neglect of the aged. As interest in the dependent child led to scientific study of child welfare, so might an interest in the dependent aged lead to scientific study of senility, of the needs and wants, the peculiarities and infirmities, the happiness and welfare of the aged. There is not, so far as he knows, any organization taking up the scientific study of the aged, not a journal devoted to their welfare, no movement of any kind for their betterment; while their medical care has received but little attention. The aged in institutions are dealt with as they have been for generations, though here and there some official who possessed the initiative and determination, coupled with sympathy and common sense, has introduced innovations tending to make his charges healthier and happier.

Tuberculosis of the Sclera of Probable Primary Origin.—G. H. Bell remarks that, notwithstanding all our advanced methods, we cannot state that any case of tuberculosis of the sclera is primary, though the preponderance of evidence in this instance indicates that such is the case. His patient recovered after fifty injections of tuberculin. From his experience in treating scleritis, sclerosing keratitis, and anterior uveitis with tuberculin, he has found that it is unnecessary to increase the dose to the farthest limit of tolerance. He believes strongly in small doses at first, gradually increased, and continued over a long period. Well directed tuberculin treatment constitutes a marked therapeutic advance.

Syphilophobia.—D. W. Montgomery believes that, on account of the publicity recently given to

venereal diseases, syphilophobia is becoming more frequent. He cites a case exemplifying many of its characteristics. The patient, who when seen, had a small patch of seborrheic eczema on the cheek together with a herpes of the lip, stated that some time previously a sore had appeared on the lower lip, accompanied by sore throat and headache. The results of serum tests were negative.

LANCET-CLINIC.

September 12, 1914.

Paramyoclonus multiplex.—Hoppe quotes Friedreich, who described this form of myoclonia, "characterized by quick lightninglike contractions of muscles, clonic, rhythmic in character, and affecting symmetrically grouped muscles." The etiology is obscure. Infectious disease, trauma, and fright have been looked upon as possible causes. It is observed by some that myoclonia develops on a basis of neurotic or psychopathic degeneracy. The pathological findings are not definite. Myoclonia may be due to an increased irritability of the lower motor neuron, more especially the cells of the anterior horn. As the contractions are of single muscles, the cortical origin of the impulses can be ruled out. A part of a muscle, a whole muscle or a group of muscles may be affected. It usually occurs bilaterally in symmetrically situated muscles and may affect the muscles of the trunk or extremities. The face muscles are either slightly affected or not at all. The spasms are severe, occur in series, and follow each other quickly in great numbers. During the interval the muscle may be at rest. The spasm is clonic and may be repeated forty to 160 times a minute. They occur spontaneously and are accentuated by fatigue. They cease during sleep and are increased by strong emotions. Lying in a horizontal position increases the duration and severity of the attack. There is no change in the mechanical or electrical excitability; the tendon and skin reflexes are usually exaggerated and the sensation is normal. A form of myoclonus which is combined with epilepsy and often terminates in dementia has been described by Unverricht. It is progressive, becomes more or less constant, and interferes with the voluntary movements of the muscles. In this type the mechanical and electrical excitability of the muscles and nerves is increased. In making the diagnosis of paramyoclonus multiplex, it must be differentiated from hysteria. In the former, the contractions cannot be reproduced by any effort of the will, consciously or subconsciously. The hysterical contractions are more tonic than clonic and have an appearance of design or gesture. In paramyoclonus, consciousness, motor power, sensation, coordination, and electrical excitability are normal, which is not the case in hysteria. The prognosis varies as the condition may persist, subject to intermissions, as a chronic disease, and on account of its duration the prognosis would have to be considered grave. In the treatment of this condition thyroid extract and thyroïdin have been used, but the value of these remedial agents has not been definitely established. The theory has been advanced that the spasms are the expression of an autointoxication and if any associated disease is found causing either the production

of toxins or defective elimination this should be attended to. Proper diet, habits of exercise, and the drinking of large quantities of water before meals will help to overcome fermentation and decomposition in the intestinal tract. Lavage of the colon, intestinal antiseptics, and cathartics are also indicated. Arsenic in the form of intramuscular injections of cacodylate of sodium answers a twofold purpose—the tonic effect of the arsenic plus its antiseptic action on the colon. It is best administered in the gluteal muscles in doses of 0.05 to 0.1 gram daily for six days; then every second day until twenty-four doses have been given. As sedatives, valerianates during the day, chloral and the bromides at night, twenty to thirty grains of the former and forty to sixty grains of the latter. Galvanism of the brain and spinal cord administered through a rheostat for a period of ten minutes has given good results. Galvanism of the brain should be short in duration, one to two minutes, one electrode being placed over the frontal region and the other on the neck. The current should be weak and gradually introduced and withdrawn. Psychotherapy is indicated if there is an hysterical basis.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

August, 1914.

Syphilis of the Liver, Imitating Cirrhosis.—W. F. Cheney describes six cases and states that the lessons to be learned are the following: 1. In any case which appears to be hepatic cirrhosis, judging from clinical history and physical signs, the blood should always be examined for syphilis. If the Wassermann reaction is positive, vigorous specific treatment will often produce marvelous improvement not to be expected in any other way; but even when the reaction is positive, the liver disease may not be syphilitic, and so specific therapy may prove of no avail; yet, at the same time, the therapeutic test will have given valuable information and have done no harm. 2. There is no certain way to tell which case of hepatic cirrhosis is syphilitic, and which is not, except by the blood test. 3. Syphilitic cirrhosis of the liver is a common form of hepatic disease, and must never be forgotten in the differential diagnosis of any case where symptoms and signs point to the liver as the organ involved.

Syphilis of the Vertebral Column.—J. R. Hunt concludes: Syphilitic spondylitis and perispondylitis, though rare, are nevertheless sufficiently frequent to be given careful consideration in every case of acute or chronic vertebral disease. The onset may be sudden, simulating an acute rheumatic affection, or it may develop gradually and run an exceedingly chronic and protracted course. Localization in the cervical region, especially, should awaken the suspicion of syphilis, as more than half of the recorded cases are of this region. It may, however, occur in any portion of the spinal column. Of 100 cases available for analysis, he found that twenty-five per cent. were associated with some complications of the nervous system. These were either of the nerve roots and plexus or of the spinal cord itself. Generally speaking, in this group of cases with neural complications, the symptoms in two thirds indicated a lesion of the

spinal cord; in the remaining third, the neural symptoms were limited to an involvement of the nerve roots or plexus.

Syphilis of the Esophagus.—U. J. Wile expresses the opinion that syphilitic esophagitis is not so infrequent as the rather scanty literature on the subject would seem to indicate. It is not improbable that many cases in which the patient dies in cachexia, supposedly with carcinoma of the esophagus, are instances of death from marasmus as the result of syphilis. It goes without saying that any case of esophageal stricture or tumor should not escape a most careful scrutiny, with a view to its possibly syphilitic nature. The prognosis of the condition seems to depend entirely upon the time at which it is recognized. Its treatment must be a most energetic one. Up to the present time mercury and iodide have been of service in those cases in which a good prognosis could be looked for. In any event, the esophagus should be carefully sounded after the antisiphilitic treatment, and the contraction, if there is one, gradually dilated, much in the same way as in the treatment of urethral stricture.

Pituitary Disease: A Clinical Study of Three Cases.—A. D. Dunn sketches the results of failure of the pituitary gland to discharge its particular functions in metabolism, growth, and sexual life. 1. Affections of the pars anterior: Superfunction—acromegaly, gigantism. Subfunction—true or pituitary dwarfism. 2. Affections of the pars posterior: Superfunction—diabetes insipidus. Subfunction—hypophysial obesity (dystrophia adiposogenitalis). 3. Mixed affections: Superfunction of pars anterior with subfunction of pars posterior. Subfunction of both lobes—dwarfism with hypophysial obesity. 4. Hypophysial disturbance in conjunction with perverted activity of other glands. Ovarian or testicular subfunction with: 1. Superfunction of pars anterior—acromegaly with sexual impotence—eunuchoid giants. 2. Subfunction of pars anterior—pituitary dwarfism with sexual impotency. 3. Subfunction of pars posterior—dystrophia adiposogenitalis—genital obesity. Associated with disturbances in the functions of other ductless glands, i. e., adrenals, pancreas, thyroid, pineal gland, thymus (status thymolymphaticus), etc.

THERAPEUTIC GAZETTE.

August 15, 1914.

Treatment of Interstitial Keratitis.—Appleman outlines the treatment of this condition as follows: Locally, atropine to dilate the pupil, preventing posterior synechia, should iritis be present, and putting the ciliary muscle at rest. Dionin in two to five per cent. solution to diminish pain and to help in the absorption of inflammatory exudate. Hot compresses also help to diminish pain. Leeches may be employed. Dark glasses should be worn to overcome the photophobia. Treatment is to combat the underlying cause, usually syphilis, occasionally tuberculosis. Most cases do well under mercury to the point of tolerance followed by the iodides. Probably the best way to employ mercury is by inunction, one dram of mercurial ointment daily, preceded by a hot pack. Salvarsan is now used with

good results, four to six injections of three to six grains each being given at three to four week intervals. Intramuscular oily injections of salvarsan may be employed. Tuberculin has helped in those cases in which tuberculosis is the causative agent. Constitutional treatment in the form of arsenic, iron, and codliver oil; also good food, healthful surroundings, and outdoor exercise. Iridectomy may be necessary, if a dense central opacity remains, or if the intraocular tension increases and glaucoma threatens.

Treatment of Cerebrospinal Syphilis.—Jefferson reports a case of locomotor ataxia treated with intraspinal injections of salvarsanized blood serum. The man had previously been treated with mercury in the form of inunctions and hypodermically, with potassium iodide and salvarsan intravenously without showing any improvement. The salvarsanized blood serum was obtained as follows: One hour after intravenous administration of salvarsan forty c. c. of blood serum were withdrawn and placed upon ice for twenty-four hours, allowing the serum to separate. The serum was then centrifugated and twelve c. c. mixed with eighteen c. c. of normal saline solution, making a forty per cent. solution of salvarsanized blood serum. It was heated to 56° C. for thirty minutes. Twenty-five to thirty c. c. of the patient's cerebrospinal fluid were withdrawn, and the salvarsanized serum slowly injected. This was repeated after three weeks. The patient showed marked reactions after both injections, opiates being required to control the pain. Within a week after the first injection, the patient showed improvement and at the end of two weeks was able to walk without a cane. Gain in weight was considerable and the symptoms showed great amelioration. Intraspinal injections of salvarsanized serum should be given every two weeks until the cerebrospinal fluid gives a negative Wassermann reaction, until the globulins are normal and the cell count of the fluid is not over five.

Proceedings of Societies.

THE AMERICAN THERAPEUTIC SOCIETY.

Fifteenth Annual Meeting, Held in Albany, N. Y., May 29 and 30, 1914.

The President, Dr. HOWARD VAN RENSSELAER, of Albany, in the Chair.

(Concluded from page 394.)

Diagnosis and Treatment of Diseased Conditions of the Cecum.—This paper by Dr. G. REESE SATTERLEE, of New York, will appear in the JOURNAL.

The Medical Treatment of Intestinal Stasis.—This paper, by Dr. Reynold Webb Wilcox, appears on page 603.

The Use of Horse Serum for the Prevention of Hemorrhage in Nose and Throat Operations.—This paper, by Dr. CLEMENT F. THEISEN, of Albany, will also appear in the JOURNAL.

Intermenstrual versus Intramenstrual Obstruc-

tion and Retention.—Dr. A. ERNEST GALLANT's paper on this subject will be published in the JOURNAL.

The Application of Some Muscular Tissues Adapted to Physiological Standardization.—Dr. F. E. STEWART and P. S. PITTINGER, Ph. G., of Philadelphia, at the meeting of the society last year, had presented the results of their investigations into the subject of standardizing ergot by means of its effect upon the isolated uterus. Their present report was largely devoted to researches looking to the standardization of pituitary extracts. They first employed the blood pressure method which they had previously used in the case of epinephrine, but, finding this unsuitable, they had resorted to the isolated uterus method, as with ergot, and had found it more satisfactory than even in the case of ergot. Doctor Stewart said they had found pituitary extract a very powerful drug, and it was extremely desirable that there should be some standard of strength.

Auricular Fibrillation; Its Diagnosis and Treatment.—Dr. WILLIAM KIRK, of Troy, N. Y., said that auricular fibrillation occurred in many forms of cardiac disease, but was most common with mitral stenosis and in hearts which were the seat of cardiosclerosis. To the papers of Mackenzie they were especially indebted for the observation that in all cases of complete irregularity of the heart, there was entire absence of signs of the normal auricular contraction during diastole. The pauses between the beats bore no relationship to one another, and in this feature the irregularity stood in marked contrast to all other varieties. The second criterion consisted in the absence of a definite and continual relationship between the strength of the beat and the length of the pause, and a weak beat might succeed a long pause. The question had been raised, whether the ventricular form of venous pulse could be recognized by means of the unaided senses. He believed that it could be in a very large number, in fact, the majority, of instances, if note was taken of conjoined phenomena; and the first essential was the finding of an irregular pulse. In early and compensated cases, however, the pulsation was rarely recognized by ordinary means, for the visible pulsation was usually complex. Resort had to be made to the graphic method, and a venous tracing might often be secured when no venous pulsation could be seen. The general practitioner, unfamiliar with the instruments of precision used in the graphic method, might recognize the presence of auricular fibrillation, ordinarily, from a persistent irregular pulse, the rate of which was at or above 120 (which would be almost positive evidence for the diagnosis), and the occurrence of a deficit between the rate of the apex and the radial pulse—a characteristic met with in practically every untreated case. In the treatment the first consideration was the removal of the exciting cause, such as overwork or digestive trouble. Digitalis acted as a specific in a very large proportion of cases, and the guides which rarely failed the physician as an index for the amount of the drug required were the irregularity of rhythm and rate in the heart action and the deficit between the apex beat and the radial pulse. The choice of a preparation was largely a

matter of taste, provided the one used was known to be effective. There was none superior to the tincture, and it had been his custom to employ a standardized tincture or fluidextract, or the fresh infusion of the green leaves. When the pulse had been reduced to 60 or 70, and the apex beat coincided with the rate of the radial pulse, it was wise to discontinue the digitalis for a time and then begin again with smaller doses, or else to continue with smaller doses. The following indications were sufficient to warrant either the discontinuance of the drug or the diminution of the dose: Severe headache, with or without nausea and vomiting; dropping of ventricular systoles (partial heart block); bigeminy, which seemed to be continuous.

Doctor SATTERTHWAITE agreed that generally auricular fibrillation could be recognized; the graphic method showed it absolutely. As regards treatment, with the glucoside, digitalin, they did not have the gastric disturbances so often caused by the infusion. A good tincture was satisfactory, but, unfortunately, the tinctures supplied varied greatly. As to the prognosis, the patient was kept in just the position in which the physician held him. The diagnosis having once been made, the patient should be made to understand that he stood upon the brink of a precipice, and that he would die unless he obeyed instructions. In these cases, the trouble had its seat in the myocardium; there was a lithemic condition and undoubtedly a deposit in the heart. Patients were apt to get tired of the treatment; they intermitted their medicine and went off suddenly.

Doctor BISHOP said that as regards polygraph tracings and their interpretation, there were three points worth noting: 1. A polygraphic curve had nothing to do with a mathematical curve. It might be symmetrical or might look like a crooked line; one kind was just as good as the other for making a diagnosis. 2. The curve was simply a record of something which was taking place. 3. The important part was the beginning of the up stroke. Taking careful note of this, they might disregard the respiratory curve, the shape of the curve, and everything else.

Doctor STEWART said that in digitalis there were at least four glucosides and some other principles about which at present they knew nothing. He thought digitalin ought to be standardized.

Doctor WILCOX said that the preparation of digitalis which best showed the action of the drug, as originally described by Withering, was the infusion. The chemistry of digitalis was extremely obscure. As to the sphygmograph, he had made over 20,000 tracings with it. He had also made a special study of the six drugs of the digitalis group. There was in digitalis a substance which was centrally emetic, though the glucosides caused less gastric disturbance than the infusion. A practitioner would get the best results from that preparation which he knew most about.

Doctor RUDOLF said that the manner in which digitalis acted in these cases certainly could not be interpreted in pharmacological terms. In the human subject its vagus action did not appear to any extent when the drug was given in physiological dose. In fibrillation it had a peculiar action on the

ventricle; so that the latter responded to this storm which rushed down from the bundle of His.

Doctor REILLY said that sometimes digitalis seemed to fail, and they had another drug, apocynum, which might then prove of service. The eclectics called it the "cardiac trocar." It was very irritating to the stomach, but did not act satisfactorily when given by the rectum.

Doctor KIRK ordinarily had used the tincture, also the infusion of digitalis. The general value of the infusion had been impressed in the teaching of both the elder Janeway and his son. As to the glucosides not causing gastric disturbance, it had been shown that some emetic effect was produced by any preparation of digitalis, representing its pharmacological properties by reason of the central action of the drug. The great question in digitalis therapy was in regard to the chemistry of the drug; the fat free preparations would produce more or less gastric irritation on account of their central effects. As to apocynum, he had employed it with very good results when the patient did not have emesis.

Doctor WILCOX said it certainly had been conclusively shown that digitalis and its preparations had a central emetic action. The amount of the gastric irritation caused was a matter of degree, and less nausea resulted from the fat free preparations than from the others.

Officers Elected.—The following officers were elected for the ensuing year: President, Dr. Francis M. Pottenger, of Monrovia, Cal.; first vice-president, Dr. Robert T. Morris, of New York; second vice-president, Dr. Spencer L. Dawes, of Albany, N. Y.; third vice-president, Dr. J. Madison Taylor, of Philadelphia; secretary, Dr. Lewis H. Taylor, of Washington, D. C.; treasurer, Dr. A. Ernest Gallant, of New York; editor of the *Transactions*, Dr. P. Brynberg Porter, of New York; members of the council, Dr. Howard Van Rensselaer, of Albany, N. Y.; Dr. Thomas E. Satterthwaite, of New York, and Dr. J. Blake White, of New York. San Francisco, Cal., was chosen as the next place of meeting.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Special Meeting in the Borough of Queens, April 6, 1914.

Dr. L. HOWARD MOSS in the Chair.

The Modified Champetier de Ribes Bag in Obstetrics.—Dr. GEORGE L. BRODHEAD believed that in this device they were in possession of such a valuable aid in obstetric work that they might well consider whether more extensive application could not be made of it. Notwithstanding that it had now been in use for a number of years, it was a matter of astonishment to him that greater advantage had not been taken by the profession at large of a method at once so simple and of such great value. The de Ribes bags, five in number, were conical in shape and made of canvas (hence inelastic) covered with rubber, and the stem, through which normal salt solution or sterile water was

injected, was strongly attached to the apex, making it possible to use moderate traction if desired. When not in use the bags, thoroughly dried, were covered with talcum powder, and were prepared for use by boiling for five minutes. The bag would soften and dilate the cervix, and if, when the first bag slipped through the cervix, labor had not yet begun, a larger bag was introduced. In some few instances the cervix could be almost completely dilated without exciting strong expulsive contractions; but in these patients the membranes might be ruptured and, if necessary, the delivery completed by forceps or version. The largest field of application of the bags was, naturally, for the induction of labor, and for this purpose he had for many years placed his reliance almost exclusively upon them. In addition to the well known indications for the interruption of pregnancy, he found the bag valuable in patients who had apparently gone beyond full term, where the child was large, and the pelvis normal or slightly undersized. In primiparæ especially, the child was sometimes found to be too large to pass through the pelvis, and many children could be saved by the interruption of pregnancy. Again, in a patient at term, especially a primipara, if pains had not begun within twenty-four hours after the premature rupture of the membranes, labor should be induced with the bag. As to eclampsia, the toxemia was caused by, or associated with toxic substances in the blood and formed during the development of the fetus; though of their origin they knew nothing. Some eminent authorities placed entire confidence in medical treatment alone, while others, though admitting the great value of medical treatment, were of the opinion that the uterus should be emptied by vaginal section as soon as possible after an eclamptic seizure. It was no wonder, therefore, that the average practitioner was puzzled. All, however, were agreed that active elimination of the poison by the bowels, skin, and kidneys should be sought. Of the three drugs widely used for the control of the convulsions—chloral, morphine, and veratrum—veratrum was by far the most valuable, since it not only served to control the convulsions, but acted as a diuretic, diaphoretic, and vasomotor dilator. To be effective, a reliable preparation of the drug should be given in large doses frequently repeated. He was in the habit of at first administering ten minims of the fluidextract hypodermically, and then repeating with five minims every twenty minutes until the pulse came down to 60. In properly selected cases venesection was an undoubted aid in the treatment. Medical treatment of ante partum eclampsia should be carried out as vigorously as possible, but pregnancy should be terminated by the induction of labor. Inasmuch as pregnancy was the direct cause of the eclampsia, the uterus should be emptied within a reasonable time, not by a radical operative procedure such as vaginal or abdominal section, but by this slower and more physiological method. For this purpose he combined the use of the bougie or rectal tube with that of the bag. Whatever result the ultimate statistics of the treatment by section might show, in the hands of the general practitioner the induction of labor, combined with vigorous medical treatment,

would give the best results. The bag afforded valuable aid in treatment, but it should be supplemented by the introduction of a rectal tube; thus making labor more certain. When eclampsia developed in the early part of the first stage of labor, the method of choice would be the introduction of the bag to promote dilatation of the cervix, and in the latter part of the first stage, the application of forceps, podalic version, or, when the child was dead, craniotomy. The latter procedure should be employed more frequently. Vaginal section was indicated, if at all, in cases in which the cervix was very rigid and where the bougie and bag had failed after a reasonable time to effect softening and dilatation. In a primipara at or near term, with a small, rigid vagina and a contracted pelvis, abdominal Cæsarean section was the operation of choice.

For marginal placenta prævia the bag offered an almost ideal method of treatment. Here the problem was how to secure full dilatation of the cervix with the least violence and a minimum loss of blood, while in no way injuring the child. One of the larger sizes of the bags could be inserted, and when fully dilated it would act as a tampon; thus preventing further bleeding and at the same time mechanically dilating the cervix and stimulating uterine contractions. After the cervix had been well dilated, version could be performed with ease and better results. In central placenta prævia at term, and in marginal placenta prævia at term in primiparæ, abdominal Cæsarean section would undoubtedly give the best results; but, on the other hand, Cæsarean section as a routine procedure would give a much larger mortality than the bag or podalic version. Accidental hemorrhage, so called, often demanded the interruption of pregnancy, and here, again, the bag offered a solution of the problem. In this instance, however, the bag acted only as an agent for the induction of labor, as the source of the bleeding was too high up to be influenced. Where the hemorrhage was profuse or continued moderately with the bag in place, the choice lay between manual dilatation, followed by forceps or version, and vaginal or abdominal section. Finally, the bag was useful in cases of tedious labor, especially in primiparæ with breech presentation. In prolonged first stage, the introduction of the bag would frequently cause the pains to become more effective, with more rapid dilatation. In breech cases the breech was a very poor dilator, and when the labor proceeded slowly there was no better method than by means of the bag. The modified de Ribes bag was one of their most valuable aids in obstetric work; its value was not appreciated as it should be.

Pituitary Extract in Obstetrics.—This paper, also by Doctor BRODHEAD, was published in the JOURNAL, June 27, 1914.

Dr. W. H. KNIPE, in the first stage of labor, did not see how they could get along without the de Ribes bags. Pituitrin took in a great part of the second stage of labor, and might also include the third stage. He was accustomed to use the rectal tube in conjunction with the bags. At present, in hospital work, the tendency was rather to the overuse than the underuse of the bags in abnormal conditions such as dry labors, protracted labors, eclampsia and placenta prævia. The results com-

pared favorably with those obtained by other methods. The bag had the advantage of being an imitation of Nature, and was therefore superior to more rapid methods of dilating the cervix. He had observed instances of its abuse, for the house staff were apt to resort to it in cases where it was uncalled for. Its indiscriminate use would result in some cases of sepsis, some cases of prolapse of the cord, and some cases of malposition of the fetus. In cases of dry labor he always tried to impress on his interns the desirability of waiting twenty-four hours before employing the bags. As to pituitrin, it was of great value at the end of the second stage of labor and in the third stage after the placenta had been expressed; however, it could not take the place of obstetrical judgment. Serious results had occurred from its use in cases where it was not appropriate. In one of his own cases, where there was rather a rigid cervix, the child was stillborn, and the autopsy showed cerebral hemorrhage. On account of the resistant cervix, the effect of the undue pressure upon the head was the same as might have been caused by the forceps. This was one of the cases in which pituitrin should not have been used. He had known of a similar case recently, and also of two cases where the pituitrin had failed to act, or was said to have caused post partum hemorrhage. This was probably not a fact, however. Personally, he had not met with any cases of rupture of the uterus, but he had seen two or three cases in which there appeared to be danger of its occurrence. Accordingly, he had given chloroform promptly in sufficient amount to reduce the pains to normal, a good plan in cases of this kind. Chloroform, judiciously administered, eased the contractions without checking them entirely. It would be well always to bear in mind the contraindications of pituitrin. He never resorted to it unless the passageway for the child was comparatively clear. Still, the obstetrical judgment should be the controlling factor in all cases. Since pituitrin had come into use, he had not employed forceps as often as formerly. Pituitrin was contraindicated in incomplete abortion, as he had never seen any result from its administration. Under its use the uterus contracted firmly, and the products of conception were retained longer than they would otherwise have been. Neither had he seen any benefit from the use of pituitrin as a galactagogue. There might be a temporary effect from the contraction of the smooth muscular fibres of the breast, but the drug had no action on the secretory glands.

Dr. RANSFORD E. VAN GIESON, when beginning the practice of medicine fifty years ago in the country had, in puerperal eclampsia, employed venesection and veratrum with successful results; but whether these were attributable to either one of the two, or to both combined, he was unable to say. As to the case of rupture of the uterus at Bellevue Hospital described in the paper, it seemed to him doubtful whether the accident was due to pituitrin, for there were cases in which the uterine pains, without any artificial stimulus, were unusually severe. In instances of this kind it had always been his practice to use chloroform freely.

Dr. J. MILTON MABBOTT remembered that the late Doctor Tucker had been accustomed to say that in

partial placenta prævia all one had to do was to rupture the membranes, other things being assumed to be normal. Nature would then take care of the case. Pituitrin had the property of exciting powerful contractions of the uterus, and it seemed reasonable to suppose that rupture of the organ was attributable to the drug.

Dr. A. ERNEST GALLANT desired to ask Doctor Brodhead whether he was accustomed to separate all the membranes in a case of marginal placenta prævia; also whether he used traction on the de Ribes bags. Personally, for some years past—since using the forceps he had described before the association in 1906—he had had no occasion to employ dilating bags. With this combination of the French and English locks he was able to accomplish delivery with so much ease and satisfaction that he found no use for them. As to the use of the de Ribes bags, it was a temptation to the inexperienced to begin with a bag of too large size; which could only result in delay or harm. The dilatation should be accomplished gradually, and often the smaller sizes alone were sufficient for the purpose, and without rupture of the membranes.

Dr. WALTER G. FREY said that one useful method of facilitating labor was packing the lower segment of the uterus with gauze. Iodoform gauze might be employed, and the procedure usually brought on contractions within a few hours. It had the advantage that the materials were always at hand. In cases of placenta prævia he had found the gauze packing effective. He would like to inquire how the de Ribes bags differed from the old Barnes dilators. As to pituitrin, it seemed rather an uncertain and unstable remedy, and had no advantage over ergot.

Doctor GALLANT said that unless an absolutely fresh preparation of ergot was used, the drug was utterly unreliable. Some years ago Dr. H. C. Wood, Jr., had reported to the American Therapeutic Society, as the result of a series of careful tests, that from the moment the sealed container was opened, ergot preparations began to deteriorate, and that in a short time lost most, if not all of their essential properties. It was therefore necessary that a preparation from a fresh ampoule should always be employed.

Doctor BRODHEAD, in closing, agreed with Doctor Knipe as to the inefficiency of pituitrin in cases of incomplete abortion. He had personally known of two cases in which rupture occurred without any artificial uterine stimulant being given. The de Ribes bags were certainly of very great service. He always separated the membranes to a certain extent. It was perfectly right to urge the use of the smaller bags first in ordinary cases, to secure gradual dilatation. In cases of placenta prævia, however, he found it advisable to insert a large bag—No. 4. As to traction, he usually expected the desired result to occur without this; but if there were no results after the expiration of twelve or fourteen hours he was accustomed to begin traction. With both pituitrin and ergot, it was essential to make use of freshly opened ampoules. Gauze for the induction of labor had been known for a long time, but the bag dilator was better. It was safer and more rapid. The de Ribes bags were

greatly superior to the old Barnes dilators, being much stronger. They were quite cheap and also very durable.

Concerning the Significance of High Blood Pressure.—Dr. HARLOW BROOKS read a paper under this title which was published in the *JOURNAL*, July 25, 1914.

Dr. REYNOLD WEBB WILCOX had heard a great deal about high blood pressure, especially from the laity. Patients talked much more about it than physicians did. A good many years ago a rapid pulse rate had been the fetish. When he was a student in Vienna, kairin and thalline, which were the forerunners of antipyrine, were much in vogue for the reduction of high temperature. The patients became afebrile, but many of them died. And at present they had high blood pressure as the absorbing question. High pressure, however, was a perfectly trifling matter as long as the subject did not know that he had it. It was no more a definite entity than a rapid pulse or a high temperature. When he was in service at the Gettysburg celebration last summer he had come in contact with several thousand veterans, the youngest of whom was sixty-six years old and the oldest of whom said he was 112, though he had put him down as ninety-eight. Yet it was a fact that among these old men there was not much high blood pressure. The significance of high blood pressure was, to the physician, to go to work to find out the cause.

Dr. THOMAS C. CHALMERS regarded as unfortunate the prevailing ideas concerning high blood pressure entertained by the public and reflected in the press. For this condition the medical profession itself was very largely to blame. The subject of high blood pressure was of interest from the life insurance point of view, and he had invited Doctor MacKenzie to say something on the subject.

Dr. LOUIS F. MACKENZIE said that two years ago his insurance company had taken up the matter of blood pressure and started an investigation, of which he had been made the supervisor. They now had records of more than 9,000 cases, but the investigation was not yet completed. The three classes of affections especially marked by low blood pressure were tuberculosis, nervous, and gastrointestinal diseases. In fact, in all the respiratory diseases the blood pressure was found to be below the normal 126 mm. Hg., and in one instance the presence of an unusually low pressure had led to a careful examination of the patient the result of which was that a tuberculosis was discovered which would not otherwise have been detected. Any case where the pressure was above 150 he thought must be looked upon as hypertonic.

Dr. LOUIS F. BISHOP said that at present there was not much entertainment to be got out of a discussion of high blood pressure, because there was now such general agreement on the subject. Ten years ago, however, the case had been very different. Doctor Brooks had presented a very admirable exposition of our present knowledge.

Doctor BROOKS merely wished to say that the life insurance aspect of high blood pressure was very different from that which concerned the practising physician. To the practitioner, the significance of high pressure was that it was really compensatory.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Surgery. Its Principles and Practice. For Students and Practitioners. By ASTLEY PASTON COOPER ASHHURST, A. B., M. D., F. A. C. S., Instructor in Surgery in the University of Pennsylvania, Associate Surgeon to the Episcopal Hospital and Assistant Surgeon to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases. With 7 Colored Plates and 1,032 Illustrations in the Text Mostly Original. Philadelphia: Lea & Febiger, 1914. Pp. ix-1141. (Price, \$6.)

The author of this work has succeeded in condensing into one volume the whole subject of surgery, general and regional, including chapters on genitourinary surgery, gynecology, and orthopedics. In order to accomplish this, many subjects have necessarily been treated only briefly, and details in treatment have had to be left out. This diminishes its value to some extent as a book of reference, but it affords a good perspective of the whole field of surgery and is thus valuable to the student. The needs of the student have been in the author's mind throughout and have inspired the systematic arrangement and didactic language of description. The photographs of cases, diagrams, and x ray plates are particularly numerous and well executed. The volume will doubtless find its way into medical schools and will rank well with the already numerous works on surgery for beginners.

Eugenics: Twelve University Lectures. By MORTON A. ALDRICH, WILLIAM HERBERT CARRUTH, CHARLES B. DAVENPORT, CHARLES A. ELLWOOD, ARTHUR HOLMES, W. H. HOWELL, HARVEY ERNEST JORDAN, ALBERT GALLOWAY KELLER, EDWARD L. THORNDIKE, VICTOR C. VAUGHAN, HERBERT JOHN WEBBER, ROBERT H. WOLCOTT. With a Foreword by LEWELLYS F. BARKER. New York: Dodd, Mead & Co., 1914. Pp. xiii-348.

The vital and growing science of eugenics is condensed in each of these admirable lectures and presented from the angle of vision of each of the trustworthy specialists who form this carefully selected group. Eugenics has reached that stage of evolution and general attention which induces criticism, serious or exaggerated, and misinterpreted by silly zealots and the flippant. Ignorant writers in the secular press and some reputable magazines are pleased to dispose of the subject divergently by subjecting it to the test of what they severely denominate "common sense." We may welcome these evidences of interest and devote efforts to formulating simpler, plainer, more practicable principles for bettering the race through selective methods. In this we derive some assistance from the crude comments, which at least show what "the people" think they need or will welcome.

In this group of lectures are satisfactorily summarized the groundwork of eugenic principles and such temperate and rational recommendations as the leaders are now prepared to make; hence we cordially recommend their perusal by all who can be induced to undertake it.

It may be well to refer briefly to the titles of the authors and of their contributions which will serve to give an idea of the book. Professor Lewellys F. Barker offers a lucid foreword and is followed by Professor Charles B. Davenport, of Cold Spring Harbor, director of the department of experimental evolution (Carnegie Institute), on the Eugenics Program and Progress in its Achievement; Robert H. Wolcott, professor of zoology in the University of Nebraska, on eugenics as viewed by the zoologist; Professor Victor C. Vaughan, dean of the department for medicine, University of Michigan, and president of the American Medical Association, on eugenics from the standpoint of the physician; W. H. Howell, professor of physiology, Johns Hopkins University, on eugenics as viewed by the physiologist; Harvey Ernest Jordan, professor of histology and embryology, University of Virginia, on eugenics: its data, scope, and promise, as seen by the anatomist; John Webber, professor of plant breeding, Cornell

University (now with the University of California), on eugenics from the point of view of the geneticist; Professor Arthur Holmes, dean of the general faculty of Pennsylvania State College, on the first law of character making; Charles A. Ellwood, professor of sociology, University of Missouri, on the eugenics movement from the standpoint of sociology; Albert Galloway Keller, professor of the science of society, Yale University, on eugenics and its social limitations; William Herbert Carruth, professor of Germanic languages and vice-chancellor of the University of Kansas, in selections from an address on eugenics; Morton A. Aldrich, professor of economics and sociology and industrial hygiene at Tulane University, La., and last, but by no means least, Edward L. Thorndike, professor of educational psychology, Teachers' College, Columbia University, on eugenics with special reference to intellect and character. We venture to express the hope that newspapers will add this modest yet authoritative book to their reference libraries.

Diagnostics of the Fundus Oculi. By EDWARD L. OATMAN, M. D., Surgeon, Manhattan Eye, Ear, and Throat Hospital and Brooklyn Eye and Ear Hospital, New York, Consulting Ophthalmic Surgeon, Nyack Hospital and St. Mary's Hospital, Waterbury, Conn. Comprising One Volume of Text with Two Hundred and Thirty-four Illustrations and Four Colored Plates, and Two Portfolios, Containing Seventy-nine Stereograms and Eight Diagnostic Cards. Troy, N. Y.: The Southworth Company, 1913. Pp. xxlv-303.

This is the unique production of a careful, painstaking student of the fundus of the eye. The volume of text first gives the methods of examination, the normal then the pathological appearances, with particular attention to the histological conditions in the various diseases. It is printed clearly on dull surfaced paper, and is a good example of how books should be printed in order to be easily read. But the unique part of the work is comprised in the two volumes of stereograms, numbering seventy-nine, with eight diagnosis cards. These, when viewed through the accompanying stereoscope, reproduce the fundus wonderfully well, and bring out the details of the lesions excellently. While the objection may be urged that we cannot see the living human fundus binocularly with the ordinary ophthalmoscope, it is nevertheless true that a better conception of the actually existing conditions can be obtained from these stereograms than from any pictures heretofore published, and that therefore they will be of material value in teaching the student what he should look for when he uses the ophthalmoscope. The work will remain a lasting monument to the ingenuity of its author.

Hygienisches Praktikum. Ein Taschenbuch für Studierende, Aerzte, und Kreisartzkandidaten. Von Dr. med. PAUL UHLENHUTH, Geh. Reg.-Rat und ordentl. Professor der Hygiene an der Universität Strassburg i. E., und Dr. med. HERMANN DOLD, Privatdozent der Hygiene an der Universität Strassburg, i. E. Mit 1 Tafel und 89 Abbildungen. Berlin and Wien: Urban & Schwarzenberg, 1914. Pp. 272.

This small volume gives briefly the accepted tests and reactions employed in the ordinary routine examinations of earth, water, food, and air. It presupposes a greater or less degree of intimacy with laboratory details and consequently is of value only to one who has had such experience.

The Practical Medicine Series for 1914; Comprising ten Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of CHARLES L. MIX, A. M., M. D., Professor of Physical Diagnosis in the Northwestern University Medical School, and ROGER T. VAUGHAN, Ph. B., M. D. Chicago: The Year Book Publishers, 1914. Pp. 366. (Price, \$1.50.)

The latest handbooks of the excellent Practical Medicine Series to be submitted for our inspection are General Surgery, edited by Dr. John B. Murphy; General Medicine, edited by Dr. Frank Billings and Dr. J. H. Salisbury, and Eye, Ear, Nose, and Throat, edited by Dr. Casey A. Wood, Dr. Albert H. Andrews, and Dr. William H. Ballenger. The series as a whole is under the capable editorial supervision of Dr. Charles L. Mix and Dr. Roger T. Vaughan. We have always had a high opinion of these books and

find no reason to modify our views. It is remarkable how their compactness remains unimpaired in spite of the constantly accumulating literature on the various subjects; they continue to be most excellent manuals for the practitioner or specialist who wishes to keep in touch with the work accomplished by others.

Interclinical Notes.

The *Outlook* for September 16th has a handsome picture of the new pope, Benedict XV. We regret to note that the spectacles of His Holiness are not properly centred.

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Dr. E. H. Lewinski-Corwin presents in the *Outlook* for September 16th, Poland's Position and Hopes in the Present War, stating the case, as he says, briefly, but adequately and accurately.

* * *

The admirable *Dial* of Chicago is about the only periodical that remains undisturbed by war's alarms. The issues for July 16th, August 1st and 16th, are devoted almost exclusively to the excellent and scholarly literary criticism we have been led to expect from this unique fortnightly. The *Dial* is not a primer for the illiterate, but a serious effort to entertain our somewhat limited number of people with cultivated literary tastes.

* * *

An editorial summary of the supposed causes of the war appears in the customary interesting style of *Current Opinion*, in its September issue; the account is illustrated, as usual, by cuts and photographs from contemporaries. There is much interesting gossip concerning prominent figures in the conflict. Other departments of this excellent magazine of contemporary history, however, are not neglected.

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For an entirely different and very plausible explanation of the great war, we commend our readers to the *New Review* for September, in which Frank Bohn lays all the trouble at the door of our modern economic system.

* * *

We learn from Collier's *Clip Sheet*, released September 1st, that A. W. Shaw has written an article on The Danger of Losing Our Heads. Our danger is slight compared to that of several European rulers.

* * *

Dopter, in *Paris médical* for August 8, 1914, repeats a legend circulated among the Algerians after the use of absinthe had been forbidden among the French troops in Africa. "Absinthe," says the legend, "is an invention of the devil. On the roots of the plant he poured the blood of a peacock; when the leaves appeared, he used the blood of a monkey; the branches he dipped in the blood of a bear; and, finally, with the sap of the plant he mingled the blood of a pig. When one of the faithful, therefore, drinks absinthe, at the first glass his appetite improves and he struts about with the pride of a peacock; at the second glass he becomes excited and gesticulates like a monkey; at the third he acquires the bad and quarrelsome temper of the bear; at the fourth he grows heavy and rolls in the mud like a pig. Allah preserve us from absinthe." While admiring the imagination of the Algerian poet, Dopter has grave doubts of its alarming and prohibitive effects on the native soldiers.

Meetings of Local Medical Societies.

MONDAY, September 28th.—Psychiatric Society of Ward's Island; Poughkeepsie Academy of Medicine.

TUESDAY, September 29th.—Medical Society of the County of Chautauqua.

THURSDAY, October 1st.—New York Academy of Medicine; Practitioners' Club, Buffalo; Geneva Medical Society; Glens Falls Medical and Surgical Society.

FRIDAY, October 2d.—New York Academy of Medicine (Section in Surgery); New Utrecht Medical Society; New York Microscopical Society; Manhattan Dermatological Society; Practitioners' Society of New York; Corning Medical Association; Saratoga Springs Medical Society; Society for Serology and Hematology, New York.

SATURDAY, October 3d.—Benjamin Rush Medical Society, New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending September 16, 1914:

Brooks, S. D., Senior Surgeon. Granted fifteen days' leave of absence from September 16, 1914. **Fox, Carroll**, Surgeon. On request of the State Board of Health of Washington, directed to proceed to that State to make an investigation of sanitary administration and the laws under which it is conducted. **Grubbs, S. B.**, Surgeon. Directed to proceed to New Orleans, La., for a period of three days for observation of plague eradication work. **Guiteras, G. M.**, Surgeon. Relieved from duty at Havana, Cuba, and directed to rejoin station at the Marine Hospital, Key West, Fla. **Hunter, Andrew**, Biochemist. Granted two days' leave of absence from September 14, 1914. **Linson, J. H.**, Assistant Surgeon. Relieved from duty at Detroit, Mich., upon arrival of Surgeon H. W. Wickes, and directed to proceed to San Francisco, Cal., and report to the medical officer in charge of the Angel Island quarantine station for temporary duty; granted two days' leave of absence en route. **Lloyd, B. J.**, Surgeon. On request of the State Board of Health, directed to proceed to Grangeville, Idaho, to investigate and diagnose suspected cases of leprosy. **Mullan, E. H.**, Passed Assistant Surgeon. Directed to report at Bureau, Washington, D. C., September 8, 1914, for special temporary duty in conducting mental tests of young persons. **Neill, M. H.**, Assistant Surgeon. Granted one month's leave of absence from October 1, 1914. **Rucker, W. C.**, Assistant Surgeon General. Directed to send a commissioned officer to Camp Fontainebleau to examine certain equipment with a view to its installation on the quarantine steamer *Newark*. **Stoner, G. W.**, Senior Surgeon. Granted five days' leave of absence from September 6, 1914, under paragraph 193, Service Regulations. **Taylor, H. A.**, Technical Assistant. Granted five days' leave of absence en route to stations. **Vogel, C. W.**, Surgeon. Granted seven days' additional leave of absence from September 16, 1914. **Weldon, L. O.**, Assistant Surgeon. Granted fourteen days' leave of absence from October 2, 1914. **Wickes, H. W.**, Surgeon. Relieved from duty at the Marine Hospital, Chelsea, Mass., and directed to proceed to Detroit, Mich., and report to the medical officer in charge of the Marine Hospital for duty.

Boards Convened.

Board of commissioned officers convened to meet at the bureau, Washington, D. C., at the call of the chairman for the purpose of grading the examination papers of Assistant Surgeon B. J. Duffy and making recommendation as to his fitness for promotion to the grade of passed assistant surgeon. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Surgeon C. C. Pierce, member; Passed Assistant Surgeon A. D. Foster, recorder.

Board of medical officers convened to meet at Vancouver, B. C., for the reexamination of an alien, John Olsen. Detail for the board: Acting Assistant Surgeon H. R. Storrs, chairman.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending September 19, 1914:

Buntin, Grover C., First Lieutenant, Medical Reserve Corps. Ordered to the Army Medical School, Washington, D. C., for instruction and station. **Dixon, Frank H.**, First Lieutenant, Medical Reserve Corps. Ordered to the Army Medical School, Washington, D. C., for station and instruction. **Haig, C. R.**, Captain, Medical Corps. Granted one month's leave of absence about November 1, 1914. **Heaton, William D.**, First Lieutenant, Medical Reserve Corps. Ordered to the Army

Medical School, Washington, D. C., for instruction and station. **Henning**, O. F., First Lieutenant, Medical Reserve Corps. Granted leave of absence up to and including October 5, 1914; also relieved from active service in the reserve corps. **Jones**, August B., First Lieutenant, Medical Reserve Corps. Ordered to the Army Medical School, Washington, D. C., for instruction and station. **Nichols**, Henry J., Captain, Medical Corps. Granted one month's leave of absence. **Offutt**, Harry D., First Lieutenant, Medical Reserve Corps. Ordered to the Army Medical School, Washington, D. C., for station and instruction. **Speissegger**, C. A., Jr., First Lieutenant, Medical Reserve Corps. Relieved from active duty in the medical reserve corps. **Thomas**, A. H., First Lieutenant, Medical Reserve Corps. Relieved from active duty in the medical reserve corps. **Truby**, Willard F., Major, Medical Corps. Relieved from further temporary duty in the medical supply depot, Fort Mason, Cal., and will return to his proper station, Fort Winfield Scott.

The following named officers will be relieved in the Philippine Department about January 15, 1915, and will proceed to the United States for duty: Captain Frank W. Wood, Medical Corps; Captain Paul L. Freeman, Medical Corps; Captain Condon C. McCornack, Medical Corps; Captain Alexander T. Cooper, Medical Corps; First Lieutenant Madison H. Bowman, Medical Reserve Corps.

The following named officers will be relieved from further duty in the United States and will proceed to the Philippine Islands on the December 5th transport: First Lieutenant Alvin C. Miller, Medical Corps; First Lieutenant John H. Trinder, Medical Corps; First Lieutenant Kerwin W. Kinard, Medical Corps; First Lieutenant Donald P. McCord, Medical Reserve Corps.

The following named officers of the Medical Reserve Corps have been ordered to active duty, with station at the Army Medical School, for instruction: First Lieutenant Charles M. O'Connor, Jr.; First Lieutenant Thomas I. Price, and First Lieutenant Lloyd E. Tefft.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the two weeks ending September 19, 1914:

Brams, W. A., Assistant Surgeon. Commissioned an assistant surgeon from August 15, 1914. **Camerer**, C. B., Passed Assistant Surgeon. Detached from Mare Island Hospital and ordered to Mare Island Navy Yard, Cal. **Dragoo**, C. H., Assistant Surgeon. Detached from the *Petrel* and ordered to the *Nebraska*. **Geiger**, A. J., Passed Assistant Surgeon. Ordered to the Receiving Ship, Puget Sound, Wash. **Harris**, J. H., Assistant Surgeon. Commissioned an assistant surgeon from July 10, 1914. **Hayward**, A. B., Passed Assistant Surgeon. Detached from the *Colorado* and ordered to Naval Station, Samoa. **McLean**, N. T., Passed Assistant Surgeon. Detached from the *New Orleans* and ordered to the Naval Hospital, Mare Island, Cal. **Michael**, J. H., Assistant Surgeon. Commissioned an assistant surgeon from August 8, 1914. **Munger**, C. B., Passed Assistant Surgeon. Detached from the Receiving Ship, Puget Sound, Wash., and ordered to Naval Hospital, Mare Island, Cal. **Ohnesorg**, Karl, Surgeon. Detached from the *Tennessee* and ordered to duty as assistant to the naval attache, Berlin, Germany. **Parham**, J. C., Assistant Surgeon. Detached from the Naval Station, Samoa, and ordered to the *St. Louis*. **Riggs**, C. E., Surgeon. Ordered to the Naval Training Station, Norfolk, Va. **Riker**, G. A., Passed Assistant Surgeon. Detached from the Bureau of Medicine and Surgery, Navy Department, Washington, D. C., and ordered to the *Texas*. **Stepp**, Jacob, Surgeon. Ordered to the Naval Dispensary, Washington, D. C. **Tribou**, H. A., Assistant Surgeon. Detached from the *Nebraska* and ordered to the *Petrel*. **Wilson**, H. D., Surgeon. Ordered to Washington, D. C., for examination for promotion. The following assistant surgeons in the Medical Reserve Corps have been ordered to the Naval Medical School, Washington, D. C.: William McKinney, W. E. Lawhead, R. A. Torrence, A. E. Man, F. H. Bowman, W. W. Wickersham, N. M. McClelland, C. S. O'Brien, W. H.

Michael, C. F. Glenn, C. H. Weaver, J. H. Harris, J. A. Omer, J. T. Boone, A. R. Barrow, C. I. Wood, J. M. Quinn, A. L. Bass, W. A. Stoops, and C. E. Faulkner.

Births, Marriages, and Deaths.

Born.

D'Arcy.—In Trenton, N. J., on Sunday, September 13th, to Dr. Walter E. D'Arcy and Mrs. D'Arcy, a daughter.

Married.

Allaire—Farley.—In Woonsocket, R. I., on Monday, September 14th, Dr. Albert J. Allaire, of Brockton, and Miss Lillian A. Farley. **Anglin—Funk**.—In Warsaw, Ind., on Saturday, September 12th, Dr. George W. Anglin and Miss Helen Maria Funk. **Aronson—Selkin**.—In New York, on Saturday, September 12th, Dr. Louis S. Aronson and Dr. Emma A. Selkin. **Brock—Hanna**.—In Columbus, Ohio, on Monday, September 7th, Dr. Evan Coleman Brock and Miss Geraldine Mary Hanna. **Carlisle—Chesney**.—In Cincinnati, Ohio, on Tuesday, September 8th, Dr. W. Glenn Carlisle and Miss Edith K. Chesney. **Chandler—Montgomery**.—In Asbury Park, N. J., on Saturday, September 12th, Dr. Swithin T. Chandler, of Wilmington, Del., and Miss Louise Montgomery. **Cornish—Hoskins**.—In Chelsea, Mass., on Monday, September 7th, Dr. Colon W. Cornish, of Bridgewater, Mass., and Miss Beatrice Melbourn Hoskins. **Davis—Corriveau**.—In Holyoke, Mass., on Monday, September 14th, Dr. Frederick D. Davis, of Westfield, and Miss Blanche Corriveau. **Mills—Mumme**.—In Hutchinson, Kan., on Sunday, September 6th, Dr. Charles D. Mills and Miss Edith Beatrice Mumme. **Whelan—Smith**.—In Brockton, Mass., on Wednesday, September 9th, Dr. Edmond Vincent Whelan, of Bridgewater, and Miss Mary Alice Smith.

Died.

Alderman.—In Washington, D. C., on Saturday, September 12th, Dr. Ashael H. Alderman, aged seventy-one years. **Bell**.—In Liverpool, England, on Tuesday, September 15th, Dr. J. H. Bell, of Montreal, Quebec, aged fifty years. **Blackman**.—In Quincy, Mich., on Friday, September 11th, Dr. Edson Blackman, aged seventy-four years. **Burkett**.—In Remington, Pa., on Tuesday, September 15th, Dr. J. H. Burkett, aged seventy-four years. **Finch**.—In Crawfordsville, Ind., on Thursday, September 10th, Dr. Albert Finch, of Jamestown, aged sixty-two years. **Gable**.—In Boise, Idaho, on Friday, August 14, Dr. W. H. H. Gable, aged seventy-three years. **Harrison**.—In Hidalgo, Texas, on Sunday, September 13th, Dr. C. W. Harrison, aged fifty years. **Holmes**.—In Springfield, Mass., on Thursday, September 10th, Dr. Louise Dodson Holmes, of Athol, Mass., aged forty-seven years. **Hussey**.—In Chicago, Ill., on Wednesday, September 16th, Dr. Stephen Henry Hussey, aged fifty years. **Kennedy**.—In Warrenton, Va., on Thursday, September 3d, Dr. Stephen Dandridge Kennedy, U. S. Navy (retired), aged eighty years. **Lane**.—In Medora, Mo., on Monday, September 7th, Dr. John H. Lane, aged sixty-nine years. **Long**.—In Ionia, Mich., on Wednesday, September 9th, Dr. Oscar R. Long, aged sixty-four years. **Lopez**.—In Philadelphia, Pa., on Tuesday, September 15th, Dr. Joseph H. Lopez, aged seventy-five years. **Louis**.—In Haselton, Ohio, on Sunday, September 6th, Dr. John J. Louis, aged sixty-six years. **O'Keefe**.—In Providence, R. I., on Monday, September 14th, Dr. John A. O'Keefe, aged fifty-one years. **Pursley**.—In Clinton, Ga., on Friday, September 11th, Dr. Sam C. Pursley, Sr., aged seventy years. **Regar**.—In Philadelphia, Pa., on Monday, September 14th, Dr. Horace K. Regar, aged fifty-five years. **Saxl**.—In St. Louis, Mo., on Friday, September 11th, Dr. Ernst Saxl, aged forty-six years. **Thompson**.—In Chicago, Ill., on Tuesday, September 8th, Dr. Merritt W. Thompson, aged sixty years. **Trush**.—In Clifton, Ohio, on Friday, September 11th, Dr. Jacob Trush, aged seventy-six years. **Van Etten**.—In Rhinebeck, N. Y., on Sunday, September 13th, Dr. Cornelius S. Van Etten, aged sixty-eight years. **Williams**.—In Arkadelphia, Ark., on Thursday, September 10th, Dr. E. Kindle Williams, aged fifty-four years.

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WHOLE No. 1870.

Lectures and Addresses.

THE MODERN WARFARE AGAINST TUBERCULOSIS AS A DISEASE OF THE MASSES.*

BY S. ADOLPHUS KNOPE, M. D.,
New York,

Professor of Medicine, Department of Phthisiotherapy, New York
Post-Graduate Medical School and Hospital.

Your Worship, the Mayor; Sir James Grant, Nestor of the Canadian medical profession; Mr. President, Members of the Canadian Association for the Prevention of Tuberculosis, Ladies and Gentlemen:

I have been called from far away New York to address this distinguished gathering, and I wish you all to understand how truly grateful I am for the honor which you have thus conferred upon me. It has been my privilege before this to address Canadian audiences composed of medical men and laymen interested in tuberculosis, and I have always felt grateful for the inspiration I received from these gatherings. I gladly accepted the honoring call to be with you again, and I know full well that I shall receive more than I can give.

It is with regret that I must preface my remarks by saying that there is virtually nothing new in tuberculosis, that there is nothing with which you brave physicians who are practising among the tuberculous, or you noble men and women who are devoting your lives to the combat of the social side of this disease, are not already familiar. The best I can offer is perhaps a somewhat detailed account of the modern aspect of the various phases which present themselves to the workers in the battlefield against our common enemy—the great white plague.

I have entitled my modest contribution, *The Modern Warfare Against Tuberculosis as a Disease of the Masses*, and I hope you will bear with me if I fall short of the mark in my endeavor to give you, if nothing new, at least something which might be worth while reiterating and to which you might be willing to give thought and consideration.

Our views on combating the disease due to the tubercle bacillus from a preventive as well as a curative point of view, have changed considerably in latter times. Although there have apparently been no great strides made in very recent years in the knowledge of the pathology and bacteriology of tuberculosis, our present day method of warfare

against this disease of the masses differs materially from what it was twenty-five years ago at the time of and shortly after the immortal discovery of the tubercle bacillus by Koch, the father of modern tuberculosis science.

At the present time in our diagnosis of the disease, we do not wait for the appearance of the germ in the sputum; we try to get the cases as early as possible, long, long before the sputum shows the presence of the tubercle bacilli. We do not neglect to examine the sputum, however, and we do this, not once but many times, knowing that it often requires several specimens to discover the pathogenic germ. Every time we are called upon to examine a patient, be he married or unmarried, living with his own or somebody else's family, we advise that all the members of the household subject themselves to examination. The laity as a whole not yet being educated to this point of appreciating preventive medicine, may in some instances interpret this recommendation as anything but altruistic, hence it is best that, when the physician makes this recommendation, he should state that he is not anxious to make these examinations himself as long as they are made by a competent diagnostician.

And how do we proceed nowadays when we examine a patient suspected of tuberculosis? Because of tuberculosis being a disease of the masses, an economic and social as well as a medical disease, we are no longer contented with only asking questions concerning the physical condition of the patient, but we wish to find out something about his occupation, his former and his present way of earning a livelihood, his family and his social life, the sanitation of his workshop and that of his home, and particularly about where he sleeps and the number of windows in his bedroom.

While, of course, we are anxious to ascertain something about his possible tuberculosis family history, we pay equal if not even more attention to the personal history. Thus, for example, we ask him whether he was the first or among the last born in his family, knowing by experience that, for physiological as well as for economic reasons, the latter born in a large family, particularly among the poor, are more prone to contract tuberculosis than the first born. The parents were older and probably more feeble at the time of the procreation of these latter born, and when they came there were already many mouths to feed. The income seldom increases with the growth of the family, and as a result less care, and often less and poorer food for all result from the constant increase in the number.

We pay more attention to exposure to infection than to the probability of a direct heredity, without,

*Address delivered, by invitation, before the Fourteenth Annual Meeting of the Canadian Association for the Prevention of Tuberculosis, Halifax, N. S., July 13, 1914.

however, denying the possibility of direct bacillary transmission. Even in children of tuberculous parents, we believe more in postnatal than in parental infection. The danger and frequency of postnatal infection is realized by all investigators, but my late distinguished teacher, Professor Grancher, of Paris, conceived a unique and practical solution of this difficult problem by placing the children of poor tuberculous parents in healthy and sanitary country homes where they were watched and supervised by

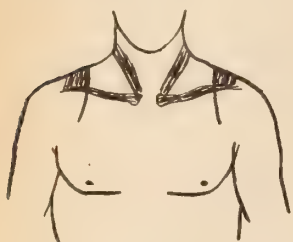


FIG. 1.—The clear space above the clavicle shows Krönig's areas of normal anterior apical resonance.

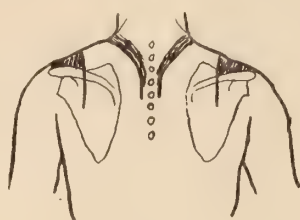


FIG. 2.—The clear space in the suprascapular region indicates Krönig's normal posterior apical resonance.

specially appointed physicians. This work, which is now carried on by the widow of Professor Grancher, is known under the beautiful name of *L'œuvre de préservation de l'enfance contre la tuberculose*.

In taking the personal record of the patient, we inform ourselves concerning his habits and think much more about an alcoholic and a syphilitic history than we were in the habit of doing in former years, knowing that both of these afflictions are predisposing factors to tuberculosis and must by themselves be counted as diseases of the masses. We search into the symptomatology, past and present, of our patient and determine the predisposing factors, the well known suspicious precursors of tuberculosis—frequent colds, lassitude, easy tiring, change of disposition, etc. We weigh our patient as we always did and try to estimate his average weight and

the loss likely to have been caused by the tuberculous invasion. But nowadays we also bear in mind that underfeeding and bad feeding, in other words, lack of nourishment among the poor, may be as much the cause of emaciation and anemia as the tuberculous trouble.

We do not content ourselves with taking the temperature at one time, but take it several

times, morning, noon, and night, and if necessary several days in succession, and before and after exercise.

When in a young woman there is a gradual cessation in quantity of the menstrual fluid, and she happens to have instead a little pulmonary hemorrhage at that time, we no longer think of vicarious menstruation. We know that in men and women the sanguineous expectoration or slight hemorrhages coming from the respiratory tract are, in the vast

majority of cases, the early manifestations of a tuberculous invasion of the lungs. Since the sight of blood usually frightens the patient sufficiently to make him seek medical aid, it often helps toward an early diagnosis, treatment, and cure. Hence, small pulmonary hemorrhages or sanguineous expectoration should be rather welcomed as warning signals.

The modern phthisiotherapist will also never fail to tell all his patients to be prepared for such an event, whether they have had a pulmonary hemorrhage or not, and never to be frightened at the appearance of a little blood in the sputum, but when it happens, to keep quiet, await the arrival of the doctor, and to look upon the sanguineous expectoration or hemorrhage as one of the phases of the disease, not by any means lessening the chances of recovery.

Our physical examination of the patient, we try to make as thorough as possible. We examine him carefully and completely, including in our search for tuberculous lesions eye, ear, nose, and throat, and we remember that a dilated pupil may be due to the pressure of a tubercle on the pneumogastric nerve and that the paleness of the mucous membrane of the upper respiratory tract may be due to tuberculosis of the lungs. The patient is stripped to the waist, and we inspect the conformation of chest and abdomen and remember that the old idea of a flat chest being typical of tuberculosis is apt to prove erroneous, and that the cylindrical chest with anterior and posterior diameter nearly the same as the lateral, characterizes more the habitus phthisicus.

We palpate for objective fremitus and see if it corresponds with the subjective fremitus. The presence or absence of the latter is determined by requesting the patient to make a humming sound with the mouth closed. He is then asked whether he feels his voice vibrating either on the left or right side, or where he feels the vibration most intensely. If there is a sufficient degree of consolidation on either side, the patient will feel the vibrations caused by his voice and indicate where he feels them.

We palpate and percuss carefully, and feel for any muscular rigidity over the influenced pulmonary area, a relatively new but interesting and valuable sign described by Pottenger. We percuss the chest anteriorly, posteriorly, and in the axillary region, and do not neglect apical or saddle percussion, that is to say, we saddle with our index finger the entire superior portion of the shoulder, then percuss the anterior and the posterior region of the apex. This saddle or apical percussion, that is to say, the mapping out of Krönig's band of resonance, is of value in determining the degree of shrinkage of the apices. The apical percussion should be light and should start at about the middle of a line drawn between the mastoid process and the internal clavicular end, percussing the anterior and posterior portion of the apices. The accompanying illustrations (Figs. 1 and 2) of the normal apical resonance, as described by Krönig, indicate what portion should be percussed in order to determine any shrinking of the apex. Marking and then measuring the space which gives resonance and comparing the two sides, will give the desired information.

One other newer type of percussion must be mentioned as of value in the diagnosis of early pulmo-

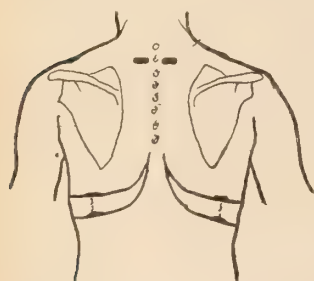


FIG. 3.—Posterior tidal percussion. The two short straight lines indicate the upper boundary of the apex according to Goldscheider's method; the curved lines represent the degree of normal respiratory excursion.

nary tuberculosis, that is, what is known as tidal percussion. The object of this is to discover the degree of vertical excursion of the lung in the complementary pleural space during the act of inhalation and exhalation. Most accurate information concerning pleuritic adhesions can be obtained with this method by carefully marking the upper boundary of the apex, as indicated by Goldscheider, and then percussing the lower boundary during inspiration and expiration. At the invaded side the excursion is often limited because of adhesions. The tidal percussion in front is not only exceedingly difficult, but not nearly so valuable as the percussion of the back. The third diagram (Fig. 3), which I show here, indicates the simplicity of this latter procedure. (Rivière, *Early Diagnosis of Tubercle*.)

When auscultating, we do not wait for rales in the chest to make a diagnosis, but when we have a prolonged roughened expiratory murmur localized in one of the apices, we know that in this peculiar respiration we have as nearly a pathognomonic physical sign of tuberculosis as we can have.

To rely for early diagnosis exclusively on an examination of the chest by the x rays we should consider unscientific, since shadows may merely mean unresolved pneumonia, a thickened pleura, foreign bodies, pneumoconiosis produced by fibrous induration of the lungs due to the irritation caused by the inhalation of dust incident to various occupations, such as coal mining, knife grinding, stone cutting, etc. Yet, after a careful physical examination, it is highly interesting and instructive to be able to corroborate by fluoroscope or x ray photograph the pathological findings discovered by ear and touch, and I gladly state that when tuberculosis of the lungs manifests itself by small disseminated areas which are difficult to discover by percussion and auscultation, the x ray picture renders valuable services as a means of diagnosis.

We do not pretend always to be able to make a definite diagnosis, even with our increased knowledge of physical examination and the aid of the x rays. We resort to all sorts of legitimate tests with tuberculin and often repeat these tests, and as long as we are in doubt we preach precaution in all cases, be it of adult or child.

We are, however, not alarmed if the von Pirquet reaction is positive in an individual above five years of age when no physical symptoms corroborate the diagnosis, for, while in children under the age mentioned the von Pirquet reaction is of value because the tuberculous process may not have had the chance to become latent, in older children and adults a von Pirquet reaction means simply that there is a tuberculous focus somewhere in the body (active or latent), and as already stated, only when corroborated physical symptoms exist has the positive reaction any meaning. We now know that the vast majority of civilized mankind have at one time or another suffered from an attack of tuberculosis.

This statement has recently been reaffirmed by no less an authority than our great and beloved Osler. I say advisedly "our" because Sir William belongs to us Americans as much as to you Canadians and the people of England. We look upon a light infection of tuberculosis as rather a good than a bad thing, for thus has been created a state of acquired

immunity and only thus can we explain why all mankind is not tuberculous. The evidence for this is seen in the fact that where there is less prevalence of tuberculosis, the relative mortality from it is greater than where there is more tuberculosis in the population, that is to say, where there are many infected individuals, the relative mortality is low, where there are few, the relative mortality is high.

The wild tribes in various portions of the globe, and on our own continent, the Indians remain free from tuberculosis as long as they live isolated and do not come in contact with so called civilization. But when they do become infected, their mortality from this disease is unusually high, because they have not had time to acquire immunity, and the course of the disease is usually a much more rapid one than in civilized regions. The apes, which most resemble human beings in their anatomical make up, almost invariably contract tuberculosis when they are removed from their primeval forests and made to come in contact with human beings. Unfortunately, this naturally acquired immunity is not always lasting and is sometimes only partial. Thus far we have not as yet been able to create an artificial immunity by heteroinoculation (injection of serum or vaccine, or other culture products). We must strive, therefore, to strengthen our rising generation in physique and in the general physiological make up and thus increase the immunity acquired by a one time attack of the disease, and, secondly, we must seek to discover pulmonary tuberculosis by the earliest possible means so as to be able to treat the disease in its incipency and by the best hygienic, dietetic, and therapeutic means at our disposal.

No longer do we think it legitimate to hide the truth from the patient, his family, or friends. We know that if he is tuberculous, he must know it in order to get well. We further know that if he does not know the true character of his disease, he constitutes a menace to his fellow men and is liable to infect any number of people.

We recognize the danger from the careless or ignorant early patient who is up and about doing his work, but at the same time is disseminating some seven billion bacilli every twenty-four hours by careless expectoration. Whenever possible, we see to it that the patient receives the most careful sanatorium treatment in an institution, or if for one reason or another this is not advisable or feasible, we insist that the sanatorium treatment be carried out at home. The same holds good of the advanced case in the well to do classes. We realize the great danger from the advanced patient as long as he resides in the congested and poor tenement districts or in an unsanitary home in a village or town, where even with the greatest care it is difficult to prevent infection. We bear in mind that with the advanced patient, even if he takes reasonable care of his sputum, there still remains the droplet infection when coughing without expectorating, sneezing, or coughing during sleep. If he lives or sleeps with others in the same room, these droplets of bacilliferous saliva may cause an infection in the nontuberculous individual because of the prolonged exposure.

We know that the housing problem is most closely allied to the tuberculosis problem. There is enough statistical evidence to show us that tuberculosis is a

disease of congestion. The evidence is to be found in the "lung blocks" of our large cities and in the congested cheap lodging houses, in labor camps, prisons, reformatories, and schools. The very carefully collected statistics of the great city of Berlin show that forty-two per cent. of all the cases of tuberculosis occur in families occupying but one room, forty per cent. where they occupy two rooms, twelve per cent. where they have three rooms, and six per cent. where they have four or more rooms.

Congestion is, of course, equally detrimental in workshops, sweatshops, factories, offices, and stores, and the only reason why sufficient attention is not paid to congestion in these localities, is the difficulty of obtaining satisfactory statistics.

Dr. Bertram H. Waters, in a recent contribution (*Journal*, xciv, page 879, 1911), showed how very frequent tuberculosis is among the garment workers of New York city, the majority of whom work in our crowded and unsanitary sweatshops or so called factories, situated mainly in the tenement house district.

That tuberculosis is most prevalent among the poor, or, as I may more justly express it, among those who receive low wages, is also too well known to need statistical evidence; however, it is interesting to recall here the well known statistics of Hamburg, which show that the highest mortality was in those families with a maximum earning of \$300 a year, this mortality being three times as high as in families whose income was \$1,250, and about four times as high as in families earning \$6,000 a year. If such statistics concerning congestion and wage earning should be taken in the United States and Canada, I am sure the statement that tuberculosis is a house disease, one of overcrowding and of low wages, would be amply corroborated.

Thus, for example, in the experience of a single charity society, the New York Association for Improving the Condition of the Poor, it has become very evident that the prevalence of tuberculosis is in the majority of instances the result of insufficient earning on the part of the head of the family.

Thanks to the courtesy of Mr. William H. Matthews, director of the Department of Family Welfare, I have come into possession of the advance sheet of a report soon to be published, from which I will quote the following: "The low wages of many of the men whose widows and orphans had to be taken care of by the society, may well be given as one of the reasons why many of the families were more or less dependent before the husband's death. Again, the result of the low wage, insufficient to supply the food, clothing, and shelter necessary to healthful existence, undoubtedly meant that the bodies of the men, women, and children were exposed to diseases that especially prey on underfed, poorly clothed, and badly housed people. Tuberculosis cut short the lives of forty per cent. of these men." Their minimum wage was \$8 and their maximum wage \$18 a week.

In the letter accompanying this report, Mr. Matthews says: "Generally speaking, as I read relief case records and go in and out of the homes of our families, I am constantly depressed as I note the amount of poverty and want that comes through the presence of this disease (tuberculosis), and again

with the fact that poverty seems responsible for the quick hold which it gets on so many of our families; that is, it appears in terms of both cause and effect, and it is often difficult to determine where the line between the two may be drawn."

Ignorance of how to prevent tuberculosis by care and sanitation completes the trinity of the most important causes of the prevalence of tuberculosis. Where there is no efficient health department, no sanitary control, no enlightened government to provide for the instruction of the masses and for sanitary housing and the careful supervision and treatment of the consumptive poor in sanatoriums and hospitals, tuberculosis flourishes today as much or more than ever, because our present industrial conditions produce congestion of the masses in cities and towns, and less outdoor life in field and garden.

Alcoholism, that is to say the excessive and injudicious use of alcoholic beverages, is to my mind another strongly predisposing factor to tuberculosis. It not only renders the individual more susceptible to the invasion of the tubercle bacilli, but also makes the cure much more difficult. In my service at the Riverside Hospital-Sanatorium on North Brother Island a large number of patients are alcoholics, and the prognosis in such cases is almost invariably unfavorable. I regret to state here that I have had in my service as many as seventy per cent. of tuberculous patients who confessed to the excessive use of alcohol prior to contracting tuberculosis. At Riverside the vast majority of patients come, however, from the poorest of the poor, the most unfortunate of the unfortunate. Hence, let us be just and remember that poverty may be the cause of alcoholism as often as alcoholism is the cause of poverty. The poor will often seek forgetfulness of their misery in the cup. For lack of time I cannot, of course, enter here into a lengthy discussion of this vast and important problem of alcoholism. All I can say is that education, wise legislation, rational temperance movements, better food, and better cooking, comfortable and attractive club and assembly rooms for laboring men and women, and popular, healthful enjoyments for the masses in general are, to my mind, the most rational means to combat the alcoholic evil.

The motto which I used for the first time, some fifteen years ago, in writing a popular essay on tuberculosis for competition, reads as follows: "To combat consumption as a disease of the masses successfully requires the combined action of a wise government, well trained physicians, and an intelligent people."

The wise government of today, be it Municipal, State, Provincial, or Federal, realizes that it is of prime importance to do away with all conditions which predispose the masses to tuberculosis. Hence, good housing laws are enacted and in a few cities they are rigorously enforced. Unfortunately, the value of good and sanitary housing is not sufficiently appreciated in smaller towns and villages where the housing conditions are often as deplorable as in the larger cities. Not until the smaller communities, as well as the larger ones, awaken to the necessity of proper housing, can we hope for a diminution in the morbidity and mortality from tuberculosis.

A modern government will not only see to it that

wise and humane laws are enacted and enforced in factories, workshops, prisons, reformatories, and for the well being of the workers in factories, shops, or offices, and for the unfortunate prisoners in reformatories, prisons, and penal institutions, but above all it will make sure that the child attending school is well housed, well clad, and well fed. We realize today the great and inestimable value of the open air school for the intellectual and physical development of our children. We have learned the value of midday luncheons for the children of the poor attending our schools. This luncheon can be provided at the minimum price, and thus pauperizing may be prevented.

Open air schools have not only cured the tuberculous, the anemic, the predisposed, and the nervous child, but have such a beneficial influence on normal children that the desire and need of such schools is more than evident. Those of us who are working among the tuberculous of all classes, young and old, venture the statement that if any government wishes to combat tuberculosis successfully, it must pursue the policy to have open air schools as a rule, particularly for all primary courses; the indoor school must become the exception.

To weed out tuberculosis from our schools, we must, of course, examine and periodically reexamine teachers and all children attending school. We must examine the children of the tuberculous and the non-tuberculous. What is commonly known as scrofula we must consider only a milder type of tuberculosis, but also communicable, preventable, and curable, as are the other forms of tuberculosis, and in the words of the late King Edward VII, we say "If a disease is preventable and curable, why not prevent and cure it?"

The prognosis of tuberculosis in childhood is particularly favorable, hence we should be particularly eager to discover tuberculosis in children, which by the way is very much more prevalent than we were apt to think in former years.

In some sections of the country as many as fifty per cent. of the children of parents attending tuberculosis dispensaries have been found on examination to be afflicted with tuberculosis of various types. We know that children can also contract tuberculosis from others than their parents, as nurses, tuberculous relatives, boarders, and strangers to the household, and we furthermore know that nearly ten per cent. of the children afflicted with tuberculosis have contracted the disease by the ingestion of tuberculous milk because the bovine type of the bacillus has been found in that percentage. We are as yet uncertain whether or not the bovine type of the bacillus of tuberculosis is transformed in later years into the human type by its new environment, but we do not worry about this uncertainty; we teach, preach, and practice the prevention of tuberculosis in cattle by the enforcement of the tuberculin test and by weeding out the tuberculous cattle and prohibiting the sale of tuberculous meat and milk.

The last and not least important factor to prevent our children from acquiring tuberculosis, is that we must pay more attention to a healthy physique and not carry mental training to such an extent as to hinder the proper physical development of the child

in school or the young girl or man in college. All children should be taught the love of fresh air and the value of deep breathing in good, pure air. The simple rules for the prevention of tuberculosis and for general hygiene should be taught the children according to their understanding. They will thus become apostles of sanitary living and of open air life in their own homes.

It goes without saying that while healthful and useful occupation under sanitary conditions is not harmful to the healthy child if it has sufficient time to play and to sleep, child labor is death dealing. It is a disgrace to our nations, yours and mine, that child labor is still carried on in many sections of our countries. All careful students of the tuberculosis problem consider child labor one of the most pathetic predisposing factors to tuberculosis in the adolescent.

As a part of the education of the masses, modern phthisiotherapy has welcomed the movements to diminish, as far as possible, the marriage of people acutely ill with tuberculosis. The educational value of such movements cannot be overestimated, even though its practical value is difficult to demonstrate at this time. Our views concerning marriage of the tuberculous, as well as our views on the dangers of a tuberculous conception, differ quite materially from those of twenty-five years ago. We are no longer deceived by the tuberculous mother's apparently better condition because of her pregnancy; we know that it is really only an illusion and that seventy-five or eighty per cent., if not more, invariably relapse shortly after confinement. We are no longer afraid to impress this solemn truth upon tuberculous parents and urge preventive measures. When these latter have been disobeyed, the emptying of the uterus, after due consultation, may become necessary in order to prolong or save the life of the mother. Physicians working in the homes of the poor have, of course, also learned that repeated pregnancies in the hard working woman, the necessity of her often working until a few days before delivery and resuming work perhaps a week after confinement, constitute one of the most appalling predisposing factors to tuberculosis in the married woman of our laboring classes. Here, much education, much philanthropy, and great wisdom on the part of our city, State, and Federal governments is necessary so that they may aid such families when their earning capacity is insufficient to enable the mother to rest a few months before and after she has performed the most important function to the State of bearing a future citizen.

Sleeping out of doors or with windows wide open all year round, is no longer considered a fad, but one of the very essential features in diminishing the morbidity and mortality from tuberculosis. Any number of devices to facilitate outdoor sleeping have been invented and are widely used. Window tents, porchettes, wall houses, starnooks, etc., are names which were unknown to the masses twenty-five years ago, and also to many physicians. Now they are household words in many sections of the country.

Many business houses, corporations, and even city governments have realized the inestimable value of the periodical physical examination of all their employees, and particularly the great importance of

this measure in preventing tuberculosis. The very efficient health commissioner of the city of New York, Dr. S. S. Goldwater, has made the physical examination of all employees of the health department obligatory. He is contemplating the same measures for the employees of all other city departments, and very justly made the statement recently that if every citizen in the United States could thus be examined, the morbidity and mortality rate of all diseases, including tuberculosis, would be vastly diminished, and *ipso facto* a great economic gain would accrue to the commonwealth.

An immediate beginning might be made by examining all persons handling food products and not licensing any one to handle such products unless he is found to be free from tuberculosis and other dangerous infectious diseases.

Many corporations and employers of large bodies of men and women, have already realized the inestimable value of thus preventing the development and spread of tuberculosis among their employees, and have introduced examinations and periodical reexaminations. Whenever a case has been found to be in need of institutional treatment, such has usually been provided. A well known life insurance company of New York has gone even further by establishing at Mount McGregor an ideal sanatorium, where the tuberculous employees of this great company find the best possible chances for recovery from their disease and the reestablishment of their earning capacity.

Laudable as are the effects of large corporations, employers, and municipal and other governmental bodies, when they insist upon an examination of every candidate seeking employment and thus weed out the predisposed or the actually tuberculous, we must here bear in mind that this causes a new and tremendously difficult problem to confront us. These corporations, employers, etc., surround themselves with an army of those physically best fit to do their work, but at the same time a large army of men and women is created, seemingly unfit, needy, and eagerly seeking employment. What are we to do with them until the time when we shall have State insurance against tuberculosis? For the actually ill, we must provide sanatorium facilities, and for those only physically feeble, we must provide industrial colonies where an opportunity is given them to earn sufficient to maintain themselves and to recover their strength.

Not only for the adult excluded from work because of his infirmity, but also for the child excluded from the school because of its being tuberculous or predisposed, must suitable provision for its cure and education be provided in preventoriums and open air schools, the value of which has already been emphasized. The tuberculous teachers should not be forgotten either. They should be given opportunity to teach and get well in children's sanatoriums and preventoriums.

In our modern warfare against tuberculosis, we not only strive to educate the government so that it may show wisdom in its dealings with the problem, by requiring the registration of all tuberculous cases, by establishing dispensaries to serve as clearing houses whence cases are selected for sanatorium and hospital treatment, and whence children are

sent to preventoriums, but with the aid of philanthropy there has recently been established in New York city a new phase to be classed as home hospital treatment. Thanks to the generosity of Mrs. William K. Vanderbilt, Sr., a number of ideal buildings, fireproof, with open air balconies, and sanitarily constructed, are used for taking care of the entire family, when there are one or two members actually ill or predisposed to tuberculosis. The result of this home hospital experiment for the treatment of tuberculous families has been so encouraging that it is hoped that the multiplication of this magnificent philanthropic scheme will follow in both large and small cities in all sections of the country.

The advantages of such home hospital treatment are evident when we consider that tuberculosis, as a disease of the masses, is a typical house and family disease, prevalent in all climes, and particularly in great centres of population; and, last but not least, that it is a very expensive disease for poor and rich alike. The advantages claimed for this method by the advocates of the home hospital are as follows: 1. The directness of its attack upon the home conditions as a crucial, underlying cause of tuberculosis and its consequent poverty; 2, the readiness with which unsuspected, incipient cases may be detected and checked; 3, the exceptional opportunity it affords for adequate control of the disease and family; 4, its avoidance of the opposition, deterrent influence, worry, and other hardships inevitably occasioned by the separation of the sick from the well members of the family; 5, the preservation of the integrity of the home; 6, the care of classes of patients who either could not or would not go to an institution; 7, its fostering an increase of earning capacity in the wage earner and a gradual return to normal conditions; 8, its provision against a return of either the patient or family to the inimical environment where the disease was contracted and is likely to recur; and, 9, in its care, not only for the physical, but for the economic and social ills, not merely of the patient, but of the entire family.

Such a work is evidently hygienic, preventive, curative, economic, and educational, social, and reformative, unique, and comprehensive. It aims at causes, seeks, not only the cure of the individual, but the protection of society, is concerned with the patient, his family, and environment, and deals with fundamental questions of ideals, of livelihood, and of life.

There is, of course, constant medical supervision of the entire family by physicians and nurses, and there are open air playgrounds and open air schools for children; also the home hospital provides a store where the patients can purchase good food for virtually half the price they pay in neighboring stores.

The home hospital experiment has been carried on by the New York Association for Improving the Condition of the Poor, and the aim has been not only to cure the tuberculous families of their affliction, but also to show them the way to a better economic condition.

During the past year there have been under home hospital care twenty-seven families, containing 135 individuals, of whom seventy-nine were patients or suspects. Thus, the average number of members

in each family is exactly five and of patients two and nine tenths. Eleven of these families, containing twenty-three patients, twelve of whom were wage earners, have been discharged. Six of the eleven families were rehabilitated physically, socially, and economically—that is, each member has been restored to health; all have learned the lessons of personal hygiene and have acquired the habit of the lessons learned; the mothers have learned and are able to put into practice important and valuable lessons of home economy, such as how to buy to the best advantage, what to cook and how to prepare it in order to secure the maximum of nourishment at the minimum of cost; and each family is able to earn and does earn sufficient to support itself under normal conditions without the help of charity. Three families had to be discharged for persistent intemperance, and two for refusing to follow advice and direction. The condition of these five families, however, as a consequence of the treatment received at the home hospital, showed a very marked improvement.

When admitted, four of the families were almost absolutely dependent; the average weekly income of all was a trifle in excess of six dollars. When the rehabilitated families moved away from the hospital, their average income had increased to almost fifteen dollars a week. The results obtained with the adult patients compare very favorably with those of the best sanatoriums.

In connection with the subject of caring for the family when the breadwinner has become consumptive and has had to be sent to a public sanatorium or hospital, I must speak of another interesting experiment.

Two miles from New York's great Municipal Sanatorium at Otisville, N. Y., there exists an institution known as the Urania Tuberculosis Preventorium, maintained by private philanthropy. Its object is to provide food and shelter for the wives and children of the men who are inmates of the sanatorium, giving them the same climatic and hygienic advantages as the municipal institution. Connected with the preventorium is a farm which supplies much of the food and vegetables, and the work that the women and children can do in helping to raise these farm products relieves them from the reproach of pauperism. The wives and families are allowed to see the patients at the sanatorium as frequently as is thought wise by the physicians in charge.

All those who know something of the psychology of the tuberculous can appreciate the beneficial influence that will be exerted in the patient when he not only hopes, but can see for himself, that his family, though deprived of his care, are not in want. That he can see them occasionally without a drain on their resources will add to his happiness and contentment.

Since its foundation a few years ago, the Urania Preventorium has cared for some two thousand women and children. It is evident that a preventive work of inestimable importance can be accomplished in such an institution by medically supervising, and treating, if necessary, any members of the patient's family who may have inherited or acquired the tuberculous taint. The cure of the patient is aided

and he is reunited to a healthy family and becomes once more prosperous, instead of returning from the institution to a family stricken with the disease of which it had cost so much sacrifice to obtain his cure, and in which the added work and worry and exposure to new infection may bring on a relapse.

Regarding climatic conditions, I wish to repeat what has been said before but what cannot be too often reiterated, for it belongs in the scheme of the modern warfare against tuberculosis as a disease of the masses. I am by no means willing to underestimate the value of certain climatic conditions, altitude, elevation, topography, forested lands, etc., and am even willing to concede that there are ideal climates. However, what is ideal for one patient may not be ideal for another, and if I was asked to define an ideal climate for our purpose, I should have to say that the ideal climate for the tuberculous patient is the one where he can live out of doors with comfort, enjoyment, and benefit, the greatest number of days in the year and the greatest number of hours in the day.

In selecting the site for an institution we try to approach this ideal as far as practicable, bearing in mind at the same time that fresh, good, and pure air, moderate elevation, a reasonable protection against cold wind, and freedom from dust, suffice to obtain excellent results with the vast majority of patients in the early stages. Furthermore, we have learned that, as a rule, such sites can be found within our home climates, and that since the vast majority of our patients come from the laboring classes, it has proved most advantageous to treat and cure them in the same or nearly the same climate in which they have contracted the disease and where they will have to live and labor after their restoration to health. Even if the cure in the home climate should take a little longer, relapses seem to be fewer than when the patient has been sent to climatic regions totally different from those in which he has been accustomed to live and to which he has to return after his earning capacity has again been established.

Our institutions for the advanced cases we like to place near the large centres of population, so that the friends and relatives of the poor sufferer may easily and frequently visit him without too great expense. Our modern conception concerning the institution for advanced cases has also changed. Thus, personally, I do not even believe in calling these institutions hospitals, because we unconsciously have in late years educated the masses to believe that the sanatorium was for the curable cases, the hospital for the hopeless ones. To give hope and cheer even in the advanced cases, I like to call these institutions hospital sanatoriums. We strive to make these institutions for our consumptive poor in the advanced stages attractive, even beautiful, and above all comfortable, so that the patient will not miss his home, and his relatives and friends can feel that the place where he is, is a good place for him to be. Occasional entertainments, music, or moving picture shows, an instructive and interesting lecture, anything that may tend to divert the patient's mind from his affliction, or may give him happy moments, is resorted to. All

that human skill, sympathy, and kindness can do should be done for him there.

Thus we resort now to artificial pneumothorax in these advanced cases to allay the most distressing symptoms of mixed infection, and by the same means we are often able to control a seemingly uncontrollable hemorrhage. We have now even a means of relief, often lasting for weeks, for that most painful complication caused by the tuberculous involvement of the larynx. It consists of the injection of a few drops of a solution of two grains of eucaïne in an ounce of eighty per cent. alcohol into the region of the superior laryngeal nerve. Lastly, in extremely cold weather, we no longer insist that these far advanced anemic and emaciated patients remain out of doors and suffer. Unless they prefer the cold, they are allowed to stay in warm and comfortable quarters.

And now to a phase of the tuberculosis problem which is of vital importance and to which sufficient attention has only recently been paid. I refer to the occupation of our pulmonary invalids while in the sanatorium and also after they have left the institution as sanatorium graduates. My own training in the Falkenstein Sanatorium as assistant to my famous teacher, Professor Dettweiler, resulted in the idea of rest, rest, and rest again for the tuberculous patient in no matter what stage of the disease. Only in a few instances was walking permitted. We now not only resort to work for our afebrile tuberculous patients for the purpose of occupying them usefully, but we look upon work for this class of patients as a part of our modern phthisiotherapy.

I dealt exclusively with the subject of occupation therapy for the tuberculous in a recent address delivered before the Ninth Midwinter Meeting of the American Sanatorium Association, which had then gathered at the Municipal Sanatorium at Otisville, N. Y.,¹ and I may be permitted, for brevity's sake, to quote some of what I said then: "I am not a partisan to the idea that every tuberculous patient, when on the road to recovery or when his disease is arrested, should do farmer's or gardener's work. The tailor, the weaver, the shoemaker, the dressmaker, or the woman or girl who has been occupied in the tenements with making artificial flowers for fifty cents a day, the bookkeeper, office or store clerk, the typewriter girl, stenographer, or shop girl, the waiter, or any other man or woman who was born or has lived in the city for years and pursued indoor occupations will, as a rule, make a poor farm hand. Some of these patients may be able to work a few hours on the farm, but they will rarely be satisfied, happy, or even contented, and I question whether their physique will ever be able, even when they have completely recovered, to stand the strain of a farmer's life."

What, then, is the ideal occupation for the afebrile tuberculous patient? I believe that, whenever it is possible, we must consider first the psychological, or in plainer words, the mental attitude of the patient. Whenever we can, let us occupy him with something that will make him happy or at least contented, and the work must always be for a

purpose. To have a patient carry a load from one end of the road to the other, or build a brick wall and tear it down again, merely for the sake of exercise, I believe is an absurd practice. If it could be done, I would even favor paying the patient, particularly if he is poor, for useful work accomplished by him in the sanatorium; this does not lessen the value of occupation therapy, but instead enhances it.

Furthermore, when we consider that many patients need the money they may thus earn to support, or help to support their families, we will perceive that the beneficial psychological influence, the peace of mind which is thus obtained for the patient invariably acts favorably on his physical condition.

In the institution at Mount McGregor, above referred to, the patients, who are all employees of the company, are occupied with work similar to that to which they were accustomed in the home or branch office. The amount of work expected from the patient is, of course, prescribed by the house physician after careful examination and watching.

The policy which I have endeavored to outline in my article on the occupations of afebrile patients in the sanatorium, I believe should be followed with the graduate patient who has left the sanatorium either cured, arrested, or at least sufficiently improved to have his earning capacity restored. In the opinion of a number of sanatorium directors who have carefully followed up their cases after discharge, and who have studied this phase of the problem, it has been found best from an economic, social, and therapeutic point of view to have the patient, discharged from the sanatorium, resume, if at all possible and not evidently injurious, the same occupation which he had followed prior to his contracting the disease and which assured him a reasonable livelihood. Of course, if the sanitary conditions of his home or workshop were bad, they must first be improved, and the training which the patient has received in the sanatorium concerning what is good and what is bad for him, will be of invaluable aid in this regard.

There remains now another equally important factor to insure that the improvement, arrest, or cure of a case shall be a lasting one. I refer to the necessity of "keeping tab" on our patients after their discharge from the institution. There should be a close relation between the sanatorium authorities, the physicians, and social workers of the institution, and the family of the sanatorium inmate. This close relation should begin with the entrance of the patient into the sanatorium and continue after his discharge as long as it may seem necessary in his interest, and in that of his family and the community. It is in this regard, I believe, that we have been most remiss in our dealings with our patients coming from the masses. I may say, in all frankness, I believe that thousands of dollars and many valuable lives have been uselessly sacrificed because we have failed to investigate the home of the patient, have not searched for the reasons why he became tuberculous, and have neglected to remedy the conditions responsible for his disease. An equally great financial loss and sacrifice of lives is

¹The Occupations of Afebrile Tuberculous Patients, *Medical Record*, January 24, 1914.

the result of our failure to look after the patients discharged from our institutions, in the right way, at the right time, and in the most practical and at the same time most humane manner.

What sums are daily wasted because we are not taking care of, or cannot take care of tuberculous wage earners at the right time and place, that is to say, at the time when there is a reasonable chance for recovery and the regaining of earning capacity through the proper treatment in the well equipped and well managed sanatorium! I am fortunate enough today to be able to substantiate this assertion by the following figures for which I am indebted to Dr. David R. Lyman, of the Gaylord Farm Sanatorium, with which I have the honor to be connected since its inception. Here is what has been accomplished during the last ten years:

Gaylord Farm Sanatorium, actual earnings of discharged patients up to May 1, 1914.....	\$1,400,000.00
Total expenditures to May 1, 1914, lands, buildings, and equipment.....	\$195,958.08
Interest on above at 5%.....	55,178.94
Total maintenance	345,298.64
	\$596,435.66
	596,435.66
Excess of patients' earning over expenditure..	\$803,564.34

The obtaining of these valuable statistics, showing what the commonwealth has gained by doing its duty toward its consumptive citizens, was made possible by the careful tracing and watching over the patients discharged from the institution by Doctor Lyman and his coworkers.

A universal obligatory insurance of all laboring men and women against accident, old age, and disease, including, of course, tuberculosis, would perhaps solve this, the most vital problem of our age.

To summarize our subject, I will have to plead, first, that the men or women afflicted with tuberculosis, socially so situated as to be unable to procure the sanatorium treatment at home, be placed in an institution where all our knowledge of modern phthisiotherapy shall be applied with a view to re-establishing health and restoring earning capacity. In other words, there should be no uncared for tuberculous individual, be he rich or poor, in a modern civilized community. This means, of course, an increase in the number of sanatoriums, special hospitals, preventoriums, home sanatoriums, seaside hospitals for tuberculous joint diseases, etc. If this cannot be done by the ordinary budget, let us create a special tuberculosis tax so that there will be no delay in the provision for those in urgent need of treatment. Let statesmen everywhere realize that without a Federal department of health, there can be no solution of the tuberculosis problem.

We must have a universal obligatory examination and reexamination of all citizens to discover tuberculosis and other diseases; judicious cattle laws to prevent infection of the human race from cattle; proper housing laws and supervision of factories and workshops to make dangerous infection impossible; reasonable and judicious temperance law and rational antialcoholic educational movements; the abolition of child labor and the support of the indigent pregnant woman a few weeks before

childbirth and partly during the nursing period; open air schools in abundance and equally great attention demanded for the physique as for the brain in primary schools as well as in high schools and in colleges; the thorough training of our medical men in early diagnosis and special anti-tuberculosis work, and a just remuneration for the services they render thereby to the community and the State; special training for nurses and social workers among the tuberculous; education in schools and colleges, factories, and workshops, by literature and lectures, exhibits and museums in all that appertains to the prevention of tuberculosis; furtherance of sanitary living, and avoidance of infection from other diseases. Our statesmen must make laws which will make farming more profitable, so as to attract fewer people to the cities and more to the country, and there should be State, Provincial, and Municipal labor bureaus to adjust the supply to the demand for labor in various localities. Last, but not least, there must be a readjustment of the earnings of the laboring men, there must be a minimum wage which will enable each individual, if he works, to earn enough to live, eat, and clothe himself decently. There must be no underfeeding, no bad housing, more enlightenment, and more sanitary education. Tuberculosis, in order to cease to be a disease of the masses, must no longer be a disease of ignorance, congestion, or underfeeding; in other words, in order to combat the great white plague, I plead with statesmen and philanthropists, with men and women of power and influence, for more social justice, more humanity to the unfortunate, more kindness and love for those so sorely in need of it. Let our war be against tuberculosis, but never against the tuberculous. Let every one have a sympathetic interest and let those who can, render personal service in this holy cause, remembering that after all service to man is the highest service to God, and the most inspiring form of religion.

16 WEST NINETY-FIFTH STREET.

Original Communications.

NONOPERATIVE TREATMENT OF TUBERCULOUS GLANDS OF THE NECK.*

BY ROBERT T. MORRIS, M.D.,
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The method for treatment of tuberculous glands of the neck which I employed for many years was acquired in Germany. It consisted of a very thorough and painstaking removal of the glands *en masse*, avoidance of nerve branches, and other technical details which were quite perfect from the surgical point of view. In a number of cases there was recurrence of the tuberculosis, and when I lost a beautiful young girl from acute general miliary tuberculosis succeeding immediately upon operation, I took up the study of some of the methods for nonoperative treatment, which had been reported

*Read at the fifteenth annual meeting of the American Therapeutic Society, held in Albany, N. Y., May 29 and 30, 1914.

from time to time, but without engaging the acute interest of surgeons.

The first plan consisted in the use of the injection of a seven per cent. solution of iodoform in oil, according to the plan of Mosetig-Moorhof. From one to three minims of this solution were injected into each one of the larger glands at a sitting, the injection sometimes being preceded by a trifle of cocaine. In addition to the local treatment the patients were placed upon hygienic and medical resources suitable for tuberculosis in general.

The results of the treatment were surprisingly good, and we soon had at the clinic a number of patients who were becoming progressively and rapidly better, and evidently without need for operative interference, excepting in cases in which glands had actually broken down and were suppurating.

The injections of iodoform were made at intervals of three or four days, and the younger patients objected very much to the treatment. On this account other resources were taken into consideration, and it was a question if the new proposition of Bier for producing local hyperemia might be applied. This was successfully accomplished by having the reclining patient rest, first, with the neck against a hot water bag for a minute or two, and then against an ice bag for a minute or two; then back to the hot water bag, and to the ice bag alternately, for an hour once or twice a day. The hyperemia which was established under this method of treatment proved to be quite as successful as the iodoform injection method, and even young patients did not object. The length of time required, and attention on the part of some one with time to spare, introduced the only objectionable features. I commonly observed a practical cure of tuberculosis of the glands of the neck anywhere within from one month to six months of treatment.

When seeking for some less irksome line of procedure, some of the patients were subjected to the high frequency electric current, and more lately to the new high penetrating x ray. In a number of cases this has been the most effective treatment, the only objectionable feature being the expense for patients who cannot obtain the benefit of these resources at a public institution.

More recently I have taken up the idea of adding to the other resources the treatment with tuberculin. Tuberculin is used less in New York city perhaps than in any other great medical centre in the world. The reason for this may apparently be charged against our psychology of impatience and the desire to obtain quick and definite results. Any one who acquaints himself with the literature of tuberculin will, I think, be convinced that when this method is applied in the right way and for a sufficient length of time, it is one of the most important of our resources against tuberculosis. In fact, I would hardly feel that I was doing the right thing for my patients with tuberculosis of any sort unless the tuberculin treatment was at least added as one feature. A prospective refinement which comes to mind is the idea of making a closer diagnosis, separating cases of bovine tuberculosis from those of human tuberculosis, and employing bovine tuberculin or human tuberculin in these cases respectively.

When preparing these notes, I asked one of my assistants at the Post-Graduate Hospital if he could get together records of all of our cases of tuberculous glands of the neck for the past ten years, but these cases, treated in the outpatient department, are not recorded according to the card system quite well enough for scientific report, and I can state only that in the past ten years we have treated in that department under my service considerably more than 100 cases of tuberculous glands of the neck without operation in a single one, excepting for glands which were actually suppurating, and for these glands alone, leaving the remaining mass to be treated by some one of our conservative resources.

In outpatient work it is practically impossible to follow all of the cases for end result reports. Many of the children who have made definite improvement are not brought back to the clinic when, in the opinion of their parents, treatment has become less necessary. Some of the older patients, finding it difficult to get away from their work in shop or factory, come at irregular intervals after improvement is well under way. In private practice my work is almost wholly consultation work, and cases are seen with their physicians, who report from time to time, but not in a way for accurate report. One fact, however, is significant, that previous to ten years ago I operated many times in the course of a year for the removal of tuberculous glands of the neck, but during the past ten years I have not operated once for nonsuppurating glands.

616 MADISON AVENUE.

THE EFFECT ON BLOOD PRESSURE OF DECAPSULATION OF THE KIDNEY.

By EDWARD H. GOODMAN, M. D.,

Philadelphia,

Associate in Medicine, University of Pennsylvania.

In Edebohl's last paper (*Journal A. M. A.*, LII, page 195, 1909) detailing the results, immediate and remote, obtained in 102 cases of nephritis treated by renal decapsulation, a study is made of the physical condition of the patient before and after operation. As carefully as the analysis has been done, one fails to note record of blood pressure estimations. This is no doubt explained by the fact that during the years occupied with the study of these cases (1901 to 1909) blood pressure readings were not as now, considered to be an integral part of a physical examination.

Although Edebohl's operation has been frequently performed, record of blood pressure studies is missing in the reports. From a physiological as well as from a pathological point of view, it is conceivable that such studies may reveal facts of considerable importance, not only in helping to explain the causation of the hypertension of chronic nephritis, but also in assisting to understand the good effects which are said to follow kidney decapsulation. The writer has no desire to add to the present state of confusion regarding nephritic hypertension by advancing a new theory, nor can this one case furnish an explanation of the beneficial results which, in

some instances, follow operation. The main interest in this article centres about the remarkable fall in blood pressure which followed a decapsulation operation performed on a patient with advanced renal disease.

CASE. Charles H., aged thirty-seven years, was admitted to the Presbyterian Hospital, November 12, 1913, suffering from edema of the hands, arms, legs, feet, abdomen, and scrotum. Last August (1913) while at the shore, he became short of breath after a long swim, had a chill, and his feet became edematous. He returned to the city and continued to work, but had to stop after ten days. At this time, feet, legs, scrotum, and abdomen became swollen, he was very short of breath, and had pains in the cardiac region. A diagnosis was made of acute dilatation of the heart. Since August, the patient had been kept in bed or in a chair, but two weeks before admission, he was permitted to walk, since which time he had been increasing his exercise a little each day. Three days before he walked around a city block, but later became exhausted, very short of breath, and could scarcely speak. He complained of pain in the lower limbs, but did not suffer much with precordial distress. He was put to bed and remained there for the next two days, but as his condition became worse, he was sent to the hospital. Since the beginning of his illness in August, the urine had become much darker and less in quantity. The bowels had been loose and the appetite until two weeks before had been uniformly good.

Family history. Mother died at fifty-three years of cardiac disease, father by accident. A younger brother and a younger sister had valvular disease. Previous history. Scarlet fever in childhood, followed by "dropsy." When he was eighteen years of age, he began to suffer "with his kidneys," and in the course of three years he passed three stones, the last one sixteen years ago. After this last attack, he felt perfectly well as far as his kidneys were concerned. At the age of twenty-one years, he had a fall and suffered concussion of the brain. Following this he was ill in bed for six months. Since then he had some headaches, but they gradually became less so that at time of admission he complained of no trouble of that nature. Patient was a florist most of his life. He had always been athletic and was accustomed to swim long distances. Smoked very moderately, but did not drink. Used two cups of coffee daily. Denied venereal infection.

Patient was well nourished, expression tired and depressed; edema of feet, legs, genitalia, abdomen, arms, and face; some exophthalmos; radials somewhat sclerotic. Apex beat in fifth interspace eleven cm. to the left of the midsternal line; upper border at third rib, left border twelve cm. to left of midsternal line, right border 2.5 cm. to the left of midsternal line; heart sounds strong, second aortic accentuated; no murmurs. Ascites present. Liver, spleen, and kidneys not palpable. Circumference of abdomen, fifteen cm., below xiphoid cartilage, ninety-five cm.

Urine, on admission, 1,022; heavy cloud of albumin; many hyaline casts, few epithelial and white blood cells. Phenolsulphonaphthalein test, eight per cent. in two hours. Hemoglobin, seventy-four per cent.; red corpuscles, 4,810,000; white, 10,000

For blood pressure, body weight, and quantity of urine see Chart I.

Date.	Blood pressure.	Urine.	Body weight, lbs.
November 12, 1913.....	.....	...	168
November 13, 1913.....	156-125	...	165
November 14, 1913.....	162-134	900	164
November 15, 1913.....	168-130	600+	162
November 16, 1913.....	173-132	600	159½
November 17, 1913.....	176-128	630	157½
November 18, 1913.....	170-132	810	154½
November 19, 1913.....	164-130	720	153
November 20, 1913.....	159-130	660+	154
November 21, 1913.....	.....	600+	150
November 22, 1913.....	157-132	600+	148½
November 23, 1913.....	.....	600+	148½
November 24, 1913.....	156-129	630+	146
November 25, 1913.....	155-128	1080	145
November 26, 1913.....	164-120	660	145
November 27, 1913.....	.....	870	145½
November 28, 1913.....	162-126	840	145½

Date.	Blood pressure.	Urine.	Body weight, lbs.
November 29, 1913.....	164-130	900	147
November 30, 1913.....	.....	780	...
December 1, 1913.....	.....	...	150
December 2, 1913.....	.....	...	150
December 3, 1913.....	162-135	960	150
December 4, 1913.....	.....	840	152
December 5, 1913.....	.....	...	153½
December 6, 1913.....	.....	540	155½
December 7, 1913.....	.....	420+	157½
December 8, 1913.....	.....	?	...
December 9, 1913.....	152-110	720	...
December 10, 1913.....	145-130	300	160½
December 11, 1913.....	.....	840	165½
December 12, 1913.....	164-130	1500	158
December 13, 1913.....	155-130	1200	157
December 14, 1913.....	.....	1120	157
December 15, 1913.....	130-100	780	157
December 16, 1913.....	140-120	720	160
December 17, 1913.....	140-120	1140	160½
December 18, 1913.....	140-120	720	161½
December 19, 1913.....	145-125	900	161½
December 20, 1913.....	150-115	1260	163½
December 21, 1913.....	.....	...	164
December 22, 1913.....	.....	1120	163
December 23, 1913.....	155-130	1180	...
December 24, 1913.....	.....	900	...
December 25, 1913.....	.....	...	...
December 26, 1913.....	.....	1120	...
December 27, 1913.....	160-125	1500	...

AFTER OPERATION.

January 4, 1914.....	126- 93	300+	...
January 5, 1914.....	.....	2520	...
January 6, 1914.....	117- 88	1860	...
January 7, 1914.....	119-110	1020	...
January 8, 1914.....	120- 99	960	...
January 9, 1914.....	123-109	720	...
January 10, 1914.....	122- 94	1020	...
January 11, 1914.....	125- 87	780	...
January 12, 1914.....	.....	990	...
January 13, 1914.....	124- 79	1260	...
January 14, 1914.....	122- 80	1140	...
January 15, 1914.....	114- 73	1050	...

CHART I.—Case of C. A. H., showing blood pressure, urine, and body weight.

The patient was put on a Karel cure and for a time improved. November 30, 1913, he was feeling much better, the edema was much less, he had lost considerable weight, although there was no change in the character of the urine. December 15th, the

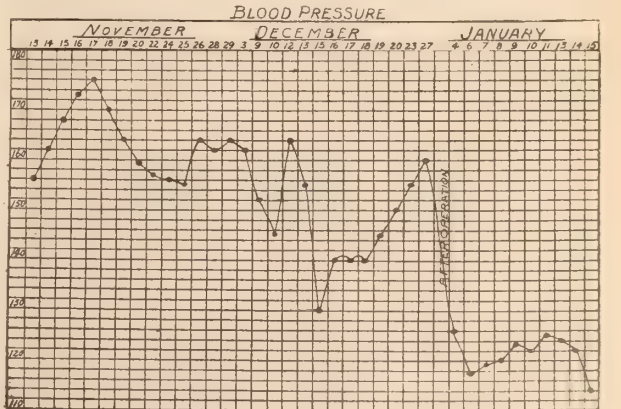


CHART II.—Showing blood pressure.

phenolsulphonaphthalein test showed an output of seventeen per cent., the Wassermann reaction was negative.

From the beginning of December the patient ceased to improve, the edema became worse, and

the general condition was serious. About this time Doctor Jopson was called in consultation, and it was agreed that a decapsulation operation offered the only remaining hope of improving the man's condition. The patient was transferred to the surgical ward, and on December 31, 1913, decapsulation of both kidneys was performed by Doctor Jopson. The left kidney was found to be large, smooth, and dark red, and the capsule was not adherent, while the right kidney was irregular, small, contracted, and lobulated, of the type seen in so called chronic interstitial nephritis. For a time the patient was benefited by the operation, but eventually became progressively weaker, and died January 17, 1914.

Before operation the systolic pressure was fairly high, but the diastolic pressure was unusually elevated, indicating an extraordinary increase of peripheral resistance. After operation, both pressures fell, the systolic to normal, and the diastolic pressure to approximately normal, though one day it was as high as 110 mm. Hg. Subjectively, the patient was much benefited and the improvement was so marked that he became, for the first time, hopeful of his ultimate recovery. The edema was less, there was less dyspnea, and the urine was slightly increased in amount.

Among the favorable changes in the patients operated upon by Edebohl, he notes that "very pronounced cardiac hypertrophies and derangements had become totally insignificant, and in some cases had even entirely disappeared, as the health of the kidneys was regained." As has been stated, blood pressure studies in these cases have not been hitherto reported, so one can form no conclusion from this isolated case. Should it be found, however, that blood pressure is generally lowered after kidney decapsulation, one might be justified in ascribing the cardiac and general improvement, in part at least, to this factor.

248 SOUTH TWENTY-FIRST STREET.

POSTDIPHTHERITIC PARALYSIS.*

Apparently Cured by 60,000 Units of Antitoxin.

BY WILFRED M. BARTON, M. D.,

Washington,

Associate Professor of Medicine, Medical Department of Georgetown University; Member of University Hospital Staff;
Attending Physician, Washington Asylum Hospital.

The sparsity of reports upon this subject in American literature and the interesting speculations which arise in reference to the rationale of the treatment, have induced me to offer the following contribution on diphtheritic palsy.

CASE. L. E. M., white man, aged twenty-three years, single, weighing 165 pounds, by occupation a supervisor. The family history was negative. His previous history was without interest, as he had never been seriously sick before in his life. He had never acquired syphilis or gonorrhea. He used tobacco and alcohol moderately. August 17, 1913, he was taken with sore throat and quinsy, which turned out later, on bacteriological examination, to be diphtheritic. He received, according to his account, two injections of

antitoxin, each of 5,000 units, one on the eighth, the other on the ninth day of his illness. He was confined to bed for three weeks. After getting up, he acquired trouble in swallowing, fluids being regurgitated through the nose. He also noticed that his sight was affected; he could not read the newspapers. Both of these difficulties disappeared in about a week. September 10, 1913, about ten days after getting up, he walked a distance of about thirty blocks, approximately three miles, without great fatigue.

Early in October, 1913, he noticed a feeling of numbness in his legs and forearms, accompanied by weakness in these parts. Three or four days after the onset of these symptoms, he could not walk or use his hands. This state of affairs, however, improved, and after the lapse of two weeks his strength returned enough to enable him to walk, though his limbs felt weak. Thinking to regain his strength, he went to Virginia where he remained a month. During this period there was a gradual improvement up to November 10, 1913, the day before he started home, when he suddenly relapsed. The weakness and numbness rapidly increased, so that, on November 11th, he had to be assisted to the train. On arriving at Washington, he was able to walk out of the station using a cane, but on arriving home he became almost immediately helpless. His hands and feet were absolutely numb; "no feeling at all," as he expressed it, and the muscular power in his hands was so much reduced that he could hold nothing in his fingers and had to be fed. His legs were so feeble that for a time he could neither walk a step nor even stand unsupported. November 19, 1913, I saw the patient for the first time.

Physical examination: Well nourished young man. He walked very slowly and with the greatest difficulty, using a cane which he could hold only feebly in his hand, and assisted on the other side by an attendant who placed the patient's arm over his shoulder and supported him around the body. When the patient tried to walk, the feet were shuffled forward by motion of the hips, the toes dragging, while the knees bent backward with the weight of the body, making the popliteal spaces prominent. There was no marked atrophy of the leg or arm muscles, though they were very soft and flabby and could not be hardened by contraction. The hand grasps were very weak; the dynamometer gave a pressure of 7 kilograms in the right and 6 in the left. All movements of the hands were very weak and he could not hold anything in his fingers. The muscles of respiration, spinal region, neck and face appeared to be normal.

On testing sensibility, there was found diminished sensation, but not total anesthesia of both feet and legs and knees up to a point about one third distance up the thigh, stopping more or less circularly. The same condition was found in the hands and arms up to a point just above the elbow. The temperature sense and pain sense were diminished over the same region. The patellar tendon reflexes were absent; plantar reflexes also absent or exceedingly feeble; no Babinski; cremasteric reflex present; bulbar reflex absent; testicles felt drawn up, he said. The pupils were normal in size and there was no ophthalmoplegia. Visual acuity normal; pupils reacted to light and accommodation; facial muscles and sensation normal. Throat normal and swallowing not difficult; hearing and taste unaffected; heart normal, but pulse 120 after the exertion of attempting to walk.

On November 22, 1913, the patient was sent to Georgetown Hospital. The temperature on admission was 97.8° F. He was given an injection of 5,000 units of diphtheria antitoxin. A culture was taken on agar from the fauces and posterior nares. November 23rd, a second injection of 5,000 units was given, and the examination of the culture was negative. November 24th, a third injection of 5,000 units was given. The patient felt a slight improvement in sensibility in his paretic extremities. November 25th, he could feel the knees together; sensibility to touch seemed to be undoubtedly improved. November 26th, a fourth injection of 5,000 units of antitoxin was given. There was a very slight improvement in muscular power. The grip

*Read by title at the Fifteenth Annual Meeting of the American Therapeutic Society, held in Albany, N. Y., May 29 and 30, 1914.

was slightly stronger. The extension (anterior tibial) of the feet was still very weak. November 27th, a fifth injection was given. Tested as to ability to stand and walk, the patient could stand up, but insecurely so, and could take only a few feeble steps. November 28th, a sixth injection was given. November 29th, tests of sensibility with a cotton swab demonstrated some increase in ability to feel light touches. December 1, 1913, a seventh injection was administered, and December 2nd, an eighth injection. Testing the power of the thigh adductors showed considerable strength. These muscles had never been much affected. The abductors of the thigh were weaker than the adductors. Improvement in sensibility was maintained, and the patellar tendon reflexes were very slightly present.

December 3rd, there was a ninth injection, 5,000 units, and the patient sat up in his chair for fifteen minutes. December 5th, a tenth injection. December 6th, the patient sat up about two hours. On December 7th, the strength of the muscles of the arms was tested; marked improvement was apparent. On December 11th, the eleventh injection was given, and on December 12th, the twelfth. On the 15th, the patient's temperature rose to 100.8° F. and he had a mild influenza. On December 17th however, the temperature was normal again. "On the 18th, he walked unassisted from his bed to the door of room, turning slowly and returning to bed without assistance. On the 19th, he walked unassisted a short distance in the corridor. By December 21st and 22nd, the patient was walking about unassisted and without fatigue. On the 23rd, the patellar tendon reflexes were plainly present. The patient could walk quite well, especially when using a cane. There was still a slight overextension of the knees when the body weight was thrown upon them in stepping. The dynamometer showed eighteen kilos in right hand, fourteen kilos in left.

December 27th, the thirty-fifth day, the patient left the hospital. Two days after leaving, he went to work, using a buggy, getting in and out unassisted. On January 4, 1914, the dynamometer showed seventeen kilos in the right, sixteen kilos in the left hand. He said he had been able to write some for the past week. Patellar tendon reflexes were present but faint. He found a little difficulty in going down stairs, but could go up stairs quite normally. His calves felt stiff. Walking was now quite normal and there was only a very slight overextension of the knees. His general health was fine, his weight 150 pounds (normal weight 165 to 170). Since this notation, I have heard from the patient on divers occasions, and he has suffered no relapse.

Recent experimental and pathological investigations have apparently demonstrated that the diphtheritic process affects the lower neuron throughout its entire extent, including the radicular cell and the peripheral nerve fibre. It is somewhat difficult at the present time to say exactly what portion of the phenomena observed are to be referred to the centrally, and what to the peripherally localized lesions. The alterations in the peripheral portion of the neuron are usually regarded as the most important.

It is also generally considered that the patho-

logical changes in the nerves are produced by the toxins elaborated by the diphtheria bacillus; in other words, that the paralysis may be regarded as a paradiaphtheritic phenomenon. But in view of the fact that in syphilis the so called paralytic sequelæ such as locomotor ataxia and general paralysis have been absolutely proved to be due to the perpetuation of a true syphilitic process, it does not appear chimerical or irrational to assume that perhaps also in diphtheria the subsequent paralyses which are observed are due to a genuine diphtheritic process of the peripheral nervous system, though it is unnecessary to add that such a hypothesis is purely speculative and has never been proved, nor, so far as I know, been even suggested, much less subjected to an experimental investigation.

The treatment of diphtheritic paralysis with antitoxin originated in France, in 1898, and since that time, French authors particularly have warmly recommended the method. Combe, in particular, is an ardent advocate of the treatment. He believes that every case of diphtheritic paralysis, recent or old, localized or general, should be treated with antitoxin.

In my own case, there was some fear expressed that the injection in November of antitoxin, three months after the original injection of 10,000 units in August, might give rise to symptoms of anaphylaxis. But no such phenomena were observed. It might be argued that the benefits were due to rest and not to the antitoxin, but inasmuch as the case had suffered two distinct relapses, and was at the time of the injections completely incapacitated by the paralysis, and that the improvement followed so quickly after the injections, with complete recovery in a month, it appears quite fair to assume that the benefits were in reality due to the injections of antitoxin.

The matter of cost of antitoxin to the patient is not an entirely negligible matter, since in my case 60,000 units were used, amounting in all to ninety dollars.

1750 CONNECTICUT AVENUE.

LOS ANGELES BRONCHITIS.

By J. A. GUTHRIE, M. D.,
Portsmouth, Va.

Once upon a time there appeared upon the horizon a dozen or more elegant gentlemen who appointed themselves to positions and gave themselves titles, such as director, manager, vice-president, and what not, and drew lucrative salaries. They were the creators of a great exposition in Virginia. Those who lost money abast this enterprise were vulgar enough to christen it the "Jimtown imposition." Exhibitions and expositions may be all right if they do not expose some sinister motives in their conception. Inasmuch as some such spirit has moved the Pacific slope, it would be well to provide against the disappointment of those who expect to find there an unconquered Utopia in health and sanitation. One little matter that seems to have escaped the blind boosters of Los Angeles is the inevitable irritation of the respiratory tract

(especially of the upper air passages) that a majority of visitors experience during their first winter in this boasted paradise. My opinion is that the cause comes from a constant stirring up of germ laden dust by automobiles, combined with the wide range of temperature from midday to midnight. In no city have I observed so much unrestrained liberty given to auto drivers. Beside the glaring headlights, injurious to the eyes, there is a wild rush everywhere, apparently at top notch speed, producing an atmosphere very obnoxious to our olfactories. Then the native medico looms up with his eucalyptus, and tells you that you brought the cold and cough with you. Many things were brought, including the Eucalyptus trees, for history tells us that this region, less than a century ago, was a dry and barren waste.

Now, if the "city of angels" will pardon a suggestion from a rank outsider, I advise that mention be made of the changes in diurnal temperature, to prospective visitors for the celebration of 1915. I would also advise an ordinance against speeding vehicles, and an even better method of subduing dust than is at present in vogue. When you send out your embellished folders descriptive of the fruits and flowers of winter, do not fail to say that an overcoat is very comfortable after four p. m., for the unwary one who does not provide for cold evenings is sure to suffer, and, becoming disgruntled, will leave, carrying away a bad impression. I caution the newcomer not to pile on the blankets at night. Insist upon artificial heat in bedrooms, with plenty of ventilation. In other words, heat, plenty of fresh air to breathe at night, warmth of body, but no cramping with tight clothing or coverings. Avoid draughts as you would a viper, for instance, by not riding all over creation in an open street car. Remember that there is nothing under heaven better than pure air, but pure air partaken of as a draught, is deadly. In conclusion, I advise plain, wholesome food, plenty of exercise in the open, and that the body sewers are thoroughly flushed and kept so.

Philadelphians used to say that New Yorkers thought New York was a city of saints and they were the saints. Some of these same exotics have built a city of angels.

Finally, remember that Los Angeles is in about the same latitude as Wilmington, North Carolina, and that the Japanese current is about as distant from Los Angeles as the gulf stream is from Wilmington. Moreover, Wilmington has no snow capped mountains in her immediate vicinity. The whole of these United States was not inaugurated for the advancement of the Pacific coast, as they seem to believe, therefore, pray, why not take a chance on Norfolk, Wilmington, Savannah, or Jacksonville, before going a thousand leagues out of the way to experience disappointment?

Metabolism in Fever.—In its issue for September 19th, the *Journal A. M. A.* calls attention editorially to Kocher, who reinvestigated protein metabolism in the early stages of febrile disease. He reports that even liberal diets yielding eighty calories to the kilogram cannot retard protein catabolism in the early period of fevers.

ACUTE INTESTINAL OBSTRUCTION.

By H. M. ARMITAGE, M. D.,

Chester, Pa.,

Surgeon, Chester Hospital.

The frequently fatal outcome of intestinal obstruction has of late attracted unusual attention. The interpretation of these physiological, cytological, and chemical investigations are of vital importance in every day work if the knowledge thus acquired can be used by the surgeon in lowering the terrific mortality of this condition. Otherwise they amount to idle musings and blind leaps in the dark.

The primitive intestinal canal consists of the fore gut, mid gut, and hind gut. The pharynx, esophagus, stomach, liver, pancreas, and duodenum, as far down as Ochsner's muscle, which lies near the junction of the second and third portions of the duodenum, just below the entrance of the common duct, are developed from the fore gut.

For a short period, early in development, a thickening of the mucosa closes the bowel at this part. The derivatives of the fore gut are concerned in the preparation of food for absorption (1). From the mid gut we get the terminal duodenum beyond the common duct, the jejunum, ileum, cecum, ascending and most of the transverse colon, all of which are concerned in the absorption of food. Nearly all of the carbohydrates and at least ninety per cent. of the proteids are absorbed in the small intestine, while the fluids are to a large extent taken up in the cecum. A small part of both fluids and solids are, however, absorbed in the transverse colon (1).

From the hind gut we get the distal part of the transverse and descending colon, sigmoid, and upper part of rectum, organs concerned in the storage function. The inferior extremity of the fore gut, in the early development, lies in the cavity which is eventually to become the lower part of the thorax. It is sustained by two folds, the anterior and posterior mesogastrium. About the third week, there projects into the anterior mesogastrium a diverticulum of the fore gut at the part which is to become the upper duodenum (1). This diverticulum is composed of entoderm (hypoblast) and passes forward and upward into a mass of mesodermic tissue, called by His the septum transversum, which lies in front of the fore gut just below the heart (2). The two outgrowths give off numerous solid buds of endodermic cells, known as hepatic cylinders, which grow into the septum transversum and form the entire liver and hepatic ducts (2). The gallbladder and cystic ducts are formed from the common duct which is a direct outgrowth of duodenal tissue (1).

Acute intestinal obstruction may be divided into two forms—the obturation and strangulation forms. In the obturation form there is a simple closure of the bowel for the passage of the fecal current with minimum injury to the intestinal wall itself (6). Strangulation of the bowel includes, not only obturation, but compression of the wall of the intestine, giving rise to interference with the blood and nerve supply of the bowel. Investigations as to the cause of death have given rise to several directly opposing theories.

Among the classic explanations of death in ob-

struction, infection was early given a prominent place (3). Death may result without demonstrable invasion of the blood stream, peritoneum, liver, or spleen by organisms, as proved by Hartwell and Hoguet in experiments upon dogs (4). The theory championed by F. T. Murphy and Vincent, that interference with the circulation of the obstructed intestine is the vital factor in the symptoms of ileus, has been disproved, since there is abundant evidence that death may occur when the intestinal obstruction is uncomplicated by any circulatory interference. Venous obstruction when it does occur, as in the strangulation types, leads to more fulminant and disastrous consequences by producing extensive pathological changes in the walls of the intestine than simple obstruction alone (5).

The changes may be produced by simple distention of the bowel (Kocher), and consist of a pronounced venous stasis of the vessels in the bowel wall which permits microorganisms to pass into, and in some cases through the bowel wall. Great quantities of fluid are thrown into the intestines from the mucous membrane from hypersecretion, exudation, and hemorrhage. As a result of these changes, the intestinal epithelium is destroyed, the mucous membrane is cast off in the parts where ecchymosis has occurred, and the ulcers thus formed may perforate, and peritonitis follow (6). The circulatory factor is incidental and contributory here, and not the determining cause.

The cause of death has been attributed to an intoxication from within the lumen of the bowel. The toxic substance, according to some investigators, arises from bacteria and noxious substances within the intestinal canal, while others assert that it arises from the secretion of a poisonous product by the glandular structures and walls of the alimentary tract. If it arises from bacteria, it is untenable to believe that the part of the bowel poorest in bacterial inhabitants is that which yields most rapidly to fatal results when obstructed—that is, the duodenum and jejunum (3).

Draper believed that the toxin is contained in the duodenal secretion and is normally neutralized by the secretion of the mucosa of the jejunum and ileum (7). Whipple, Stone, and Bernheim proved that the duodenal loop fluid was found to lose none of its toxic characters when mixed with normal intestinal mucosa (3). According to Hartwell and Hoguet, the important element in the development of the toxic symptoms seen in intestinal obstruction, is the hitherto unappreciated loss of water. The symptoms of intoxication are those resulting from tissue disintegration following the loss. When strangulation complicates obstruction, however, these facts do not suffice to explain the outcome (3).

Much time and space have been devoted to the very commendable efforts of investigators in trying to present the most minute symptoms dealing with the localization and type of obstruction. Suffice it to say that the higher the obstruction, the more rapidly fatal the symptoms, and that strangulation increases the probability of a fatal outcome.

Early recognition is vital, and if we are to obtain this we must have an associated system of working symptoms by which a diagnosis may be made with-

out waiting for the sequelæ which denote destructive changes in the body as an entirety and make a fatal outcome a surety. The mortality of this class of cases is, and always will be high. New methods of intestinal suturing will not lower the death rate, and the sooner we remember that the intestinal canal is not a "system of rubber tubes to be spliced and lopped at will" (Cannon) and devote our efforts to formulating simple methods for early diagnosis, the more quickly will the appalling death rate be reduced. Surgical interference upon the dying is useless.

The three symptoms of importance are pain, constipation, and vomiting.

Pain. When the fecal current alone is interfered with, the pain is colicky. If strangulation is present, the pain is violent and the patient is shocked. Lavage of the stomach and a well given enema do not relieve the pain.

Constipation. There is generally a history of constipation and also of attempts to move the bowels by the use of cathartics. There may be a history of constipation following a diarrhea. A well given enema fails to bring results, although the discharges obtained at first may consist of some feces and gas, but if this is simply in the lower bowel, the pain and vomiting will fail to be relieved. If there is any doubt, however, another enema should be given in half an hour. The failure to expel gas is an important symptom and one easily overlooked, since we too often depend upon the ear and quite frequently rely upon the nurse; the importance of this symptom cannot be emphasized too much.

When the enema is given, the outer end of the tube should be under water in order that we may observe any bubbles of gas as they leave the tube. If we follow this plan, we shall know and not imagine whether or not gas is expelled. In lesions such as intussusception and in some tumors, diarrhea and bloody stools exist. In these cases the diagnosis must usually rest upon the palpation of a mass, through either the abdominal wall or rectum.

When the fecal current alone is interfered with, violent peristalsis ensues, and if the abdominal wall is not too thick, this will be visible. Visible peristalsis is not, in my judgment, as valuable a sign of complete intestinal occlusion as stiffening of the bowel wall which may be felt upon palpation. I have had cases in which a mass of omentum was strangulated where peristalsis was visible, but in which no stiffening of the bowel wall could be determined upon palpation. When strangulation is present, the peristaltic waves are not visible, as a rule, since the musculature has become hypertrophied.

Vomiting. The vomiting is persistent. At first it is reflex, but later mechanical. It is not controlled by lavage. Hiccough may be present instead of vomiting. The diagnosis should therefore depend upon the preceding symptoms.

When a patient is suffering from abdominal pain, alone or in conjunction with constipation and vomiting, and we find symptoms of mild or severe shock, we should first endeavor to discover some

localized cause or signs of general peritonitis. If we fail, an enema should be given and the stomach washed out. From the results we may formulate certain definite plans.

Do not operate: 1. When the patient is permanently relieved. 2. When the patient is unrelieved, but feces and gas are expelled and we find a blue line on the gums and stippling of the red cells indicating lead poisoning, or evidence of tabes indicating gastric crisis.

Operate: 1. In those cases where the patient is not relieved and every effort to secure the passage of gas and feces results negatively.

2. In those cases where lead poisoning and gastric crisis are proved to be absent, but in which there is no permanent relief from pain, and if the constitutional symptoms of shock progress, we should operate, although the bowels move slightly and gas passes, because these are cases of incomplete obstruction and a certain percentage become complete. If they remain incomplete, operation offers the best chances for recovery, since even these cases may present the secondary symptoms of toxemia, and death may ensue without the bowel becoming wholly occluded.

Cathartics have not been mentioned for the following reasons; when the enema is effectual, they are not needed, and if the enema is ineffectual, they may do a great deal of harm.

Prognosis. If the condition is diagnosed on the first or second day, seventy-five per cent. of patients recover. Diagnosis on the third day means thirty-five to forty per cent. of recoveries.

Treatment. Of great importance is early diagnosis, and after diagnosis, laparotomy is indicated with the least delay possible. As we have seen, the cause of death is obscure, but from the mass of experimental evidence at hand we are able to reach the following conclusions: Intestinal obstruction, if unrelieved, is followed by a profound toxemia; this toxemia may be due to loss of water, stagnation of intestinal contents, an altered function of a normal appearing mucosa, or arise from the damage secondary to the obstruction.

Our course should be as follows: If we decide to operate, the patient should be given large quantities of saline solution, either subcutaneously or intravenously, before, during, and after operation. The stomach should be washed out before operation. When the abdomen is opened, the kind of operation will largely depend upon the nature of the obstruction and the condition in which we find the intestine. If simple obstruction, without strangulation, is present, relief of the obstruction is sufficient. In cases of obstruction due to tuberculosis of the mesenteric lymphatic glands, where the glands are enlarged to such an extent as to cut off the circulation of the entire small intestine, nothing can be done. This condition was present once in my series of cases.

When the obstruction is relieved, hot towels are applied to the obstructed bowel until it regains its normal color and tone, the intestines are replaced, and the incision is closed. The least hazard is offered to the patient with a minimum amount of operating in these cases.

If extensive adhesions are present and they give evidence of having undergone organization, the best plan is to short circuit the bowel and leave the adhesions alone, since the segment of intestine which is bound down in the mass of adhesions will, as a general rule, be found to have lost its normal muscular tone and will not contract or distend, but will retain the appearance of a flattened fibrous tube. Where the adhesions are not organized, they may be broken up if not too extensive, but in these cases we should always drain with iodoform gauze. Adhesions form from the exudate, which is thrown out, and if delivered to the surface fast enough, does not agglutinate. We should remember the three cardinal principles of drainage in these cases; posture, capillarity, and an exit for the drainage material larger than the base. These latter cases are usually cases of postoperative obstruction and the foregoing method has given me the best results.

Where strangulation is present, we should base our procedures upon the condition of the bowel and the extent of the general toxemia. If the toxemia is mild and the bowel regains its normal color and tonicity after the application of hot towels for fifteen minutes, the loop may be returned to the abdominal cavity. In hernia the strangulated bowel will often return to normal if the opening is enlarged sufficiently to allow it to be replaced within the abdominal cavity. In cases where this is advisable the loop of gangrenous bowel must be secured so that it may not slip away from the operator. If the intestine does not regain its normal color and tonicity, resection should be performed. The manner in which this is done, may be left to the choice of the operator. The points of importance with any method, are the resection of a sufficient amount of bowel, broad peritoneal apposition surfaces, and care of the mesenteric angle.

The Murphy button is the safest device where speed is of paramount importance. Where the patient's condition permits, end to end anastomosis with suture may be done or, better still, the damaged bowel may be resected. The free ends are closed with a continuous heavy suture of Pagenstecher linen and buried with a Lembert suture. A lateral anastomosis is then performed in the usual manner.

In the profoundly toxic cases, the obstruction should be relieved, the gangrenous loop brought out of the abdomen and packed off with gauze, and an enterostomy done above the gangrenous loop or, if this is impracticable, the opening may be made through the damaged portion of intestine. In this manner continued drainage is produced, and since it seems assured that a toxic substance is present, whatever may be the cause of its production, to neglect drainage would stamp us as derelict in our duty and rob the patient of the greater portion of his chances of recovery.

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400 EAST THIRTEENTH STREET.

EXPERT TESTIMONY FROM THE STAND-POINT OF A LAWYER.

By A. M. HOLDING,
West Chester, Pa.

I. Ever since men began to specialize in the arts and sciences, the subject of opinion evidence has been of interest to all of the professions. The lawyer, in issues involving science or technical skill, or in which either could serve to establish his contention, has, of necessity, been interested to know just who is an expert, just what is expert testimony, and precisely what is the best and most effective method of presenting to the court and jury the opinion of the expert.

Scientists and professional men have been interested, not only because they wished to know just how they are required to present to the tribunal into which they are called the knowledge and skill that they have, but because they feel that in court, at least, in the community from which the litigation comes, and with their professional brethren, their knowledge, skill, and, indeed, their general cleverness are on trial. There are experts, whose opinion evidence is admissible in court, of as many kinds as there are arts and sciences, but we are to consider only what is known as the medical expert.

A medical expert is one who has enjoyed some means of special knowledge of, or experience in the science of medicine, but the law does not recognize, to the exclusion of others, any particular school of medicine or class of practitioners. It was originally held, and is now generally stated to be the rule, that to give an opinion on medical questions, one may be qualified by study without practice, or by practice without study. It is not absolutely necessary that he should be a physician nor have studied to be one.

This, upon superficial consideration, may seem a startling statement, but it was so held by the Court of Appeals of New York, when it permitted a witness who had had twenty-one years' experience as a hospital nurse attending surgical operations, to testify as an expert as to what character of disease an operation which he attended was performed for.

While a medical expert is generally required to be a graduated physician of some school, it is not required that he should have made a *special* study of the subject concerning which he is called upon to testify. An interesting, and somewhat amusing, illustration of this is to be found in a North Carolina case, where a physician who had observed the symptoms of a sick mule was called to give his opinion as to whether the disease was of recent or of long standing. It was objected that he was not of the veterinary school, but the court held him competent, saying: "Stock and the human family are animals of many similitudes and some variances. The circulation of the blood, the respiration, and the laws of nervous and muscular action in a mule are similar to those in a man. In the organs of digestion and other functions, there are variances, owing to the differences of food, etc. So that, although it be admitted that one acquainted with the mode of treating diseases of the human family

should not be relied upon to select from the *materia medica* substances apt for the treatment of stock (for *non constat* that a medicine which will produce a given effect administered to a man will have a like effect administered to a mule), still, we think it clear that one having scientific knowledge of the diseases of men must be presumed to have so much knowledge of the diseases of a mule as to enable him to determine whether a disease with which the animal is afflicted be of recent or of long standing."

Of course, to be a medical expert the physician need not be a specialist. The opinion of a general practitioner upon a question involving the eyes, is as admissible, if not as valuable as the opinion of an ophthalmologist.

It is needless to say that the witness, even if a specialist, need not possess *all* of the knowledge in his special field, though many of us lawyers seem to expect this. A very recent authority in Pennsylvania holds that his opinions are not even required to be orthodox. Another fact, not universally known to all examining lawyers, is that the witness must not necessarily have treated, or even specially observed a case of the exact character of that under consideration.

II. From what I have said it will be seen that the opinion of a medical expert, so called, may be admissible, and yet may or may not be valuable. Its value is entirely for the court and jury, and depends upon the knowledge and experience of the witness, and even more upon the concise, unambiguous, unadorned plain language in which his opinion is expressed, and in which the reasons therefor are given.

Said a high authority: "The opinion of one expert may, on account of his greater knowledge and experience, or from his giving fuller and plainer details of the case, or more probable reasons for his opinion, be of greater value to the jury than the opposite opinion of several."

Many learned, experienced, and altogether splendid physicians take from, or even destroy the effect and weight of their opinion by their failure to give in plain and concise language the facts upon which they base their opinion and the reasons therefor. The proper function of the expert is to instruct the court and jury upon matters not commonly known and of which knowledge comes only from special study and experience. When, therefore, a physician is called upon to testify as an expert, he should, having this function in mind, specially examine and thoughtfully consider the case, reach the most reasonable conclusion, and be prepared to justify his opinion by convincing reasons.

III. *What is medical expert testimony?* The opinion of a medical man is admissible: 1. Upon the *condition*, physical or mental, of the human system; 2, the cause of death or of disease; 3, the cause of an injury; 4, the effect of an injury; 5, the effect of a drug medicine, or a particular treatment; 6, the probability of recovery; 7, or upon other questions *peculiarly* within *his* knowledge as such.

The foregoing definition is a conclusion from all of the cases in which opinions of medical men have

been received. It is sufficiently broad to include all cases in which such opinions have been found to be of special value and is still in no sense too general. To undertake to "formulate a stricter definition of medical testimony" would prove dangerous, if not impracticable.

I know it is fashionable just now to undertake to remedy any and every existing evil by statute. This is evidenced in our own State by the growth of legislative enactments in the legislative sessions of 1875 and 1877 of less than 100 pages each to more than 1,100 in the session of 1911, and almost 1,500 pages in the session of 1913. Much of this alleged progressive legislation is altogether barren of the results intended and honestly anticipated by many good people, and a great deal of it tends to uncertainty and confusion.

The rules laid down by the courts based upon decades and even centuries of experience, cannot often be safely tampered with, and the rule above quoted as to what is medical testimony could not be codified or made the fast and tight subject of legislative language with any good effect.

IV. *Basis of medical evidence.* The opinion of a medical expert may be based either on, 1, observation, or, 2, on a personal examination which he has made, or, 3, upon a hypothetical case stated to him in court. It must not be based on mere hearsay; that is, it must not be based on information gained from the statements of others obtained out of court. The expert must not base his opinions upon the voluntary statements of the patient as to his symptoms and the condition of his health on an examination made by him at his request, *for the purpose* of testifying on the trial in his behalf; nor as to the condition of the patient formed in part upon the statement of third parties, or on what the family of the patient may have said to him; or on information derived from private conversations with other physicians or experts.

The opinions of medical experts are not admissible, nor should they be permitted to testify upon any of the following subjects:

1. Matters not of skill in their profession; for instance, as to what caused certain marks on the throat of the deceased, or the position of A when he shot B.

2. On questions of law. To illustrate, whether R, indicted for murder, the defense being insanity, was responsible for her acts. Or as to the meaning of "malpractice." These are questions of law for the court.

3. Or on conclusions or inference which it is the province of the jury themselves to draw.

4. Or on matters of mere speculation. This brings us to a consideration of the testimony of physicians as to the effect of injuries. Experts are called upon to testify more frequently upon this subject perhaps than upon any other, and the failure of many to differentiate between that which is purely speculative and that which is reasonably certain, has led to a great deal of criticism of the medical profession. Some wit has said that physicians bury their mistakes, while lawyers have to face theirs in the records of cases lost and in the books of reports. This may be true in part, but any mistakes due to speculation upon the permanence, or

nonpermanence of personal injuries, live to reproach the offending expert.

The testifying physician should never undertake to prophesy results *purely speculative* without squaring himself by stating that they are so in plain English. If the result is reasonably certain to his satisfaction, he should be equally positive in his opinions.

V. *Medical books.* Another matter upon this subject, which is doubtless of interest to men of the medical profession, is the use of medical books by or in the examination of the expert.

Medical textbooks are not admissible simply for the opinions therein expressed; but the medical expert may, and often does found his opinion upon the works generally accepted, as of authority, or as of some authority in the profession, and, if he likes, he may so state, although the opinion expressed in court must be his own! Counsel cross examining the expert may refer to and even read from a textbook to the witness, to test his accuracy, refresh his recollection, or even discredit him.

It is therefore wise for one called upon to give testimony as an expert, to fortify himself, whenever practicable, by some generally accepted and authoritative textbook, not that he may read it for *its* opinion to the jury, but so that he may meet any attempt by opposing counsel to quote it or any other authority to him to discredit him.

VI. *The hypothetical question.* In the majority of cases in which medical men are introduced as experts, their opinions are asked upon hypothetical cases, that is, based upon facts assumed for the purpose of the trial. Although physicians from early times have been permitted to give opinions based upon hypothetical cases, the hypothetical question is still somewhat of a bugaboo in the medical profession. If, however, the reasons therefor, the limitations thereon, and, to my mind, the absolute necessity therefor, are understood, no injustice is done thereby and nothing is to be feared therefrom.

The reason and the necessity for the hypothetical questions, rather than to allow the witness to express his opinion on the evidence as he heard it, are that in almost every case the testimony as to the facts from which an opinion must be formed is contradictory. The expert cannot say, and cannot be asked whether the basic facts contended for by the one side or by the other are proved. That question is for the jury, and cannot be taken from them.

Therefore, when the facts are admitted, or proved by evidence which is not conflicting, the expert may be interrogated as to his opinion upon such facts and no other. As, however, it is the province of the jury to determine the facts, an expert cannot be asked his opinion upon the whole evidence in the case where that is conflicting.

But a party may state specifically the particular facts he believes, and will contend to be shown by the evidence, and ask the opinion of the expert on such facts, assuming them to be true. The other side may likewise put a hypothetical question based on such facts as they allege are shown by the evidence.

Neither side is required, in putting the question,

to include therein any other facts than those which it may reasonably deem established by the evidence. (Gillman *versus* Media, etc., 224 Pennsylvania, 267.)

It will thus be seen that the opinion of an expert cannot be given at all in any case where the basic facts are in dispute, except through the hypothetical question. It will be further observed that the hypothetical question cannot be used as a sort of fishing expedition simply to catch the witness or to try out his opinion upon irrelevant matters, for it can never be allowed upon an assumption of facts not supported in some measure by the evidence. (Zeigler *versus* Simplex Co., 228 Pennsylvania, 64, and cases cited.)

Experts therefore bear in mind that they have nothing to fear from the hypothetical question, if they understand the principles of their science which apply to the symptoms and facts in the case upon which they are called to testify.

QUANTITATIVE ESTIMATION OF ALBUMIN IN URINE.

A Comparison of the Reliability of the Various Methods.

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It has been observed by the various workers in our laboratory that no constancy could be obtained in the results of urinary albumin estimations, no figures of any method agreeing with those of another method; and frequently large variations were noticed in the results obtained by the same method. We decided, therefore, to undertake a systematic comparison of the efficiency of the several methods recommended. The following tests were carefully studied: 1, Scherer; 2, Devoto; 3, Esbach; 4, Kwilecki; 5, Aufrecht; 6, Walbum; 7, Tsuchiya; 8, Brandberg; 9, Pfeiffer; 10, Claudius; and 11, sundry other methods. The procedure in each case was as follows: A twenty-four hour specimen of the albuminous urine was collected in a large bottle, filtered, and the albumin in the filtrate was determined by the following methods, so that comparisons could be drawn of the efficiency of each.

1. *Scherer's coagulation method.* Place fifty c. c. of urine in a small beaker and raise the temperature of the fluid to 40° C. upon a water bath. Add dilute acetic acid, drop by drop, to the warm urine to precipitate the protein, which will separate in a flocculent form. Care should be taken not to add too much acid; ordinarily less than twenty drops is sufficient. The temperature in the water bath should now be raised to 100° C. and maintained there for a few minutes in order to insure the complete coagulation of the protein. Now filter the urine through a previously washed, dried, and weighed filter paper, wash the precipitated protein in turn with hot water, ninety-five per cent. alco-

hol, and ether, dry the paper and coagulum. Then weigh and calculate the percentage of protein in the urine specimen. If desired, the precipitate may be filtered off on an unweighed paper, and its nitrogen content determined by the Kjeldahl method. In order to arrive at correct figures for the protein content, it is then simply necessary to multiply the total nitrogen content by 6.25. The latter method was used in these experiments. By Scherer's procedure exact and accurate results are obtained, and this method of estimation was used in each case as a control.

2. *Devoto's precipitation method.* This method is also quite accurate. The technic is as follows: Take 100 c. c. urine into a beaker and add eighty grams ammonium sulphate. Stir until the salt is dissolved. Warm over a water bath for twenty to forty minutes, filter, and weigh after drying.

3. *Esbach's method.* Esbach's reagent consists of picric acid, grams ten; citric acid, grams twenty, and water 1,000 c. c. Esbach's albuminometer and reagent must be used in this estimation. In making the determination, fill the albuminometer with urine to the point U, then introduce reagent until point R is reached. Stopper the tube and invert it slowly several times, and stand the tube aside for twenty-four hours. The graduations on the albuminometer indicate grams of protein to the litre of urine.

4. *Kwilecki's method.* The Esbach albuminometer and reagent are used. The urine is acidified, and ten drops of a ten per cent. solution of ferric chloride are added to the urine before the Esbach reagent is also added. The tube and its contents are then warmed to 72° C. for five or six minutes, and the reading taken. Kwilecki has lately patented an apparatus wherein his modification of the Esbach method can be easily performed.

5. *Aufrecht's method.* Aufrecht modified Esbach's method in the following way: The Esbach albuminometer is arranged in the form of a centrifugation tube. The urine and the Esbach reagent are placed in this tube in the requisite proportions, and the tube is then centrifugated for one and a half or two minutes. This obviates the necessity of waiting twenty-four hours for the result, and, according to Aufrecht, gives just as good results as the original Esbach method.

6. *Walbum's method.* To a quantity of urine in a test tube an equal amount of a five per cent. solution of trichloroacetic acid is added. To the resultant mixture add a ten per cent. solution of sodium chloride until the opacity of the mixture equals the opacity of a standard. Since we know how many times the urine was diluted to attain the color of the standard, we can calculate the amount of albumin in the original urine.

7. *Brandberg's method.* To five c. c. of urine in a test tube add one c. c. concentrated nitric acid. If a ring cloud forms before two and a half or three minutes, another portion of urine is diluted to such an extent that a cloud forms only after two and a half or three minutes. When such a dilution has been reached, the urine contains 0.33 parts of albumin to the litre of urine. This figure is then multiplied by the number of times that the urine has been diluted. Dlabac has constructed a portable

albuminometer based on Brandberg's method. He had very good results with this apparatus.

8. *Tsuchiya's method.* The following solution is prepared: Phosphotungstic acid, one gram; concentrated hydrochloric acid, five grams; ninety-five per cent. alcohol, 100 grams. The procedure is the same as in the Esbach method, except that this reagent is used instead of the Esbach reagent.

9. *Pfeiffer's method.* The Tsuchiya reagent is used in the Pfeiffer reaction. Into a tube graduated to one tenth of a c. c., place ten c. c. of urine and ten c. c. of the reagent. The precipitate is read off, and from a table of equivalents supplied by Pfeiffer the parts of albumin in each litre of urine are calculated. At 30° C.:

0.5 c. c. = 1.00 parts per mille
1.0 c. c. = 1.50 parts per mille
1.2 c. c. = 1.75 parts per mille
1.4 c. c. = 2.00 parts per mille
1.6 c. c. = 2.40 parts per mille
1.8 c. c. = 2.80 parts per mille
2.0 c. c. = 3.20 parts per mille
2.2 c. c. = 3.60 parts per mille
2.4 c. c. = 4.00 parts per mille

10. *Claudius's method.* The method recommended by Claudius, of Copenhagen, is as follows: The urine is filtered and its reaction tested to see if it is neutral or slightly acid. The urine is then diluted with equal parts of a two per cent. solution of sodium chloride. To five c. c. of the diluted urine, add now five c. c. of Claudius's reagent. This reagent (patented by Claudius) consists of two per cent. trichloroacetic acid, 0.5 per cent. tannic acid and 0.1 per cent. acid fuchsin. The tannic acid prevents the coloring of the fuchsin, and the trichloroacetic acid prevents the decomposition of the tannic acid. The mixture of the urine and the reagent is then well shaken in a stoppered flask (capacity fifteen to twenty c. c.), filtered, and the filtrate compared with a standard in the Sahli or Gowers hemoglobinometer.

11. *Other methods.* Several modifications of the Esbach method were also investigated. Instead of the picric acid-citric acid reagent, Wassilieff suggested the use of a solution of sulphosalicylic acid. Guttman recommended a solution of aqueous tannic acid in ten or twenty per cent. alcohol. Jules employed the following reagent: Mercuric chloride, 10.0; succinic acid, 20.0; sodium chloride, 10.0; glacial acetic acid, 50.0; ninety-five per cent. alcohol, 250.0; water up to 500 c. c. The accompanying table will clearly demonstrate the relative values of each of the various tests employed. Not one of the methods, except Scherer's, is altogether accurate. Some of the methods are not even of any clinical value, for the range of error is very large.

The clinician, and the physician who has no access to a large chemical laboratory, cannot employ the Scherer or the Devoto method. These methods require a very delicate scale and the various apparatus that go with an ordinary Kjeldahl analysis. One of the other methods must, therefore, be used by physicians. The method that has found very general favor in the eyes of the majority, the Esbach method, is altogether unreliable. The very fact that so many scientists have attempted to modify this method, is evidence of the dissatisfaction which these men

felt. Wassilieff found that by using a twenty-five per cent. solution of sulphosalicylic acid instead of the Esbach reagent, he obtained more accurate results. Veale, in England, Guttman, in Germany, and Graff, in Norway, found but very slight differences between the results of the Esbach and Scherer methods, from one half part per mille to two parts per mille. Martin Englander, while finding that none of the methods (except Scherer's) is reliable, wrote that for clinical purposes extreme accuracy is unnecessary, and he, therefore, recommended that the Esbach method be generally used. Pfeiffer found that the Esbach method is not accurate for less than one half or for more than five parts per mille. Sahli held that the method under discussion is exact to one part per mille. A number of writers observed that the temperature at which the Esbach determination is made, plays an important part in the amount of precipitate. Sahli stated that low temperatures caused the formation of a greater precipitate, while high temperatures diminished the amount of albumin thrown down. This observation was confirmed by Geissler, Schulz, and Christensen. Other scientists, Moritz, Jaksch, Huppert, noticed that in certain urine which contains small amounts of albumin, the Esbach reagent will cause a cloud formation, but will not throw down any precipitate.

Tsuchiya attempted so to modify the Esbach method as to obviate all the sources of error. From his experiments, he concluded that his reagent gives more accurate results. Thus, for example, the average of several analyses by the Scherer method was 3.3 per cent., while for the Esbach it was 2.5 per cent. and for the Tsuchiya 3.5 per cent. In a series of experiments which we have performed to compare the efficiency of the Esbach and Tsuchiya methods, we found that the latter procedure is the more nearly correct. The following table will show the figures obtained:

Scherer's.	Esbach's.	Tsuchiya's.
2.1	0.8	1.7
4.3	2.6	3.8
1.65	0.4	0.9
2.7	2.1	2.0
0.4	0.1	0.1
0.65	0.3	0.4
1.6	0.4	0.5

The Kwilecki modification neither adds nor subtracts from the value of the original Esbach method; we obtained smaller results with the modified reagent. We have observed that a very much more exact figure can be obtained with the Esbach method if the urine is first acidified with acetic acid before the addition of the reagent. From the succeeding table some idea can be had of the importance an acid reaction plays in this determination:

Scherer's.	Esbach's.	Esbach's (urine acidified).
1.4	0.0	0.9
2.6	1.3	1.8
0.74	0.0	0.3
1.47	0.1	0.6

The Jules method is altogether unreliable. In our experience we have found that if we use a fifteen or twenty per cent. solution of nitric acid instead of the Esbach reagent, we get approximately

the same results as with the picric-citric acid solution.

Our opinion that the Tsuchiya method is more exact than the Esbach procedure contradicts the findings of Schippers and Moewes, who stated that they saw no advantage in the phosphotungstic solution and obtained poor results with it.

Except for the fact that with the Aufrecht method we can obtain our reading of the amount of albumin within five minutes, we can see no advantage in this modification of Esbach. However the time factor is quite an important consideration when an immediate result is desired. Braungard praised this method very much.

The Pfeiffer and the Claudius methods are the most reliable of the clinical methods. The former has very much to recommend it. It is quite exact; it is very simple; it is very rapid. The disadvantages of the Claudius procedure are that it requires a certain form of apparatus; that it takes almost half an hour to make one test; and that it requires more manipulations than the other methods.

TABLE OF COMPARATIVE RESULTS.

Urine No.	Scherer.	Esbach.	Kwilecki.	Aufrecht.	Walbum.	Tsuchiya.	Brandberg.	Pfeiffer.	Claudius.
1.....	1.18	2.4	2.2	1.9	2.8	1.75	10.7	2.0	2.1
2.....	1.07	0.4	0.1	0.1	0.59	0.8	4.29	1.2	1.3
3.....	1.12	0.1	0.1	0.1	0.236	0.8	33.0	1.0	1.2
4.....	0.4	0.1	0.1	0.1	0.018	0.2	6.6	0.12	0.2
5.....	0.37	0.2	0.1	0.1	0.01	0.1	4.95	0.12	0.4
6.....	1.02	0.1	0.3	0.2	0.0885	0.5	3.3	1.75	1.8
7.....	1.32	0.4	0.2	0.1	0.059	0.7	9.9	1.12	1.5
8.....	0.4	0.0	0.0	0.1	0.059	0.1	33.0	0.2	0.5
9.....	1.37	0.3	0.4	0.3	0.059	0.8	19.8	1.5	1.7
10.....	2.45	0.9	0.7	0.5	0.072	0.9	16.5	2.14	2.5
11.....	0.51	0.0	0.1	0.1	0.01	0.3	17.15	0.2	0.4
12.....	0.72	0.1	0.1	0.1	0.059	0.5	21.45	0.6	0.5
13.....	0.25	0.1	0.1	0.1	0.059	0.1	49.5	0.12	0.2
14.....	1.3	0.4	0.5	0.4	0.177	0.9	37.0	1.0	1.3
15.....	1.25	0.7	0.6	0.7	0.3	1.1	49.5	0.8	1.4
16.....	0.34	0.0	0.1	0.1	0.1	0.1	....	0.2	0.1
17.....	0.9	0.1	0.1	0.1	0.1	0.5	....	0.7	0.4
18.....	0.75	0.1	0.1	0.1	0.08	0.4	....	0.45	0.1
19.....	3.4	2.2	2.1	2.0	1.5	2.4	....	2.9	2.2
20.....	2.41	1.0	0.8	0.7	0.5	2.0	....	2.2	1.7
21.....	2.72	1.1	1.3	1.5	0.8	2.2	....	2.5	2.7
22.....	2.06	1.2	1.1	1.6	1.0	2.7	....	1.9	1.5
23.....	3.71	1.7	1.5	1.9	1.5	2.9	....	4.2	3.5
24.....	3.50	1.5	1.3	2.5	1.78	2.7	....	4.7	3.5
25.....	3.14	1.5	1.7	2.2	1.9	2.5	....	3.8	2.8
26.....	2.46	1.2	1.1	1.6	0.8	1.8	....	2.4	1.8
27.....	2.71	1.1	0.8	0.6	0.8	1.8	....	2.45	2.2
28.....	0.95	0.2	0.1	0.3	0.1	0.6	....	0.7	0.4
29.....	2.5	0.8	0.7	0.6	1.08	1.2	....	2.5	2.7
30.....	3.73	1.2	0.9	1.6	1.9	1.9	....	4.1	...

The Walbum and Brandberg methods are altogether not reliable. Walbum has recently patented an albuminometer based upon his method. The Dlabac albuminometer has already been mentioned. It remains only to note that Buchner has also constructed an albuminometer in which the albumin is coagulated by a mixture of nitric acid and sodium chloride.

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853 ELSMERE PLACE.

NEWER TEACHINGS CONCERNING DISEASES OF THE GASTROINTESTINAL TRACT.*

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XII.

DISEASES OF THE ESOPHAGUS.

The esophagus is subject to disease, like any other organ, but with this distinction, that acute inflammatory changes subside more rapidly and are not accompanied by much constitutional disturbance. This is easily explained, because the natural physical conditions favor drainage of the pathological elements. Owing to gravity, the pathological secretions and excretions are rapidly passed downward and beyond the confines of the esophagus. On the other hand, chronic pathological conditions are common and persistent. It is true, that chronic esophagitis is seldom diagnosed, not because of its rare occurrence, but because inadequate means of diagnosis are employed. In fact, the physician seldom dreams of the possible existence of chronic esophagitis and is apt to misinterpret the symptoms. The result is, that cognizance of the pathological condition is not taken until the violence of the symptoms, which unmistakably point to the esophagus, compel closer examination of this organ. Many are the symptoms which the practitioner has to learn. There is the globus hystericus, which is an actuality and has nothing of hysteria in it at all; there is the esophageal hemorrhage, issuing either from an unrecognized ulcer or from the bursting of a varicose vein, which is of such common occurrence—and such hemorrhages are usually taken to be from the lungs; there is the symptom of food stopping on its way down, but to which no heed has been paid; there is the complaint of the patient, that tasteless food frequently regurgitates, and this is ignored by the physician, and so on. The one symptom common to all pathological changes of the esophagus, is the interference or difficulty with the swallowing, which symptom varies with the extent of the affection. In some patients, the dysphagia extends to all food and drink, and in others the difficulty of swallowing is limited to certain kinds of food and drink. The causes of the difficulty of the swallowing are well defined; it is not hysteria or nervousness.

The pathological conditions in the esophagus are the result of irritants, either constitutional or local. The acute infectious diseases also involve the esophagus; so may tuberculosis, syphilis, and other constitutional diseases. The local causes are injuries by either foreign bodies or chemicals, the latter entering the esophagus either from without

*See JOURNAL for September 26th, page 625.

through the mouth, or from within, from the gastrointestinal canal. It is also easy to understand that an affection of the pharynx or of the stomach may spread and so involve the esophagus secondarily. Of very great importance are the two physiological constrictions of the esophagus. Proper appreciation of the existence of these will help us to understand the *modus operandi* in the formation of diverticula. The first physiological constriction of the esophagus is opposite the bifurcation of the bronchus, i. e., on the level of the second rib at its junction with the sternum, and the second constriction is at the esophageal hiatus in the diaphragm. All who have extensive experience with the introduction of the stomach tube, know of the normal constriction at the junction of the pharynx with the esophagus. They know that the stomach tube, as a rule, stops here and can be made to proceed further only after the patient is told to make an attempt at swallowing. Occasionally we must use stronger means to make the tube pass. Diverticula occur at these three constrictions, which constrictions are present only in the living and have, more or less, the function of a sphincter; on sufficient irritation they close the lumen of the esophagus. The result of such constriction, which is then of a spastic nature, if continued for a considerable length of time, is easily imagined. Constriction of a hollow viscus implies, as a necessary consequence, dilatation in front of it.

The physical examination of the esophagus consists of inspection, auscultation, percussion, and sounding. Inspection, as usually understood, cannot be of much use in the examination of the esophagus, owing to the fact that it is screened all around by bony structures. True inspection can be had only through the instrumentality of the esophagoscope. This is essentially a metal tube of sufficient length, which is inserted into the esophagus, and then illuminated directly by an electric light, or indirectly by reflected light. The patient either lies on a table, with his head protruding beyond the table, or he may sit on a chair. In either case, the procedure is very unpleasant to the patient and contains some elements of danger. Besides, the comparatively small field of vision is constantly obscured by vapor and mucus, the frequent removal of which causes irritation and annoyance. However, the instrument is helpful and has its legitimate field of usefulness.

Auscultation and percussion are performed over the vertebral column and give valuable information to one experienced in their use. Sounding is resorted to when there is evidence of stricture, and the sounds are made of flexible material of sufficient stiffness, and of various sizes.

Esophagitis traumatica. This is an inflammatory condition caused by the irritation from swallowing foreign substances. All sorts of foreign bodies get into the esophagus; buttons, beads, coins, needles, pins, nails, plates of artificial teeth, fish-hooks, pieces of bone, fruit stones, pocket knives, whistles, teaspoons, even live fish. The swallowing of such foreign bodies is frequent in children, who are wont to take everything into their mouths. It is also met with in adults. As a rule, the foreign body will gradually work its way through, will get

first into the stomach, then proceed into the intestines and finally come out in the stool. The foreign body may also be caught in the esophagus and there become wedged in, when the symptoms which it evokes, will cause search for and removal of the foreign body. There are, however, cases reported in which the foreign body remained in the esophagus for months and years. At the present time, it is hardly to be assumed that a foreign body would be permitted to remain in the esophagus very long. We now resort to x rays, as a matter of course, in every case where there is the history of swallowing a foreign body, and remove it with improved instruments. One can readily imagine the injuries that are likely to follow, if the foreign body remains in the esophagus. These may begin with a slight inflammation, and continue on to ulceration and perforation. As a rule, the patient feels the presence of the foreign body, which is accompanied by difficulty in swallowing. Abrasions of the mucous surface may occur, which result in scar formation with all its evil consequences.

Treatment consists in removing the foreign body, having previously ascertained its nature and its exact location by x ray esophagoscopy or use of the sound. Usually foreign bodies are halted at the normal, physiological constrictions, i. e., directly at the beginning of the esophagus, opposite the cricoid cartilage, or at the constriction opposite the bifurcation of the bronchus, at a point corresponding to the junction of the second rib with the sternum, or at the hiatus where the esophagus passes through the diaphragm. The inflammation which results is to be treated as an ordinary esophagitis.

Acute esophagitis. As in diseases of the other organs, the esophagus may be the seat of acute or chronic inflammatory changes; but, what the physician sees oftenest, is the chronic form. Acute esophagitis occurs mostly as a complication of the acute infectious diseases, such as scarlet fever, typhoid, typhus, cholera, pyemia, also in syphilis. Von Stofella (*Allgemeine Wiener medizinische Zeitung*, 1872) speaks of a catarrhal, a croupous, and a purulent esophagitis, and Fleiner (*Krankheiten der Verdauungsorgane*, 1896) writes of the catarrhal, follicular, purulent or phlegmonous, corrosive or toxic, and croupous esophagitis. Acute esophagitis seldom comes to autopsy. There is hyperemia of the mucous membrane, which is swollen, somewhat loosened, and easily tears; there is desquamation of the epithelium and comparatively little secretion of mucus at first. The distended capillaries may burst and thus produce hemorrhagic erosions, which end in ulcers. The follicles may become much swollen and protrude upon the surface of the mucous membrane, in which case we speak of a follicular esophagitis; or the mouth of a follicle may be occluded, by reason of which the follicle distends and forms a cyst. The cyst may become purulent, the pus may evacuate and leave small ulcers.

The purulent or phlegmonous esophagitis may involve small or large areas; even the entire esophagus may become affected. It is of rare occurrence and has been observed after the prolonged use of tartar emetic stibiatum and in smallpox.

In the croupous variety the mucosa is covered by

a false membrane which, if removed, leaves a raw bleeding surface. This false membrane may cover only a small part of the esophagus, or extend throughout the entire surface and come off in its entirety as a solid cast. The identity of this false membrane has not yet been positively ascertained. But I incline to the belief that it is the same as the condition which quite commonly occurs in the intestine in the so called mucous colitis, where the false membrane is formed of mould. That is, the mould in its growth and evolution, has advanced to the stage of membrane formation, which is one of the stages of the normal life of mould.

Corrosive or toxic esophagitis is the result of swallowing corrosive substances, such as acids, caustics, or other poisonous chemicals.

The prognosis in all cases of acute esophagitis is generally good. Only in extremely rare instances will the inflammation proceed to abscess formation or to destruction of extensive areas with accompanying softening of the tissues and their final rupture. So Fleiner tells of just such a case, occurring in a woman thirty years old, who suffered from Addison's disease and at whose autopsy were found autodigestion of the esophagus and stomach and caseation of the suprarenal glands. The usually favorable termination is unquestionably due to the fact that the esophagus has the best possible system of drainage, that is, the noxious matter falls downward, away from the esophagus, by mere gravity.

There are these three cardinal symptoms: Pain, dysphagia, and the sensation of the presence of a foreign body. All three are present in a degree, varying with the severity of the pathological condition. Accompanying these are increased temperature, headaches, perhaps nausea and vomiting, a sensation of dryness and thirst. The dryness and the irritation of the esophagus produce spasms of coughing, the false interpretation of which is responsible for a great deal of misery. Invariably and without further analysis, coughing is attributed to conditions of the bronchi or the lungs. Rarely, indeed, does it dawn upon the practitioner, that the protracted, dry, hacking cough, which perhaps had been annoying the patient for years, has its origin, not at all in the pulmonic system, but in the alimentary canal. To be sure, the alimentary condition, which is responsible for the long standing cough, does not exclude an intercurrent bronchitis. If the physician's advice is sought by such a patient, who also suffers from bronchitis, and if the physician hears of the long standing cough, we may well imagine his mental debate. The chances are, at least that has been my experience, that the physician will suspect tuberculosis; if nothing is found in the physical examination of the lungs, the diagnosis usually made is one of incipient tuberculosis. Unquestionably, these cases give the best results; they end in recovery, because they were never tuberculous. These remarks have a solid basis and are not the result of conjecture and hypothesis.

A young man, with his young wife and child, came to see me and gave me the history of a cough that had been annoying him for some two and a half years, during which time he had changed his physician several times; but all to no purpose.

Hesitatingly he finally sought the advice of a well known lung specialist, who, after several treatments confessed to the inquiring patient, that the lungs were free from any infection, and that most likely his digestion was responsible for his annoying cough. Thereupon he was sent to me. Great was this patient's surprise, when his cough had finally and definitely left him after the sixth daily treatment, which was directed solely to curing his gastric condition.

The cough may become so spasmodic as to lead to the rupture of a small vessel, which results in a hemorrhage. The pain may be localized, or it may be felt along the whole esophagus, and is then described by the patient as being felt behind and along the sternum. If the pain is localized, the seat of the pain is pointed out to be either immediately at the beginning of the esophagus, that is behind the cricoid cartilage; or at a point opposite the junction of the second rib with the sternum, that is at the bifurcation of the bronchus; or in the region of the xiphoid cartilage, that is at the hiatus where the esophagus passes through the diaphragm. The physician should remember these sites of the normal constrictions of the esophagus, where all sorts of pathological lesions may have their inception. The swallowing of food is painful. Hot or cold or sour drinks increase the pain, while lukewarm drinks and food or mild alkaline drinks are apt to be borne well. In the severer cases there may be spastic contractions, caused by the introduction of food; the food stops in front of the contraction and is subsequently regurgitated. Movements of the head are also painful; even the slight movements of speaking produce pain. There may be expectoration of large quantities of foamy mucus.

As to treatment, the first indication is the removal of the cause; if this is a foreign body, it must be removed. In the acute infectious diseases, it is best to let the esophagus alone and to treat the general condition. Only bland food should be allowed. The food should be neither too hot nor too cold; warm milk is perhaps the best. Where the acute inflammation is due to corrosion by acids, mild alkalies such as calcined magnesia in suspension, or limewater may be given. And, vice versa, where the corrosion is due to caustic alkalies, weak acid solutions, such as weak vinegar or citric acid, may be administered. If the pain needs attention, any of the opiates may be given, or cocaine. The thirst is best allayed by warm baths and the instillation of small quantities of warm water into the rectum, water which is permitted to remain and to become absorbed.

Chronic esophagitis. Far more frequent is chronic inflammation of the esophagus. It is the accompaniment of organacidia gastrica and of chronic alcoholism. On section, the mucous membrane appears brownish or of a slaty color, the epithelial layer is thickened, and very often there are abrasions. Although of great frequency, the symptoms are obscure and are scarcely recognized by the general practitioner; they are often explained away as being of a nervous and of a reflex nature. A very common symptom is the dry, hacking cough, noticed especially in the morning and soon after meals. This has proved a stumbling block to a

great many physicians. A patient, giving the history of a dry hacking cough, who on physical examination fails to show evidence of bronchitis or other pulmonary trouble, should be treated for chronic esophagitis, which will be found to coexist with other derangements of the alimentary canal. Another symptom is the soreness and roughness and rawness, if not pain, which is felt behind and along the sternum or between the shoulder blades, or both, depending upon whether the anterior or posterior or both walls of the esophagus are involved. There is more or less an uneasy sensation there; of course, pain itself is not excluded. If the stomach tube is introduced and then withdrawn, a coating of thick, glairy mucus is seen to encircle the tube. The esophagus is usually hyperesthetic at first, and the introduction of food and drink elicits spasm of its muscular wall, which is more pronounced at the normal constrictions. The result is that the patient complains that he feels the food stop on its way down into the stomach and he is able to locate the spot where the food stops. A common condition is hypersensitiveness, and spastic contractions occur at the beginning of the esophagus, that is, behind the cricoid cartilage. Irritating gases cause spastic contraction there and accumulation of gas behind the constriction, which gas causes distention. The patient feels and describes this sensation as a lump or as one of choking. As gases are not amenable to inspection and therefore cannot be made out by inspection or other physical measures, the very annoying symptom has been called *globus hystericus*. Another favorite seat of spasm is the cardia, causing cardiospasm, and the accumulation of food in front of this opening, that is in the subdiaphragmatic portion of the esophagus. The patient then points with his finger and says that he feels that the food lies there, and that he has pain there—at the xiphoid cartilage.

The treatment consists in eliminating the cause, avoiding sharp and spicy food and drink, especially tea and coffee, which latter intensify the sensations of dryness and thirst and are mostly responsible for the efforts made constantly by the patient, to clear his throat by the "dry, hacking cough." Otherwise the treatment is intimately associated with the treatment of the accompanying gastrointestinal condition, and attention to this will make treatment of the esophagus superfluous.

Varices of the esophagus. Varix constitutes a very important chapter in the diseases of the esophagus, because of the frequency of the condition and of the sequelæ. But little mention is made of varices of the esophagus in our textbooks. Very aptly a patient of mine named the condition, when I attempted to explain to her the pathological changes in her esophagus. She abruptly asked me, "Doctor, do you mean I have hemorrhoids in the esophagus?"

Varices occur in all ages. Kundrat (*Wiener medizinische Presse*, 1886), in his article on varices of the esophagus, mentions that before him, French authorities had described varicosities of the esophagus, and he says that the dilatation of the veins is occasionally found in old people and may vary in size from a millet seed to a pea. He then gives the histories of five cases which came to autopsy be-

cause of the hemorrhage, following a rupture of varicose veins. Of these five cases three were in women and two were in men. The one woman was twenty-six years old and the two men were twenty years old; all three had cirrhosis of the liver, while the two other women had syphilis, one being forty-eight and the other sixty-four years old. Kundrat believes that the hemorrhage results, either from a simple rupture of the dilated veins, or from a peculiar process which leads first to a varicose ulcer. Eberth (*Deutsches Archiv für klinische Medizin*, 27, 1880, page 566) gives the history of a fatal hemorrhage from esophageal varices in a man forty years old, at whose autopsy no cirrhosis of the liver was found. Friedreich (*Ibidem*, 53, 1894, page 487) publishes the result of an autopsy in a girl six years old, the cause of whose death was found to be hemorrhage from varices of the esophagus; the liver, the very much enlarged spleen, and the kidneys showed fatty degeneration. We see that no age is exempt and that the cause may be neither cirrhosis, nor syphilis, nor fatty degeneration *per se*, as not all of the patients here cited had cirrhosis, nor did all have fatty degeneration or syphilis. The question now is, What causes phlebectasies in the esophagus? The answer to this query is, obstruction to the return circulation. It is to be observed that the varices occur preeminently, if not altogether, in the venules, which become apparent only after their dilatation; prior to their becoming dilated, they are not recognized with the naked eye. This suggests that the varicosities occur only in vessels with very thin walls, that is, in vessels whose walls can offer comparatively little resistance. Therefore it does not require great occlusive pressure to cause the damming back of the blood in such thin walled vessels, nor will it require great trauma to rupture or corrode a thin wall, which becomes extremely attenuated by dilatation. In other words, to begin with, we are dealing with blood-vessels which, structurally, are not very much larger or stronger than capillaries. Now, causes arise to produce a dilatation of these thin walls, the only effect of which can be that these thin walls get even thinner, varying with the extent of the dilatation to which they are forcibly subjected. But very little conjecture will lead us to understand how easily such an extremely thinned wall will rupture, or how slight a pathological process will suffice to destroy the thin protecting covering of the blood stream. This latter fact sufficiently explains the reason for the absence of violent subjective symptoms preceding the rupture of such varicose vessels. The hemorrhage itself need not necessarily be fatal; it was not in my cases. Thus the vessel ruptures, there is a hemorrhage, and little else impresses the patient. Nay, even the hemorrhage may not sufficiently excite the patient. Thus the incident passes and is very soon forgotten.

What causes the obstruction which produces the varicosities? Varicose veins in other parts of the body may be due to a mechanical impediment which must be of sufficiently protracted duration. Were this cause to apply to varicosities of the esophagus, the prolonged presence of an obstruction would very soon excite the patient sufficiently to look for medical aid. But such history cannot be elicited

from the patient. Therefore we must seek a cause, not mechanical in nature, although so in effect. My observations, experience, and studies lead me to assume that the cause of the damming back of the blood in these thin venules, with their consequent dilatation and rupturing, is a spasm of the muscular wall, which, while it lasts, occludes the vessels which run through the substance of the muscle wall. As the spasm does not involve simultaneously the entire length of the esophagus, the venules are fed from below the constriction, and are gradually distended in the course of such repeated recurrences. So that, in order to understand the cause of varices, we must assume the presence of a spasm. What causes the spasm? The spasm here, as the spasm in other hollow, mucosa lined organs, is produced by a chemical irritant, which may be of either liquid or gaseous nature or a combination of both. Likewise, the irritating chemical agency may proceed from above or below. Chemical irritants may be swallowed, or they may trickle down from the nasopharynx, or they may arise from the gastrointestinal canal; the last being most frequent. We then have the explanation for the spasm which leads to varicosities and, having varicosities, their rupturing may be caused by the vessel wall exceeding the limit of its distensibility, or by some hard food particle injuring a wall which may already have been on the verge of yielding. Now one of two things may happen. Either the ruptured vessel wall heals and cicatrizes, or it proceeds to graver ulceration. This depends upon the persistence and the nature of the irritant.

If the now open wound is constantly bathed with chemiopathological substances, healing will be prevented and ulceration will result. Otherwise, and which is more usual, the wound soon heals and leaves a scar, the presence of which is perceived when the stomach tube is introduced. The stomach tube is halted in its progress at the seat of the scar, for a longer or shorter time, depending upon the scar itself. This fact, the halting of the stomach tube, may be the first and only clue to the presence of a scar, the patient himself being ignorant of a previous hemorrhage or having forgotten it.

Concerning symptoms, we must say that, as the condition itself is very little known, there are scarcely any data available. Before there is rupture of the varix, the accompanying symptoms are those of chronic esophagitis, which it really is. There is soreness and rawness behind and along the sternum; there is the usual sensation of dryness and thirst, which the patient attempts to allay by drinking often of various fluids. This naturally gives rise to frequent micturition, and we thus get two of the cardinal symptoms of diabetes. As a matter of fact, I see very many cases of supposed diabetes, which on careful examination reveal the patient to suffer only from chronic esophagitis consequent upon an organacidia gastrica or organacidia enterica. If there is a rupture of a varicose vein, the hemorrhage will cause the patient to seek medical aid, provided the blood issues from the mouth. In such an event, the great probability is, that the searchlight will be turned on the lungs and, whether a pathological condition is found there or not, the chances are that the lungs will be held responsible.

Instead, the blood may find its way into the stomach and, perhaps, cause nausea and vomiting. We may, therefore, be mistaken and misjudge the blood as coming originally from the stomach, and so suspect an ulcer of the stomach; or the blood may pass on into the bowel without giving the patient any clue to its presence.

As to treatment, little, if anything, need be done locally. The attention, generally, must be directed to the digestive disturbance, wherever it is found. If the diagnosis is made, which at present seems unlikely, unless there is accompanying hemorrhage from rupture, the first indication is rest in bed until the acute symptoms have disappeared. Then comes a very light and bland diet. Otherwise, the treatment resolves itself into discovering the specific nature of the irritant which produces the spastic contractions of the esophagus, and removing it. As a rule, the cause will be found in the stomach, and to belong to one of the subdivisions of organacidia gastrica or organacidia enterica, the treatment of which diseases will be discussed in some future series of articles under their respective headings.

616 MADISON AVENUE.

(Finis.)

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CL.—What is your experience with belladonna or atropine in the treatment of alcoholism? (Closed.)

CLI.—How do you treat whooping cough? (Answers due not later than October 15th.)

CLII.—How do you treat bedsores? (Answers due not later than November 16th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best essay submitted in answer to Question CXIX was awarded to Dr. Melville A. Hays, of New York, whose article appears below.

PRIZE QUESTION NO. CXLIX.

THE TREATMENT OF THE OPIUM HABIT.

BY MELVILLE A. HAYS, M.D.,
New York.

A great many narcotic habitués owe their start in the habit to the careless, or even criminal manner in which some physicians prescribe or dispense habit forming drugs. It is a good plan to purchase your supply of these drugs and dispense them as necessary without ever giving the patient any information as to their nature.

When the habit is once formed, many of the un-

fortunates would be willing to make any sacrifice to be cured of the disease, for such it is, but they are looked upon as pariahs to be shunned, so that they soon lose heart in the struggle, give up in despair, and gradually sink lower and lower until death steps in to end the scene. These unfortunates lack the strength to endure the terrible suffering entailed by their attempts to do without their usual dose of the drug. The treatment is as follows:

1. Isolate the patient and make certain that every avenue by which he may secure a supply of the drug is closed; never trust a patient while he is under treatment.

2. Gradually withdraw the drug; *never withdraw it abruptly under any circumstances*, as the suffering entailed amounts to absolute agony. Ascertain the usual daily dose of the drug; give this dose for two days; and then gradually reduce the daily dose, giving less each day until none is being given. I have found it a good plan to mix the daily dose with a measured quantity of pure extract of glycyrrhiza so that the bulk of the dose is the same each day and the patient has no means of knowing how much of the drug he is getting. Any unusual nervous symptom can be readily controlled by an occasional dose of sodium bromide—ten to twenty grains.

3. Regulate the bowels by an initial dose of a saline cathartic; then begin with one teaspoonful of fluidextract of cascara sagrada each night at nine o'clock and gradually reduce this dose every few days until none is necessary.

4. Daily warm bathing is required, followed by strong friction with a rough towel to promote activity of the skin. Promote activity of the kidneys by the daily administration of two to four quarts of water.

5. Good nourishing food is given in as large quantities as can be readily assimilated. Any tendency to indigestion can be overcome by twenty drops of one of the dilute mineral acids in half a glass of water after each meal.

6. General tonic treatment is needed to improve the appetite and general tone. A good prescription is tincture of nux vomica, half an ounce; compound tincture of cardamom, compound tincture of gentian, of each four ounces. The dose is one teaspoonful in water a half hour before meals.

7. Secure the confidence of the patient and try to convince him that he can and will be cured. Then when the drug has been entirely withdrawn, give him daily outdoor exercise, which also includes a fair amount of actual manual labor, but do not give him any opportunity to go back to his old habits. Do not discharge the patient until his usual will power has been regained, his physical health restored, and every indication of a desire for the drug banished.

Dr. Harry B. Gudgel, of Hazleton, Ind., writes:

A neuropathic diathesis is probably the most persistent cause of the habitual use of opium. The only treatment is to stop the drug, which opens the puzzling question of how best this can be done.

The first measure is complete isolation, which is most unsatisfactory at home, because the cunning, extraordinary means, by which these patients obtain their habit portion will baffle the attempts of both

nurse and physician. Therefore a sanatorium for the treatment of these cases where every facility is at hand, is to be preferred.

The quarters for these cases should be pleasing, airy, and comfortable. The attendant must be affable, strong, and determined. The psychic effect of both physician and attendant is of incalculable benefit, especially when they constantly endeavor to instill into the patient a desire to return to normal conditions.

The sudden withholding of the drug is impossible, for violent delirium, uncontrollable diarrhea, or collapse will follow. It is necessary then, that the opium be gradually withdrawn, not so much in lessening the individual dose, as in limiting the daily consumption, and on account of the insomnia the evening dose must be the last diminished. The reduction of one quarter to one half grain daily with the constant use of suggestion and (if possible) a placebo, offers the patient a fair chance of recovery.

Hypnotism under complete control and autosuggestion no doubt have a wonderful chance in these cases to prove of merit.

It is essential that the food be nourishing, easy of assimilation, nonirritating, and productive of the least residue; beef juice, milk, milk with the well beaten white of an egg, infant's food with milk, albumin water, light strained soups, fruit juices, especially orange and pineapple. For thirst, give carbonated or lithiated water.

The distressing abdominal pain with the usual nausea and vomiting, are benefited by the following:

R Fluidextract belladonna, ... ℥xx;
Fluidextract nux vomica, ... ℥xv;
Elixir lactopepsin, ad..... ℥iii.
M. ft. sol. Sig.: Teaspoonful every two to four hours.

The gastric burning and eructations answer favorably to milk of magnesia in teaspoonful doses, or equal parts carbonate of magnesia and bicarbonate of sodium in one half to one level teaspoonful in water, every three or four hours. If constipation prevails after withdrawing the opium, the use of one of the light aperient waters is of benefit.

The heart should be frequently examined; if weakened, which very often occurs, then stimulants are necessary. Digitalis or a hypodermic of spar-teine sulphate is of service, or the following:

R Tincture of digitalis, ... ℥i;
Aromatic spirits of ammonia, ... ℥iii;
Peppermint water, ad..... ℥iii.

M. Sig.: Teaspoonful every one to four hours as necessary.

The insomnia is best treated by the nightly hot bath preceded by 1/200 to 1/100 grain of hyoscine hydrobromide, repeating as necessary and followed by a brisk rub. Should the insomnia be associated with the more severe nervous manifestations, mental or physical or both, then a single dose of morphine may be given, which usually assists. In any instance of nervous symptoms, tremor, respiratory or circulatory depression or even hallucinatory delirium, full feeding, hot baths, and massage should be thoroughly tried before returning to opium.

Cocaine, heroine, or kindred drugs should not be

given, as the dangers are as great as from the original. Neither is it wise to use alcohol, as it appears that it is the running mate of opium, and its use would no doubt stimulate the desire for opium.

Should the patient recover sufficiently to permit of traveling, a change of scenery and climate is to be recommended. An attendant is necessary.

In all instances, relatives and near friends are to be excluded, as their sympathies often prove hard to combat. Finally, a patient coming for treatment for any disease should never receive a prescription for opium or its alkaloids, as the single instance may be the starting point of this harmful habit.

(To be concluded.)

Therapeutic Notes

Treatment of Angina pectoris.—C. Fiessinger, in *Bulletin de l'académie de médecine* for October 7, 1913, discusses the treatment of cases in which anginal attacks follow each other in close succession—a subject largely overlooked in textbooks. Such a condition may occur, whether the angina is of aortic or renal origin, due to chronic tobacco intoxication, or associated with aerophagia. Syphilis, through coronary involvement, may probably also be responsible. The treatment in these cases consists, not only in relieving pain, but in obviating myocardial fatigue. Morphine should be given subcutaneously in doses of one thirtieth of a grain (0.002 gram) every three hours rather than in larger amount. Two to four drops of nitroglycerin solution or inhalations of amyl nitrite (not over two or three times a day) may be administered during the intervals. An icebag should be kept over the heart and the diet cut down to one pint or slightly more (500 to 600 grams) of milk, mixed with an equal volume of water. Absolute immobility having been enjoined, the recurring paroxysms will tend to disappear in from a few hours to three or four days.

To support the heart, ten per cent. camphorated oil may be given injected from the outset, in conjunction with the morphine. As soon as the least impairment of cardiac function appears—in twelve to twenty-four hours, often at a time when the pain shows a tendency to abate—digitalis should be started and continued for four or five days, then left off, to be resumed later if necessary. Theobromine should be simultaneously prescribed. Generally the heart quickly regains its tonicity after the pain has ceased. On the whole, these cardiotonic drugs should be regarded as a reserve measure, to be brought into action at the expiration of twenty-four to forty-eight hours.

In the last six years, that is, since the author began to employ the foregoing treatment, but one patient has succumbed to the closely recurring type of anginal attack.

Treatment of Chronic Catarrhal Conjunctivitis.—A. L. Beck, in the *Post-Graduate* for January, 1914, states that it is important in this condition to prevent drying of the discharge on the lid margins, in order to avoid loss of cilia and excoriation at these margins. Cleansing with boric acid solu-

tion, followed by the application of an ointment, at bedtime and once or twice during the day, will accomplish this. The ointment used may be either, white petrolatum, preferably that put up in tubes, or one of the following:

℞ Acidi borici, ...gr. xv (1 gram);
Petrolati, ...℥i (30 grams).
M. et ft. unguentum.

℞ Hydrargyri ammoniati, gr. iiss-xxv (0.15-1.6 gram);
Petrolati albi, ... { āā ℥ss (15 grams).
Adipis lanæ hydrosi, {
M. et ft. unguentum.

In persistent cases an ointment of yellow oxide of mercury may be used:

℞ Unguenti hydrargyri oxidi flavi,
gr. xxv-1 (1.6-3.2 grams);
Petrolati, ... { āā ℥ss (15 grams).
Adipis lanæ hydrosi, {
Fiat unguentum.

In exacerbations, when the discharge is temporarily increased, silver nitrate may be employed.

To influence the chronic catarrh astringents are useful. Tolerance to any one astringent may be avoided by changing the drug employed from time to time. Besides, a given drug is not equally efficient in all cases. In the order of their strength the astringents suitable are:

℞ Cupri sulphatis, ...gr. i-x (0.06-0.6 gram);
Glycerini, ... { āā ℥ss (15 grams).
Aquæ sterilis, {
M. et ft. solutio.

℞ Zinci chloridi, ...gr. ss-i (0.03-0.06 gram);
Aquæ sterilis, ...℥i (30 grams).
Ft. solutio.

℞ Zinci sulphatis, ...gr. i-iv (0.06-0.25 gram);
Aquæ sterilis, ...℥i (30 grams).
Ft. solutio.

℞ Aluminis, ...gr. iiss (0.15 gram);
Aquæ sterilis, ...℥i (30 grams).
Ft. solutio.

℞ Acidi tannici, ...gr. v (0.3 gram);
Glycerini, ... { āā ℥ss (15 grams).
Aquæ sterilis, {
M. et ft. solutio.

Weak solutions may be instilled frequently, e. g., three or four times a day, but with stronger ones, once, or at most twice, a day is sufficient. At first it is well to have the patient come to the office daily and have the conjunctiva touched with an alum pencil; later, this should be done every second day, then every third day, etc. The following are additional useful formulas:

℞ Acidi tannici, ... { āā grs. v (0.3 gram);
Sodii boratis, ... { āā ℥ss (15 grams).
Glycerini, ... {
Aquæ sterilis, {
M. et ft. solutio.

℞ Glyceriti acidi tannici, ...℥v-x (0.3-0.6 gram);
Aquæ sterilis, ...℥i (30 grams).
Ft. solutio.

In long standing cases with little or no discharge and inflammation, but with a pale and slimy conjunctiva and complaint of burning of the lid margins and a sensation as of a foreign body under the upper lids, the patient is often made comfortable by ordering merely a mild collyrium:

℞ Acidi borici, ...grs. xii (0.75 gram);
Sodii chloridi, ...grs. iv (0.25 gram);
Glycerini, ...℥x (0.6 gram);
Aquæ rosæ, q. s. ad.....℥i (30 grams).
M. et ft. solutio.

Alum may be added to this in the amount of one

half grain (0.03 gram) to the ounce (thirty grams), and camphor water substituted for the rose water.

Liquid Paraffin in the Treatment of Intestinal Stasis.—R. Murray Leslie, in the *American Practitioner* for August, 1913, refers to liquid paraffin (petroleum oil) as by far the most valuable remedy available for intestinal stasis. In the majority of early cases its judicious use, in association with diet modifications, hygienic measures, and in some cases supporting belts, affords permanent relief. It acts both as lubricant and protective. The former action is exerted mainly in the large intestine. Full doses may shorten the time of passage of the food from stomach to rectum by as much as one half. The protective action is exerted over any slight breaches of continuity in the intestinal epithelium, and tends to prevent systemic bacterial invasion as well as toxic absorption.

Most patients experience no difficulty in taking pure liquid paraffin as such. If desired, however, flavoring agents such as lemon and peppermint may be added, or the remedy given in capsules. It is best administered two or three times daily instead of in a single large dose at bedtime. The author generally begins with one or two teaspoonfuls before or after meals, then often increases the amount to one, two or even more tablespoonfuls. The full lubricant effect is not obtained for several days, and it is therefore advisable not to increase the dose until after four or five days. When the bowels have begun to act regularly, the dose may be gradually diminished, and the minimum effective amount then continued indefinitely. In children, teaspoonful doses generally suffice; in infants, half dram doses. Some children dislike the remedy, but will take it readily if milk, sugar or peppermint is added.

The use of liquid paraffin in constipation in children, particularly those suffering from digestive disturbances and colicky spasms, will prevent the onset of many an acute or chronic bacterial infection. The author uses it in preference to all other aperients for children, even castor oil, which may cause harmful irritation in certain congestive conditions of the intestinal mucous membrane. He has also had gratifying results in mucous colitis in adults. In the few instances where intestinal stasis is aggravated by the presence of definite kinks, pelvic adhesions, etc., with well marked obstructive symptoms, toxemia, and severe abdominal pain, the remedy in question, with other simple measures, may fail, in which event the author unhesitatingly advises surgical interference, particularly the short circuiting of the ileum into the pelvic colon, as recommended by Lane.

Treatment of Pulmonary Emphysema.—J. B. Huber, in the *Therapeutic Gazette* for September, 1913, states that where dyspnea in pulmonary emphysema is due to spasmodic contraction of the bronchi, as in asthma, inhalations of the fumes of stramonium, potassium nitrate, chloroform, or ether, and the internal administration of chloral hydrate, potassium iodide, belladonna, and opium or its derivatives, are appropriate measures. Dyspnea caused through congestion of the bronchial walls may be relieved by drugs increasing the flow of mucus, such as lobelia and grindelia robusta; heart

excitants, such as caffeine, convallaria, and digitalis, or by dry cupping over the chest. Dyspnea due to vasoconstriction is relieved by amyl nitrite, nitroglycerin, chloral hydrate, potassium iodide, and opium, while dyspnea due to nasal inflammatory conditions may be treated by the local use of menthol, eucalyptol, thymol, and cocaine. The following formula is useful in emphysema:

℞ Potassii iodidi, ...grs. v (0.3 gram);
Morphinæ sulphatis, ...grs. ssii (0.005 gram);
Tincturæ belladonnæ foliorum, ...℥v (0.3 gram);
Spiritus ætheris compositi, ...℥xlv (3 grams);
Aquæ, q. s. ad:.....℥ii (8 grams).

M. Sig.: One dessertspoonful as required.

The following combination is of value for diuretic purposes:

℞ Potassii acetatis, ... }
Potassii bicarbonatis, ... } āā grs. xv (1 gram);
Potassii citratis, ... }
Infusi digitalis recentis, q. s. ad:.....℥ii (8 grams).

M. Sig.: Two teaspoonfuls every three or four hours.

Treatment of Hemoglobinuric Fever.—E. Griewank, in *Semaine médicale* for September 17, 1913, is credited with having obtained good results in this condition by subcutaneous administration of a relatively concentrated solution of sodium chloride:

℞ Sodii chloridi, ...℥ss (15 grams);
Aquæ sterilisatæ, ...Oii (1 litre).

Fiat solutio.

As soon as the process of hemoglobinuria has been noticed, whether it be mild or severe, 8 to 10 ounces (250 to 300 c. c.) of the solution is injected, and this injection is subsequently repeated every eight hours. When the urine begins to clear—generally after the third or fourth injection—the amount given at each injection is diminished and the intervals between injections are lengthened. The injections are never suddenly discontinued; in fact, a final injection of 3 ounces (100 c. c.) is administered when the patient has apparently recovered and the urine is clear. In the majority of cases about eight injections are given. Where there is oliguria and a tendency to anuria, however, the injections are given only at twelve hour intervals and wet cups are applied to the lumbar region; with these precautions anuria never followed. In all cases in which the saline injections were begun early, the hemoglobinuria was rapidly controlled.

The author condemns the use of chloroform water for vomiting in these cases, having found it to impair the renal function. Application of ice to the epigastrium and the ingestion of iced fluids in small amounts are to be preferred. Quinine is contraindicated unless slight fever persists after clearing of the urine, when 4 grains (0.25 gram) of the drug may be given by mouth in the twenty-four hours; complete abstention from the drug for an additional period is, however, recommended. Cold milk may be taken where the stomach is intolerant, and should be continued until both albuminuria and icterus have disappeared. Energetic arsenical treatment and return to a temperate climate are advisable when convalescence is established. Series of sodium cacodylate injections at the beginning and close of the winter season are strongly recommended by Griewank as a prophylactic procedure against hemoglobinuria in the tropics.

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CONTINUED SYPHILITIC FEVER.

While the identity of this febrile process has been established by Bremer, Vojda, Janowsky, Lance-reaux, Rollet, Jullien, and others, it is deemed much less frequent than the other forms of syphilitic fever, a fact upon which Fournier insists. Nevertheless, it is found with relative frequency in practice, while its resemblance to typhoid fever exposes the practitioner to what may sometimes prove embarrassing diagnostic errors. Its recognition, therefore, particularly because it yields promptly to antiluetic treatment, is of great importance.

Continued syphilitic fever is practically always, according to Perrin, Benech, and Masson (*Paris médicale*, August 8, 1914) met with in women. The febrile process is of the continued type, and may last from several days to several weeks. It may be mistaken for a febrile gastric disorder, its temperature oscillations, according to Fournier, being slight, e. g., between 99.5° and 101.3° F.; but a distinctive feature is that the temperature runs parallel with the pulse, which is not the case in typhoid fever. There is also more or less lassitude and general discomfort, and anemia which corresponds in degree with the general manifestations. There are muscular pains and headache, but the latter is less intense than that of typhoid fever.

All the foregoing signs may, however, become far

more severe, thus introducing a true syphilitic typhosis, the whole course being characterized by profound adynamia and continuous torpor. To establish a correct diagnosis in this aggravated form, considerable care is necessary. Even though continued syphilitic fever shows no characteristic evolution, it differs from typhoid fever in so many particulars that its recognition is not difficult: there is no epistaxis, but very severe headache with nocturnal exacerbations; the patient is depressed and somnolent, but not stuporous; the pulse is high; the temperature curve is less continuous; the eyes are abnormally bright instead of being lustreless and vague; the tongue is saburral and white, with slightly red border, and not dry and parched; the bronchial rales are absent; all abdominal phenomena including the rose colored spots are also absent. Conversely, luetic cutaneous manifestations, primary or secondary, may be present; the Wassermann reaction is, as a rule, positive, while the Widal seroreaction is negative.

The prognosis of continued syphilitic fever is that of a rapid syphilitic generalization and is therefore grave, the trend being toward lesions of the central and peripheral nervous systems. Hence, the treatment should be that of a severe case of syphilis; yet, great prudence is necessary in the use of salvarsan or neosalvarsan, owing to the severity of Herxheimer's phenomenon in this class of cases. Arsenic should be used in very small doses, or perhaps a few injections of a mercurial salt should be tried before starting the arsenical treatment. The association of these two agents is advantageous throughout the whole course of treatment.

THE ETIOLOGY AND TREATMENT OF
PELLAGRA.

If we may credit the statements in a recent report from Italy, a simple and effective means for the treatment of pellagra has been found. Not only has the cure been discovered, but a theory as to the pathogenesis has been evolved which suggests a method of prophylaxis. Alessandrini and Scala, in *A New Contribution to the Etiology and Pathogenesis of Pellagra* (*Annali d'igiene sperimentale*, 24 (n. s.), Fasc. I, pp. 1-176, 1914), report investigations which have been going on since 1909. This work has led them to two fundamental conclusions: 1. Pellagra does not depend absolutely upon the eating of maize; 2, it is a disease clearly localized and limited to zones where the drinking water comes in contact, more or less exclusively, with clay soils. The fact that pellagra has been eliminated in pellagrous districts by the substitution of drinking water from outside, led the authors to suspect water as the carrier of the infection.

On account of the analogy between pellagra and certain diseases due to animal parasites, especially Filariidæ, which present the periodical spring and summer exacerbations with remissions in the winter, the writers at first supposed that pellagra might be due to a parasite of this class. Some experiments on monkeys, however, were considered conclusive in ruling out animal parasites; bacteriological examination of the water in infected districts resulted negatively; there remained, therefore, under suspicion, only the organic and inorganic substances suspended or dissolved in the water. Various reasons led to the exclusion of organic material. It had never before been suspected that the common mineral substances, in potable water at least, might provoke such disturbances. The elimination of all other factors and a careful study of the mineral content of the water led the writers to suspect the colloidal silicic acid.

In the slow disintegration of silicocalcareous soils, the silicic acid passes easily into the colloidal state and remains suspended, while the aluminum salts remain insoluble and tend to sediment. For this reason we are likely to find in surface waters large quantities of silicic acid and very small quantities of aluminum. The silicic acid in colloidal solution gives to water the opalescent appearance so frequently seen in pellagrous zones.

In their experiments Alessandrini and Scala have treated subcutaneously, intraperitoneally, and by mouth, a large number of guineapigs, rabbits, dogs, and monkeys, with colloidal solutions of silicic acid, alone and in combination with other mineral salts. The animals were fed both with ordinary rations and with the addition of corn to the food. The authors believe they have proved that natural potable waters may produce certain specific states in the animal organism by altering the healthy body functions or by restoring deranged functions.

Their thesis then, is that pellagra is the result of body changes caused by the diffusion of silicic acid into the tissues and its accumulation. Just as the formation of the colloidal solution of silicic acid may be aided by artificial conditions, certain food constituents may favor the diffusion and accumulation of silicic acid in the tissues. Just how this theory may be correlated with the findings of the American Pellagra Commission, especially with regard to the incidence of pellagra in an infected house and in houses "next door," is a difficulty which has not been cleared up.

After reaching the conclusion that pellagra was merely a mineral acidosis, the authors deduced that a rational treatment for the disease would be the administration of an alkali. They tried trisodium citrate, which, after oxidizing in the tissues, liberates

sodium carbonate which may neutralize any free acid present.

The first experiment was made on a dog, which showed improvement in eight days. It received daily intramuscular injections of one c. c. of a five per cent. solution of trisodium citrate; the injections of silicic acid which had first caused symptoms were continued. Pellagrous persons were then treated by administering intramuscularly one c. c. of a ten per cent. solution of trisodium citrate, usually at twenty-four hour intervals. The results in ten cases are reported, improvement in every case being noted within a very short time. This treatment is so simple and harmless that it merits a thorough trial. The writers feel that the prophylaxis of pellagra depends merely upon attention to the water supply.

As to the preparation of the colloidal silicic acid solution and of the silicate gelatin used for the animal experiments, the directions given are sufficiently explicit perhaps for the chemist, but scarcely so for the bacteriologist. There is no mention of how the solutions were sterilized, what precautions were taken to check up sterility, how the syringes were sterilized, and how the site of injection was treated before and after administration of the dose. We trust, however, that this criticism concerns the report only, and not the work.

THE TENEMENT HOUSE DEPARTMENT AND PUBLIC HEALTH.

In no other large city has the multiple dwelling been so highly developed and so generally adopted as in New York. The Anglo-Saxon's proud boast that his house is his castle cannot be made by the denizen of Manhattan island. He is in most cases an occupant of barracks, the subject of his landlord and janitor, the hotel clerk, or the landlady of his boarding house. The private house is virtually extinct. It is an extraordinary fact that there were filed with the building department last year plans for the erection in the borough of Manhattan of only thirty-two houses designed for the occupancy of a single family. The vast majority of our approximately five million population are housed in buildings which are classed as tenements, for the law makes no distinction between the ordinary tenement of the poor and the luxurious apartment house of which the rentals range from \$6,000 to \$25,000 a year.

Housing conditions are a direct factor in the incidence of many diseases, notably tuberculosis, anemia, and the acute infections of childhood, and also determine largely the elementary conditions of decent existence, such as provision of light and air;

sanitary plumbing; the exclusion of dampness; the suppression of unnecessary noise; the elimination of filth, vermin, and various nuisances; and adequate protection from fire. The tenement house department, in the broad scope of its activities, is thus second only to the health department itself as an indispensable factor in the comfort and well being of our citizens. In the ten years since its establishment, in 1904, the death rate in Manhattan has decreased from 19.39 to 14.99, and in the entire city from 18.74 to 14.11 per mille of population. Some share in this remarkable diminution must unquestionably be ascribed to the improved living conditions brought about by the tenement house department. Through it more than 200,000 dark rooms have been abolished or have been provided with windows; over 7,000 school sinks or privies which were sanitary abominations of the worst type, have been removed from the old, densely congested centres of the city; and there have been built 23,335 new law tenements, housing a million and a half of people in rooms with outside light and air, sink, running water, and toilet to each apartment, and in more than eighty per cent. a private bath.

During the past three years fifty-five bills designed to weaken the tenement house law and break down the protection it affords have been introduced at Albany. Fortunately none of these measures has been enacted, and only five were even reported out of committee. Constant vigilance, however, is necessary to safeguard the slowly developed and admirable provisions of the present law, which is regularly attacked by the greedy speculator, the dishonest schemer, the slum landlord, and the crack brained visionary with his spurious reforms. The tenement house law has much the same kind of persistent opposition as that which the medical practice law receives regularly from quacks, queer cults, and flabby minded, half educated busybodies. Good citizenship and professional interest require the intelligent physician both to support and to defend just laws when assailed.

RECREATION AS A PREVENTIVE OF CERTAIN ABERRATIONS.

The problem of fatigue and its relation to efficiency is becoming more and more appreciated in our industrial institutions, so much so, indeed, that we may truthfully say that, in the United States at least, the art of work is being mastered to a degree but little short of perfection. Not as much can be said with reference to our mastery of the art of play. Let us not forget that the art of play presents an important problem which requires seri-

ous effort for its solution. Relaxation from the stress and tension of modern American city life means much for our future physical, mental, and moral health and efficiency. No one class of citizens is in keener appreciation of this fact than we physicians, who can readily testify to the fact that this a tired nation, perhaps, as has been suggested, the most tired nation on earth.

In connection herewith we may refer to an article in the June number of the *Popular Science Monthly*, where Professor G. T. W. Patrick ably discusses the psychology of recreation. Professor Patrick calls attention to the fact that overstrain is the father of many evils. We are a truly weary people, and suffer generally from acute or chronic fatigue. The art of relaxation has not been cultivated. There has been a widespread neglect of the instinct of play, which has thus been stifled, much to our misfortune. The intensity of our present methods of living, the never ceasing activity in which we all take part, has already led to various manifestations which tell a tale of such significance that he who runs may read. This strenuousness which we have made a part of our national life is responsible for conditions which many citizens find themselves at a loss to understand. As every psychiatrist knows, neuroses, psychoneuroses, and psychoses are much too frequently caused by the strain and worry which beset so many of us. The present dancing craze is a manifestation of our innate longing for that play and relaxation which is often denied us in our unceasing rounds of toil and trouble. Lack of adequate relaxation is likewise accountable for frequent physical and moral breakdowns. It has been charged that the so called epidemics of immorality which now and again break out in sudden fury in small towns are, as Professor Patrick declares, but the resulting reaction occasioned by that "moral fatigue" which we have neglectfully permitted to accumulate in our social system, with no particular effort directed toward its relief and expenditure. Alcoholism and narcomanic tendencies are increased in this manner. What relation criminal tendencies have to this condition of emotional stifling, it would be difficult to estimate.

Our attention is directed to the fact that although there are at present, in 342 cities in the United States, 2,400 regularly supervised playgrounds and recreation centres in charge of 6,318 professional play leaders, nevertheless the relaxation provided for is more or less only of a physical nature and for a particular class of people. In spite of the millions of dollars which have been spent in this direction in the last five years, there is still needed means of relaxation of the mind

as well as of the body. We need to listen to more lectures, to read novels, to cultivate a better social life for the people, to bring about more mingling with our fellowmen, to instill more art and more culture into our daily life, which, as at present constituted, is too barren of the elements of that higher living which make existence worth while. As one newspaper editor has so aptly expressed it: "All of which can be summed up in one word—leisure. We need more leisure."

THE SOLDIER'S FEET.

Mr. Basil Hughes, in the *British Medical Journal* for September 19, 1914, writing of the precautions taken in examining recruits for the army, gives directions concerning the prevention of sore feet. First, he lays down three rules, as follows: 1. Secure properly fitting boots; 2, properly prepare such boots; 3, anticipate the trouble in the feet themselves and adopt prophylactic treatment. The service boots, continues the writer, are hard and unyielding. They should be well softened before serving out. The best softening agent is crude castor oil. Such boots should be immersed in this material for five or six days before giving them to recruits. The stiffest parts, or the parts of the boot most liable to give rise to sores, are just above the heel, the instep, and about the great toe, and such parts should be thoroughly softened. Marching, properly graduated, is an excellent treatment for flat foot, coupled with good food and physical drill. It is really astounding how these cases of extreme flat foot have recovered themselves under this treatment. Bromidrosis and hyperidrosis easily cause sores.

Mr. Hughes's routine treatment is as follows: The socks are washed every second or third day and thoroughly dried, preventing the accumulation of stale sweat, which is a powerful irritant to the feet. The feet are washed daily with soap and cold water, carefully dried, and then rubbed with methylated spirit; they are then dusted over with boric powder. Before a march the socks are soaped well and dusted with boric powder. These prophylactic measures are simple, and perhaps old, but they have answered the purpose admirably. A better designed boot is possible.

Lastly, Mr. Hughes issues a warning against expecting too much at first in the way of marching and work from men of the territorial force newly mobilized. Short and easy marches at first, carrying only a portion of their kit, increased gradually while they are becoming accustomed to their new surroundings, are most important points, but very apt to be overlooked.

Obituary.

JOHN MCGAW WOODBURY, M. D., of New York.

Doctor Woodbury died at Southampton, Long Island, on September 23d. He was born in New York in 1855 and graduated from Princeton in 1879; he studied medicine both at the College of Physicians and Surgeons and at Bellevue Hospital and took postgraduate courses at Vienna and Heidelberg. He was for a time on a western ranch. During the Spanish War in 1898 he accompanied the troops to Porto Rico as division surgeon. His ability and energy soon won him the position of sanitary inspector and he organized the first foreign board of health at Ponce. After the war the government sent him abroad to study sanitation in the German army, and while in Europe he also investigated the systems of sewage and drainage in various cities. This experience caused his appointment as commissioner of street cleaning, under Mayor Low in 1902, a position he filled with conspicuous ability,



JOHN MCGAW WOODBURY, M.D.

following out the methods of Colonel Waring. Doctor Woodbury enjoyed from the beginning of his career freedom from financial worry, a fact that enabled him to withstand with indifference the attacks of political enemies and to pursue undisturbed the plans for various reforms that he and his predecessor had made after careful scientific investigation of the problems presented by his Augean task. The principles of an ethical and honorable physician which he brought to his city work made him the target of the local politicians, who after a prolonged attack finally accomplished his removal. He subsequently engaged in the pursuit of business. Doctor Woodbury leaves a widow and a stepson.

News Items.

A Public Clinic in Genitourinary Diseases will be held every Thursday evening, at 8.30 o'clock, by Dr. Abraham L. Wolbarst, at the West Side German Dispensary and Hospital (New York School of Clinical Medicine), 328 West Forty-second Street. The clinics will begin on October 8th and end in April. Physicians and medical students are invited.

Chicago Medical Society.—At the recent annual meeting of the Aux Plaines Branch of this society the following officers were elected: President, Dr. H. H. Roberts; vice-president, Dr. Stella M. Gardner; secretary and treasurer, Dr. C. M. Pohl. At a regular meeting held on Friday evening, September 25th, Dr. M. L. Harris read a paper on Nerve Blocking, which was discussed by Dr. C. E. Humiston and Dr. W. F. Scott.

Harvey Society Lectures.—The first lecture in the course for 1914-1915 will be given by Professor F. T. Gay, of the University of California, on Saturday evening, October 10th, at the New York Academy of Medicine, his subject being Experimental Studies on Methods of Antityphoid Immunization. The second lecture will be given on Saturday evening, October 24th, by Dr. Thomas Lewis, of London, on the Excitatory Process in the Heart.

Meetings of Medical Societies to be Held in Philadelphia during the Coming Week.—Monday, October 5th, Wills Hospital Ophthalmic Society, Academy of Surgery, Philadelphia Clinical Association; Tuesday, October 6th, Aid Association of the County Society (directors); Wednesday, October 7th, Physicians' Motor Club, College of Physicians; Thursday, October 8th, Polyclinic Ophthalmic Society, Pathological Society; Friday, October 9th, Northern Medical Association.

East Tennessee Medical Association.—This association will hold its semiannual meeting in Greeneville on Thursday and Friday, October 8th and 9th, under the presidency of Dr. George P. Zirkle, of Kingston. The membership of the association embraces physicians from the thirty-one east Tennessee counties, in which there are over 800 practising physicians. An excellent program has been prepared, and a good attendance is expected. Dr. W. K. Vance, of Bristol, and Dr. W. D. Padgett, of Lenoir City, are vice-presidents of the association, and Dr. S. W. Woodward is chairman of the committee on arrangements.

Brooklyn Physicians' Economic League.—The opening meeting of this organization was held in the Kings County Medical Society Building, on Friday evening, September 18th, under the presidency of Dr. Lester D. Volk. There are six organizations in the greater city of New York at present belonging to the Associated Physicians' Economic Leagues, and similar societies have been organized in many large cities throughout the country. The object of the league is to promote and protect the economic welfare of the medical profession. Dr. Charles Duméy, 194 Hooper Street, Brooklyn, is secretary of the Brooklyn league.

Personal.—Dr. S. Adolphus Knopf has been commissioned first lieutenant in the Medical Reserve Corps of the U. S. Army.

Dr. William F. C. Steinbugler, 94 Lenox Road, Brooklyn, and 113 East Eightieth Street, New York, in the future will confine his practice to diseases of the eye.

Dr. Walter Bradford Cannon, George Higginson professor of physiology at Harvard University, delivered the Wesley M. Carpenter lecture at the New York Academy of Medicine on Thursday evening, October 1st, his subject being the Physiological Equivalent of War.

Dr. L. J. Friedman, of New York, has opened an office at 232 East Fifth Street.

Dr. I. B. Prager, of 310 East Fourth Street, New York, is building a modern six story apartment house at 309 East Fourth Street, and expects to occupy new offices in this building about November 30th.

Dr. H. Flournoy, resident psychiatrist at the Henry Phipps Psychiatric Clinic of Johns Hopkins Hospital, has left Baltimore to return to Switzerland, in answer to a call for reservists.

Medical Society of the Missouri Valley.—At the annual meeting of this society, held in Colfax, Iowa, on September 18th and 19th, the following officers were elected: President, Dr. Granville N. Ryan, of Des Moines; first vice-president, Dr. A. E. Jing, of Blockton; second vice-president, Dr. J. C. Waterman, of Burke, South Dakota; secretary, Dr. Charles Wood Fassett, of St. Joseph, Mo. (reelected); treasurer, Dr. O. C. Gebhart, of St. Joseph, Mo. Next year's meeting will be held in Omaha.

American Association of Obstetricians and Gynecologists.—The twenty-seventh annual meeting of this society was held in Buffalo, N. Y., on Tuesday, Wednesday, and Thursday, September 15th, 16th, and 17th, under the presidency of Dr. Charles N. Smith, of Toledo, Ohio. The following officers were elected: President, Dr. Charles L. Bonifield, of Cincinnati; first vice-president, Dr. Asa B. Davis, of New York; second vice-president, Dr. K. I. Sanes, of Pittsburgh; secretary, Dr. E. Gustav Zinke, of Cincinnati (reelected); treasurer, Dr. Herman E. Hayd, of Buffalo (reelected). Pittsburgh was selected as the next place of meeting.

A Canadian Hospital in London.—It is reported that the Canadian War Association has arranged to equip and maintain a hospital of fifty beds in London for twelve months; Sir William Osler and Mr. Donald Armour have taken charge of the organization. This hospital, which will be called the Queen's Canadian Military Hospital, will be under the control of the War Office and may be enlarged to 100 beds if necessary. The equipment and maintenance will require about \$100,000 and funds will also be needed for the general work of the hospital. Subscriptions can be sent to the honorary treasurer of the organization, Mr. G. C. Cassels, 47 Threadneedle Street, London.

Enforcing the Muzzling Ordinance.—Active steps to enforce the dog muzzling ordinance recently enacted by the board of health, began on September 15th. During the week following, 1,307 dog owners who neglected to conform to the requirements of the law, were served with copies of the ordinance, and were warned that prompt compliance was necessary. Following such notification, noncomplying dog owners were summoned to court, and during the week ending September 22nd, 59 were fined by various magistrates, while in 20 cases, sentence was suspended. During the month of August, 5,258 stray dogs and 22,459 cats were seized and destroyed by the American Society for the Prevention of Cruelty to Animals.

American Surgeons Go to Paris.—Dr. Joseph A. Blake, formerly of New York, who is now in charge of the American hospital corps attending wounded soldiers in Paris hospitals, has asked for volunteers among American surgeons to go to Paris and aid in the work. Seven young surgeons, in answer to this call, sailed from New York on Saturday, September 26th, on the *Olympic*. Six of the volunteers, who will work in the American Hospital in Paris during the continuance of the war, are Dr. J. P. Hoguet, Doctor Corry, Dr. Benjamin Jablons, and Dr. Lester Rogers, of New York; Dr. A. H. Dugdale, of Omaha, and Dr. Mercer Blanchard, of Columbus, Ga. The seventh volunteer, who will remain only six weeks, is Dr. Richard Derby. He will be accompanied by his wife, who was Miss Ethel Roosevelt, daughter of Theodore Roosevelt. Mrs. Hoguet also will accompany her husband.

Medical Society of Pennsylvania.—At the sixty-fourth annual meeting of this society, held in Pittsburgh on Tuesday, Wednesday, and Thursday, September 22d, 23d, and 24th, under the presidency of Dr. Edward B. Heckel, of Pittsburgh, the following officers were elected: President, Dr. John B. McAlister, of Harrisburg; first vice-president, Dr. G. F. Bell, of Newberry; second vice-president, Dr. W. S. Stewart, of Wilkesbarre; third vice-president, Dr. J. R. Lehman, of Mountville; fourth vice-president, Dr. O. C. Gaub, of Pittsburgh; secretary, Dr. C. L. Stevens, of Athens (reelected); assistant secretary, Dr. W. H. Cameron, of Pittsburgh; treasurer, Dr. G. W. Wagoner, of Johnstown; trustees, Dr. W. T. Sharpless, of West Chester; Dr. F. L. Van Sickle, of Scranton, and Dr. A. P. Hull, of Montgomery. Philadelphia was chosen as the next meeting place.

News of the Medical Schools.—Dr. Ernest Sachs has been appointed associate professor of surgery at the Washington University Medical School, St. Louis.

Dr. Jacob Parsons Schaeffer, recently professor of anatomy in Jefferson Medical College, Philadelphia, delivered the introductory address at the opening of the ninety-third annual session of the college on Thursday, September 24th.

Among the changes in the personnel of the staff of the Medico-Chirurgical College, Philadelphia, are the following appointments: Dr. Herbert Howard Cushing, professor of practical anatomy, Dr. Ardrey W. Downs, professor of experimental physiology, and Dr. Vernon A. Suydam, professor of physics.

Dr. Frank Hinman, now connected with the Brady Clinic of Johns Hopkins Medical School, has been appointed clinical professor of genitourinary surgery in the Stanford University Medical School, San Francisco. He will have a service in the Stanford Wards of the new San Francisco Hospital, which is now being rapidly equipped. It is expected to open about January 1, 1915.

The faculty of the Stanford University Medical School have decided to limit the number of students in their medical classes to about 25 in each class. This is the number that can be well cared for with the available facilities. The present junior class has already reached that number, and several applicants have been unable to enter.

Dr. John Sundwall, of the University of Kansas, has accepted the chair of anatomy in the Medical College of the State of South Carolina, and will assume his new duties this fall.

The Henry S. Denison Memorial Building for Medical Research at the University of Colorado is now ready for use. It contains laboratories for research in bacteriology, pathology, physiology, chemistry, and clinical methods.

At Tufts College Medical School, Boston, the principal change during the past year has been the addition of the Robert Brigham Hospital to the opportunities for clinical teaching, an institution with 150 beds, principally medical and orthopedic, although there is considerable surgery done. An opportunity has also come for a continuous service in medicine under an arrangement between the staff of the Boston City Hospital and the medical school, which insures an all the year round service of fifty medical beds. The premedical year, which was previously given at Tufts College in Medford, has been transferred to the medical school this session, and will be given in the building and laboratories of the school. Dr. Frederic M. Briggs has resigned as secretary of the faculty and professor of surgery, and the position of secretary has been filled by Dr. Frank E. Haskins.

Prosecutions for Failure to File Birth Certificates within Ten Days.—An investigation was recently made by the registrar to ascertain the completeness of births registered at the health department during the year ending August 1, 1914. In some of the boroughs the results were highly satisfactory; in others disappointing. In the Bronx, every report made was found to correspond with the certificate of birth on file, equivalent to 100 per cent. as to completeness of registration; the result in Manhattan was also satisfactory, a percentage of 99.2 being attained. In the remaining three boroughs, results were not as satisfactory, Brooklyn having a percentage of 96, Queens 94, and Richmond 93.

The filing of the certificate of birth of each child born in this city has become of paramount importance; the offending physicians and midwives of Manhattan, Brooklyn, Queens, and Richmond must stand trial for their non-compliance with the statutes. During the past year over 120,000 applications were made for certificates of birth to be used in obtaining admission to school and certificates of employment, in probating wills and in other legal transactions. A more recent phase of the necessity of having certificates of birth on file, is the demand upon citizens of this country at present in continental Europe to present evidence of citizenship; in these cases a certified copy of a certificate of birth does much to establish the identity of the individual.

The residents of this city must and will be protected in their legal rights and much as the necessity of bringing legal proceedings in these cases may be deplored, the department of health owes it to the public to take every precaution to insure a complete registration of the births.

Pith of Progressive Literature.

DERMATOLOGISCHE WOCHENSCHRIFT.

September 5, 1914.

Arthigon.—Rohr reports 133 cases of gonorrheal diseases treated with arthigon, a gonococcic vaccine. He considers it a specific remedy, but efficient only in exclusively gonorrheal foci of disease. He obtained great benefit in epididymitis, arthritis, and prostatitis; prostatic abscesses were absorbed in a very short time. As good results may be obtained in anterior urethritis from local treatment, the use of arthigon is not recommended in these cases. The intravenous injection of arthigon has certain advantages over the intramuscular, and is to be preferred; both measures are harmless. Visual disturbances were observed in one case treated with an intravenous injection of arthigon, but they disappeared spontaneously after four days. The absence of febrile and of local reaction, and the cure of obstinate cases, may be ascribed to biological differences in the stocks of gonococci from which the arthigon is prepared and in the patients affected. An onset of epididymitis, more rarely of prostatitis, was observed in some cases immediately after an injection of arthigon for posterior urethritis. This he ascribes to a flaring up of the gonorrhea in the posterior urethra and its extension to the neighboring organs, and considers it a warning that arthigon should not be employed in such cases, especially as the therapeutic effect produced is very slight.

ZENTRALBLATT FÜR GYNÄKOLOGIE

August, 1914.

Value of Intrauterine Applications of Radium in Cancer of the Uterus.—Meyer reports two cases of cancer of the cervix in which intracervical applications of radium were made. In one instance a severe inflammatory condition was caused of the entire pelvic tissues and of the annexa on the left side. The patient recovered from the inflammation and the cancerous condition was much improved. In the second case a fulminating sepsis was evoked and death took place in a short time. In neither case did anything indicate that infection was owing to perforation through faulty technic in the application of the radium. In the fatal case, the autopsy afforded no evidence of such an accident.

Peristaltin in Laparotomies.—Küster recommends the parenteral administration of peristaltin in laparotomy cases in order to stimulate peristalsis and shorten the postoperative period of paralysis of the bowel. In those cases in which it was used, the period of paralysis was shortened apparently from an average of forty-one hours to thirty-three.

Mesothorium Treatment of Uterine and Vaginal Cancer.—Schweitzer calls attention to the many inoperable cases in which the only treatment is palliative. For such patients whose expectation of life is short, the author recommends the use of mesothorium. After describing the technic he reviews his results. There appears to be no doubt that a very favorable influence is exerted, the cardinal symptoms of cancer disappear, the discharge and the bleeding cease after the first series of treatments, the pain after several. The findings in twenty-six inoperable cases are given

and Schweitzer concludes that mesothorium is of much value in such patients, and that the use of the radioactive rays will at least lengthen the life of many women suffering from cancer.

Chorionepithelioma and Ray Therapy.—Hörrmann reports a case of chorionepithelioma following a hydatid mole. The uterus and annexa were removed, but within fourteen days there were extensive metastases in the left labia. These were removed with the knife and the x rays used. The rays had no effect except to increase the bleeding, and mesothorium was used. The labial masses disappeared completely, but the patient died from apoplexy due to cerebral metastases.

Concentrated Formalin in the Treatment of Hemorrhage at the Climacteric.—Gerstenberg recommends the local application of pure formalin as a means of controlling the hemorrhage.

Acetonuria Following Spinal Anesthesia.—Gellhorn, in a series of thirty-five cases, reports but two in which acetone was absent in the urine following operations under spinal anesthesia. He comes to no conclusions as to the processes by which the acetonuria is caused.

LYON MEDICAL.

July 5, 1914.

Affections of the Hands in Rose Pickers.—Revillet describes affections of the hands among workmen engaged in picking roses in the Riviera. Injuries to the unclean hands by contact with thorns and parasitoides, such as phenol, formalin, lime mixed with copper sulphate, with fertilizing material, chiefly horse manure, are common. Mixed erythematous, pruriginous, eczematous, and impetiginous eruptions are frequently noted on the back of the hands and interdigital spaces. Persistent local tuberculous induration, with ulceration and sometimes lymphatic involvement, may be observed; likewise tenosynovitis, arthritis, and osteitis with ankylosis. Most frequent is a rapidly spreading pustular inflammation, sometimes followed by detachment of the epidermis over the entire dorsum. Eight cases of bothriomycosis, probably arising from contact with manure, were also seen, but no cases of tetanus. Treatment and prophylaxis are effectual—washing the hands after each picking, causing each skin puncture to bleed, extracting fragments of thorns imbedded in the skin, and finally applying tincture of iodine to each puncture. Fingers already diseased should be covered with rubber cots.

Partial Cystectomy.—Thévenot states that no unanimity of opinion as yet exists as to the best method of removing a portion of the bladder on account of tumor growth. The following procedure, first outlined by Rochet, has proved efficient in the author's hands, and permits of satisfactorily removing even the largest bladder tumors, wherever situated: A transverse Pfannenstiel incision is made through the skin and aponeuroses of the recti, these muscles are drawn aside, the anterior wall of the bladder is freed, and its posterior wall then carefully separated from the peritoneum covering it, down to the base of the organ. The base is then delivered and further freed, if the location of the tumor requires, by section of one of the groups of vessels which enter the organ from each side. With the bladder thus

literally in the surgeon's hand, removal of any large or small portion of the organ from without inward can be readily effected. In closing the wound, drainage of the prevesical and postvesical regions should be carefully provided for. By this method a very broad excision of the tumor base can be done without apprehension as to the safety of the peritoneum, and effective measures for the prevention of recurrence taken. Where the peritoneum is already involved, the organ may be entered directly through it, without any attempt at separation; later, in closing the wound, margins of healthy peritoneum are to be united.

Transverse Incision in Appendicectomy.—Patel used Pfannenstiel's transverse suprapubic incision in seventy cases, comprising forty-nine in which the appendicectomy was done as a secondary operation after some gynecological condition had been dealt with, sixteen in which a gynecological condition was corrected after the appendicectomy, and five in which appendicitis was the sole condition of operation. In two cases, previous unsuspected gynecological conditions were found and readily overcome. The author enumerates advantages of the Pfannenstiel over other more commonly employed incisions, and recommends its routine use in both of the two first groups of cases and in all interval cases of simple appendicitis in which no unusual operative difficulty is anticipated.

Moriz-Weisz Reaction and Diazo Reaction.—J. Rebattu and J. Escalon compared these reactions in 119 patients. The procedure followed in performing the former test was to dilute the urine with an equal volume of water, add five drops of a freshly prepared one in 1,000 solution of potassium permanganate, gently shake the upper portion of the tube, and note the results half an hour later, a persistent golden yellow color at the upper portion of the tube being alone accepted as signifying a positive result. In the sixty-five nontuberculous cases the test proved positive in seventeen, or 26.1 per cent. In the fifty-four tuberculous cases it was positive in twenty-seven, or fifty per cent., comprising 79.1 per cent. of positive results in third degree cases, fifty per cent. in second degree cases, twenty-five per cent. in incipient cases and fibroid and osseous forms, and thirty-three per cent. in acute tuberculous. Of the twenty-seven tuberculous patients in whom the reaction was positive, sixty-three per cent. have already died; of the twenty-seven negative cases, only 18.5 per cent. On the whole, a negative reaction is of favorable prognostic import. The nontuberculous cases tested presented a variety of conditions, gastrointestinal, hepatic, cardiac, renal, etc.; acute infectious cases were not included. As 26.1 per cent. reacted positively, the test is manifestly of doubtful diagnostic value. As for the diazo reaction, it was positive in nineteen of the fifty-four tuberculous cases, i. e., thirty-four per cent., or less frequently than the Moriz-Weisz reaction. In three cases in which the latter test was negative, the diazo reaction was positive.

BRITISH MEDICAL JOURNAL.

September 12, 1914.

Abdominal Opening for Appendicectomy.—George H. Edington's method aims at the more perfect prevention of postoperative hernia. The first

incision is through the skin and superficial fascia transversely from the middle line outward to within a finger breadth of the iliac crest and at a level of the anterior superior spine. This gives good access, avoids the nerves, and lies below the lower tendinous insertion of the rectus. A transverse incision is next made in the sheath of the rectus, beginning one inch from the linea alba and extending for half an inch outward. This is prolonged to the semilunar line by means of dull pointed scissors. The rectus is next separated from the edges of the opening by blunt dissection and freed from the posterior layer of the sheath by the finger. It is then retracted toward the middle lines, and the posterior sheath, along with the peritoneum, is incised transversely. The wound is closed in layers at the end of the operation. Drainage, when needed, is brought out through an aperture in the internal oblique and transversalis. If an enlargement of the wound is necessary this can be made in an outward direction into the transversalis and internal oblique muscles.

Bony Splinting in Cervical Pott's Disease.—Alexander Don calls attention to the anatomical difficulties connected with bony splinting of this region of the spine and suggests the following procedure. The spines of the vertebræ are exposed from below the seventh to above the second. A section of a rib of sufficient length to extend from the second to the seventh spines is removed by subperiosteal dissection. A hole is drilled in the wider end, large enough to fit over the spine of the seventh vertebra, and the rib is adjusted over this with its convexity forward. It is then marked and cut across at the point which will let it just fit into the groove below the second vertebral spine. This end is fixed to the interspinous ligament by a strong suture passed through a small hole drilled in this end of the rib. The muscles and fascia are then closed and serve to hold the splint in place. When necessary the rib can be made long enough to be attached to the base of the skull instead of the second spine.

Chronic Pulmonary Tuberculosis in Infancy and Childhood.—D. B. Lees describes six areas of dullness over the apices of the upper and lower lobes which he regards as typical of pulmonary involvement. Dullness in these regions is equally typical and constant in infancy, childhood, and adult life, but it is only to be made out by the most painstaking and accurate percussion. Percussion should always be made with the patient in such a position as permits of full muscular relaxation; for the anterior chest the patient should be lying supine, while for the posterior he should be seated with his arms crossed and resting upon his knees. The percussion should be as light as possible, and constitutes the most certain and valuable sign of pulmonary tuberculosis in infants and children, in whom there is no sputum, and who usually show none of the ordinary symptoms of tuberculous pulmonary disease. Valuable aid is rendered by properly taken x ray photographs, which show small areas of impaired light transmission in the regions found to be dull, as well as fine lines of infiltration radiating from the hilus of the lung. But the x ray photograph is not delicate enough to detect changes in the lungs at the very earliest time, when careful

percussion will reveal dullness in one or more of the areas in which it is typical of tuberculosis. The finding of this dullness in the presence of bronchitis, or of the pulmonary affections associated with many of the infectious diseases should be regarded as an almost positive indication of tuberculous involvement.

Chronic Tuberculosis in Childhood.—Clive Rivière says that chronic pulmonary tuberculosis in infancy or childhood is nothing more than a curiosity, but he agrees with the preceding author that the best method for its early diagnosis lies in the demonstration of the typical dull areas by exceedingly light percussion. Rivière holds the common thoracic lesion in tuberculosis of infancy and childhood to be an involvement of the tracheobronchial lymph glands. Diagnosis of this lesion rests upon the demonstration of interscapular dullness and presence of a shadow in radiographs. Rivière's experience leads him to the conclusion that, irrespective of whether this glandular involvement is right or left sided, or both, the area of dullness is to be found on the right side only. This is explained by the fact that it is believed to be due, not to the presence of the enlarged glands directly, but to a deficient aeration of the lung tissue from pressure of the glands on the right pulmonary artery which leads to congestion of the lungs. The typical area of dullness extends from the first to the sixth, seventh, or even to the eighth dorsal vertebra and outward convexly from the middle line for from two to three inches. In these cases there may also occasionally be found some of the typical areas of dullness described by Lees as indicative of pulmonary involvement, but the characteristic feature, even when these are present, is total absence of changes in the respiratory sounds and of rales. The interscapular dull area, indicative of glandular involvement, shows a certain amount of variation in size in the different phases of respiration.

LANCET.

September 12, 1914.

Harelip and Cleft Palate Operations.—George V. I. Brown says that the vital issue in the surgical treatment of harelip and cleft palate narrows itself to proper discrimination between the following operations: 1. Compression (forcing the sides of the bony palate in early infancy); 2, flap reversing operations; 3, flaps of bone and mucoperiosteum; and, 4, mucoperiosteal flap sliding operations as in the Langenbeck-Warren types. The standard must be the final result. All of the methods accomplish covering of the fissure, but not all produce an effective improvement in speech or an improvement in cosmetic effect. Principles which govern the choice of an operation in cleft palate cases are enumerated by Brown as: 1. Never correct a deformity by surgical or other forcible means if such defect may be made to correct itself in natural course of development. 2. Never destroy any structure that may be required for the perfection of future developmental processes. 3. Never misplace or disarrange the form or situation of any tissue in such a manner as to impair its future functional usefulness. 4. Never exceed the reparative possibilities of tissue in flap formation by endeavoring to close completely

at one operation the palate fissures in cases in which this is inadvisable. 5. Aim to improve, by operation if necessary, such operative conditions as cannot safely be overcome immediately. The premaxilla should never be removed nor partially destroyed, nor otherwise forcibly injured. The wiring and compression of the maxillary bones in early infancy also destroys or injures the future developmental possibilities upon which depend the future form of the nares, the palate, the upper dental arch, and the face. The use of wires always destroys from one to four tooth pulps. Flap reversal operations depart too far from the normal conditions to secure the best results, which are readily obtained by the method of Langenbeck-Warren. The Ferguson operation offers the best possible means of adjustment at the central portion of the palate, but the objection to the method is the likelihood of destruction of some of the bone on one or the other side and the impossibility of securing its regeneration. In the hands of the author the Langenbeck-Warren type of operation with a few modifications has given the best results from all points of view. Brown says: Only by systematic treatment from the very beginning in infancy can the greatest benefit be conferred upon these individuals. It is the development of a complete system and the perfection of technic rather than new or original operations that are most to be desired in the case of these patients. The first step practised by the author consists in the adjustment of an adhesive strip across the lip from the malar region on one side to that on the other. This calls into play the muscles which would otherwise tend to increase the deformity, and uses them as an aid in the process of narrowing the cleft and correcting the prominence of the premaxilla. It also tends to straighten the nasal cartilage, and at the same time permits of better breathing and taking of food. After the use of this strip for some time the Langenbeck-Warren operation is performed with such modifications as the individual case may need. An important improvement made by Brown is the use of a large number of differently shaped and bent periosteal elevators of different sizes so that the least possible trauma is produced. A single aluminum bronze wire retention suture is used in the centre and is fixed by means of a small silver button at each end, held in place by a split shot, thus no constriction of the parts is produced as would be the case with a complete suture. Such operations as may be found necessary for the later correction of the size and shape of the nasal cavities should be carried out if good speech is to result. The most suitable age for operation on the palate is between eighteen months and two years, for then the difficulty of correcting defective speech habits is relatively slight.

JOURNAL OF TROPICAL MEDICINE AND HYGIENE.

August 15, 1914

Nitrogenous Metabolism in Chyluria.—W. J. Young points out that the condition of the urine in chyluria has hitherto been studied as regards the fatty material contained in it, very little work having been done on the albuminous matter and other nitrogenous constituents. In the first of two cases in which he made a detailed study of the protein

components, Young found the amount of protein catabolized very low, though the relative quantities of ammonia, uric acid, and creatinin were approximately normal; about six grams of uncatabolized protein were excreted daily. In the second case, a similar tendency to poor nitrogenous utilization was noted, with a daily protein output averaging fifteen grams. In the first eight days, this patient's diet was in accordance with the usual treatment, made almost free from fat, whereas in a second period it was rich in fat. The quantity of protein excreted, nevertheless, remained practically the same, and the urine was not altered in appearance by the change. The custom of reducing the fats to a minimum is thus apparently not justified, the quantity of chyle in the urine, as measured by the proteins excreted, being, on the average, the same whether the diet is free from or rich in fat. The number of proteins in the urine is the best guide to the condition of the patient in chyluria, these being the substances which, by clotting to gelatinous masses, frequently cause a difficulty in the passage of urine.

Entamebiasis.—L. B. Keng reports from Singapore that a protozoan organism, the characteristics and life cycle of which he describes, is found in the intestinal canal in many persons, but mainly in those suffering from lithemia, rheumatism, bronchitis, asthma, an irregular remittent fever, sciatica, lumbago, urticaria, erythema marginatum or nodosum, prurigo, impetigo herpetiformis, lichen ruber acuminatus, and chronic gastrodynia. In many of these patients, the organism is also found in the sputum, urine, blood, and skin eruptions. Keng discusses a probable relationship between amebic dysentery and the group of rheumatic affections referred to. These affections are often found in persons who have had an attack of dysentery. The life cycle of the organism studied by Keng is somewhat complicated, and includes, in one stage, a funguslike thallus containing a core of colorless phosphatic and brownish red urate crystals. This thallus was seen in cases—among others—of chronic bronchitis, asthma, and bronchiectasis, and in one patient, the crystals, together with amebas and fragments of the thallus in the urine, caused symptoms of gravel. In the treatment of acute dysentery the author prescribes gray powder and phenyl salicylate with compound cinnamon powder and Dover's powder, followed or preceded by castor oil. In severe cases, at least one grain of emetine should be injected intramuscularly twice a day at first, and then once daily till no amebas are observable in the stools. With the appearance of formed stools, cysts and thallus begin to be seen. Gray powder with bismuth subsalicylate or phenyl salicylate and aromatic chalk powder are then indicated. Carminative waters are useful excipients or adjuvants. In chronic lithemia and bronchial cases the author has found Carle's method of giving thirty grains of potassium iodide after breakfast and a tablespoonful of Yeo's chlorine mixture after lunch—the mixture being repeated two or three times in the afternoon at hourly intervals—a good and certain way of acting on the parasite. In nearly all the rheumatic conditions named, emetine, chlorine water, or gray powder gives almost better results than the salicylates, though it is best to combine these reme-

dies according to indications. The value of emetine in metrorrhagia, gastrodynia, hemoptysis, melena, sciatica, pleurisy, bronchitis, asthma, urticaria, and prurigo the author considers to have been absolutely established in his practice, this fact also tending to show that these diverse states are due to the same cause.

INDIAN MEDICAL GAZETTE.

August, 1914.

The Operation of Election for the Radical Cure of Inguinal Hernia.—E. A. R. Newman describes the following operation, which closely follows Bassini's, but is, he thinks, simpler and more easily performed. He has had excellent results in fifty cases operated in during the last three years. An incision three and a half to four inches in length is made an inch or a little less above and parallel to the inner two thirds of Poupart's ligament, so as to expose the whole length of the inguinal canal and its rings. The fat and subcutaneous tissue having been divided and all bleeding points secured, the aponeurosis of the external oblique is split parallel to its fibres throughout the length of the wound, including the intercolumar fascia at the inner angle. This he prefers to do with scissors. The cord is thus exposed to view and the search for the sac begins. The wall of the supposed sac when found, should be held up at one point with a pair of forceps and nicked with a knife, making an opening to be enlarged for an inch or more with scissors to permit of the immediate exploration of the interior with the forefinger, by which it may be determined whether the true sac has been opened or not, whether the hernia is funicular or tunical, the size of the internal ring and the presence or absence of adhesions. The sac is then separated, a procedure that is easier in the funicular variety. In this variety the sac after isolation is twisted into a cord at its neck, transfixed, ligatured, and the redundant portion cut off. The stump is then drawn up into the abdominal cavity by passing the ends of the ligature in turn through the internal ring and the abdominal wall and tying them externally. In the tunical variety occlusion by ligature is usually impossible and a pursestring suture must be passed around the neck and tied, or this may be varied by passing the suture where the sac is adherent, then crossing the ends and occluding the remainder of the neck by ligature. The redundant portion is then cut off and the stump drawn up. Any remains of the funicular portion must be carefully removed. The scrotal portion may be left, or removed separately. The gap in the lower abdominal wall, at the site of the inguinal canal, is closed by pulling the transversalis and internal oblique muscles down over the front of the cord and suturing them to the back of Poupart's ligament with two or three square or mattress sutures of stout silkworm gut, placed in order from the internal to the external ring and finally tied in this order. The outermost suture should obliterate the internal ring, while the innermost should close the external ring securely, without unduly constricting the spermatic vessels. The thigh should be flexed slightly as the sutures are tied. The cut margins of the external oblique aponeurosis are united by a continuous flax thread suture, the skin wound

closed with a continuous suture, a dressing applied and held in place by a spica bandage.

Case of Absence of Uterus.—B. K. Chowdry. See the JOURNAL for September 5th.

BOSTON MEDICAL AND SURGICAL JOURNAL.

September 17, 1914.

Pulmonary Tuberculosis.—N. B. Burns advocates for hemoptysis: 1. Absolute rest, the patient surrendering all effort to those in attendance. 2. Immediate lowering of the blood pressure. 3. The determination of the blood to parts of the body other than the lungs, by means of the application of cold to the thorax and purgation of the intestinal tract. 4. The positive assurance to the patient that he is in no danger. Burns is opposed to the routine use of morphine. The matter of diet is very important. If a harassing cough is present small frequent doses of codeine or heroine may be given, so long as the bowels are kept open. One week in bed with entire absence of streaked sputum is necessary before the patient is allowed up and about to any extent. Constipation is the great obstacle in dealing with hemorrhage cases. The condemnation of morphine does not meet with entire approval; it was thought that it should be used with caution and only to meet certain indications, but that, in some conditions, it is useful.—Cleaveland Floyd says that while artificial pneumothorax has become a well established therapeutic measure, its field of application has slowly narrowed, not only because of a relatively small number of cases that are really suitable for this method of treatment, but also because it is most adapted for patients having institutional care. It does not replace measures to increase general body vigor, but can supplement these in a limited number, and is a real step in advance.—James A. Lyon gave some statistics from the Rutland State Sanatorium; the results are often contradictory and disappointing. He considers that artificial pneumothorax may do no harm, but "just as definite and serious damage may result from its careless or ignorant administration as from tuberculin."—Henry D. Chadwick likewise thinks it a method of treatment of much value in carefully selected cases, but that it should be applied only to such patients as can be kept under close observation and under sanatorium conditions.—Frederick T. Lord mentioned the disadvantages from a therapeutical point of view. Three advantages of the procedure were strongly brought out, the immobilization of the diseased lung, reduction of toxemia; the lungs offered less space on which tubercle bacilli may grow.

P. Challis Bartlett, H. W. Van Allen, and P. H. Cook all point out the great aid supplied by x ray in diagnosis as well as the difficulties experienced. Van Allen says that it has been neglected, and yet it is able to detect incipient tuberculosis. The reasons for this neglect he gives as: The family physician has a tendency to feel his way along by periodical examinations with the stethoscope, thereby losing valuable time for the patient. The specialist is satisfied with his own method and hesitates to change. The röntgenologist does not push it because it is expensive, and no class of patients are less able to pay. A positive diagnosis usually in-

volves the making of two enemies—of the patient, for no one in the incipency of the disease wishes to be told that he has tuberculosis, and of the medical man, who so often doubts the little shadows, especially when not confirmed by the stethoscope. In this stage recovery is frequent. All agree that the röntgenologist and the physician should work together and in the discussion it is emphasized by one writer that the two kinds of work should not be done by the same man.—Bailey maintains that in tuberculosis of children we should distinguish clearly between a diagnosis of infection and one of disease, and that this must be done on broad lines, regarding tuberculosis as an endemic disease, rather than an isolated disease of the individual.—Dodd says that a diagnosis of tuberculosis should not be made until positive clinical evidence is obtained. He considers the x ray examination to be of the utmost importance, but that it is not fair to assume that tuberculosis, except in miliary form, will present a sufficiently different picture from other infections in children.—Smith says that the treatment of tuberculous disease in infancy and childhood is not radically different from that in adults. The patients require plenty of fresh air, rest, and careful attention to the details of feeding. The greatest single factor in infantile tuberculosis is the prevention of infection, which means clean milk and the adequate treatment of persons with open tuberculosis.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

September 15, 1914.

Neurasthenia and Tuberculosis (Concealed), by G. D. Head.—This paper was abstracted in our issue for June 27th, page 1306.

A Common Mechanism for Most Injuries of the Shoulder Region, by T. T. Thomas.—This paper was abstracted in our issue for July 4th, page 43.

The Heart in the Pneumonias.—R. N. Wilson thinks that the heart shows post mortem microscopical evidences of toxemia in every fatal case of fibrinous and bronchocatarrhal pneumonia. In the latter the changes are more likely also to be macroscopic. He believes that every heart which weathers the pneumonic storm sustains similar lesions; of milder degree perhaps, yet from which it probably never fully recovers. Without attempting to minimize the influence of the vasomotor system in causing a high mortality in pneumonia, we ought, in clinical or laboratory experience, to regard the heart as the factor of prime importance in the safety or danger of asthenic pneumonia patients. There is urgent necessity for safeguarding the heart from start to finish, not so much by the use of drugs as by their avoidance (especially cardiopressants like nitroglycerin and alcohol); not so much by treatment as by studious avoidance of an overdose of solicitous care. Hygiene of the intestinal tract, sane feeding, the intelligent use of an abundance of pure air of the right temperature, and the insuring of ample periodical freedom from doctor, nurse, and family, will go farther than any other means toward supporting the heart.

Small Deep Skin Grafts.—J. S. Davis maintains the value of very small grafts, especially those con-

taining more of the true skin than the superficial grafts advocated by Reverdin. The procedure is much the simplest method of grafting. It requires little preliminary preparation after the granulations are in condition, and, unless the area to be grafted is large, the grafting can be done in the patient's room. Enough autografts can be obtained from a small area to cover a large wound without causing any appreciable injury to a patient already in a serious condition. Several patients have come under the author's care whose lives, he believes, have been saved by the successful use of small grafts.

Intrinsic Cancer of the Larynx; Complete Excision Apparently Effected by Endolaryngeal Operation.—Sir St. Clair Thomson has found the treatment of this condition by laryngofissure remarkably satisfactory. It is doubtful, he says, if the results of operation for cancer in any other part of the body can surpass those which he has already reported. Since giving full particulars and showing cases before the Medical Society of London in 1912, he has continued to obtain the same results; that is, no patient has been lost by operation, and eighty per cent. have remained free from recurrence. This freedom from recurrence dates back in some cases for ten years.

Intrarectal Administration of Sodium Salicylate in Acute Rheumatic Fever.—L. G. Heyn in 1912 published a report covering twenty-two cases in which this treatment was apparently successful. The present report is based on 100 additional cases, the results of which indicate its advantage over the usual modes of treatment in acute rheumatic fever, and he urges its general adoption. It answers the requirements of any therapeutic agent: 1. Ease of administration; 2, ready absorption of the drug; 3, minimum of untoward effects; 4, administration of large quantities of the preparation, advocated in bactericidal therapy; 5, removal of the residue of the drug from the bowel by subsequent enema, if the dose ever proves excessive; 6, the results are more prompt than by any other measure.

Vaccines in the Prophylaxis and Treatment of an Epidemic of Pertussis.—A. F. Hess reports that it seems clear that none of four vaccines employed, including an autogenous strain, was of value in curing or tempering the disease. In view of the fact that twenty cases of pertussis developed in spite of the prophylactic treatment, its protective value cannot be compared to that of typhoid vaccine. However, the proportion of unvaccinated children who contracted the disease greatly exceeded the number of the vaccinated who contracted it; it is to be concluded that the vaccine has protective value in a certain proportion of cases, and that it should be employed in institutions and in families to prevent the spread of infection.

MEDICAL RECORD.

September 15, 1914.

Thyroid Deficiency, by E. Hertoghe.—An abstract of this paper will be published in our issue containing the proceedings of the April meeting of the Medical Association of the Greater City of New York.

Intratracheal Insufflation.—B. M. Ricketts states that Mikulicz must be credited with the first systematic investigation of the physiological prob-

lems connected with intrathoracic surgery. At his suggestion, in 1903, Sauerbruch began a series of experimental researches, and in 1904 completed cabinets in which either positive or negative pressure could be used. What Catrel has termed the "classical type" (cabinet) of apparatus has found its full development in the new intrathoracic surgical pavilion of Willy Meyer at the German Hospital, New York, in which it is possible to operate differential, positive, or negative pressure at will. Progress in intrathoracic surgery has depended absolutely on the mechanical control of pneumothorax during the operative procedure, and for all practical purposes, reciprocal breathing, under manometrically controlled pressure, has proved the only safe method of compensating pneumothorax. Extensive laboratory experiments, which have been verified by postoperative results in the human subject, prove conclusively that so far as respiratory complications are concerned, intratracheal insufflation is an innocuous procedure, even in the presence of lobar pneumonia. Also it has been found in practice that the recurrent air stream through the trachea precludes the possibility of aspirating vomited material or hemorrhage from the pharynx. All experimenters have concluded that for the Meltzer-Auer technic, a silk woven catheter thirty cm. long and of a diameter one half that of the glottis, serves as the best intubation tube. Its introduction is best accomplished after the induction of narcosis by ethyl chloride-ether or nitrous oxide-oxygen-ether anesthesia. Aside from its value purely as a resuscitative measure in asphyxia, drowning, poisoning by drugs and anesthetics, in the convulsive stage of rabies and tetanus, and impaired respiratory function in certain diseases, it must be remembered that intratracheal insufflation, as a method of anesthesia, is a very desirable adjunct in surgery of the head and neck, especially for operations on the spine when the patient must be placed flat on the stomach during the course of the procedure.

Diabetes mellitus Following Bilateral Mastoidectomy and Unilateral Exenteration of Ethmoid, Sphenoid, and Maxillary Sinuses.—Virginia Dabney reports the case; he states that upon proper dietetic treatment all the patient's symptoms disappeared. One mastoid wound closed at once; the other has practically done so, and weight has returned to within five pounds of normal. The following points are interesting: 1. No sugar, despite frequent tests, till three months after third operation; 2, none of the classical symptoms, such as thirst and retinitis, before this time; 3, remarkable effect of vaccine on the temperature, but none on the progress of the disease.

Modification of the Crile Cannula.—Alfred Kahn believes the Crile cannula to be the simplest one we have, but states that its use has presented difficulties which have suggested many modifications. Its most conspicuous defects, in his opinion, are its great fragility and, owing to its small size, the difficulty in handling and controlling it. He has modified the instrument by separating the handle and cannula parts entirely, and this, he says, has many advantages; the most important of which is a larger, longer, and more solid and firm handle, which

allows easy manipulation. After the artery and vein are connected, the rod is unscrewed from the cannula.

Epidemic of Typhus Fever in Van, Turkey.—C. D. Ussher expresses the opinion that experience in the hospital at Van has proved that the only means of transmission of typhus is vermin. The nurses were exposed to every other form of contagion from the breath, desquamation, discharges, constant association by day and night, and all this when in an overtired condition; yet not one of them contracted the disease. One of the male nurses subjected himself to infected body lice, and promptly contracted typhus. Such certainty was felt as to this mode of infection that, on account of the lack of bedding, patients with other troubles were put in beds which had been occupied by typhus patients. No further change was made than clean sheets and pillow covers, and though in several cases the limit of incubation had passed three times over, there had not been a single instance of infection.

LANCET-CLINIC.

September 19, 1914.

Glands of Internal Secretion.—Holmes states that there is no exact classification of the ductless glands. The thymus is more active in intrauterine life. The thyroid and adrenal glands have an antagonistic action. The thyroid promotes digestion, reproduction, cerebration, cardiac strength, and activity; the adrenals restrain all of these. The capillary circulation is constricted by the action of the adrenal and dilated by that of the thyroid. The pineal gland is closely related to the growth and maturity of the sexual apparatus; the pituitary body has influence on bone growth, and the adrenals seem in some way related to the cerebrospinal lymph circulation.

Overweight.—Baker, in referring to this subject from the standpoint of life insurance, states that formerly it was supposed that the average build represented the best mortality at all ages and medical selection has been based upon this theory. The experience of the companies as shown by the medico-actuarial investigation has not substantiated this theory and we now know that the best mortality is not found among those of average build, but that at the younger ages it is found among those who are slightly overweight and at the older ages among those who are distinctly underweight. There are several factors which have to be considered in estimating the risk in overweight. Among these factors are occupation, habits, family history, personal history, abdominal measurement, blood pressure and the personal equation. From the viewpoint of occupation the most favorable are lawyers, clergymen, teachers, etc. On the other hand, a hotel keeper or a liquor dealer is rather unfavorable. Overweights who have never used alcohol are much better risks than those who abstain after having taken alcohol in moderation. The combination of overweight and excessive use of alcohol must be viewed with grave suspicion, an early mortality occurring in a great number of cases, and these risks should be declined. When considering family history in overweights, the combination of a short lived family with several deaths from diseases of the cardiovascular and digestive systems is a bad one and it is safer to decline these

cases. If there is a personal history of such diseases as gout, rheumatism, renal or hepatic colic, syphilis, and all other diseases which constitute an impairment, it makes an overweight a substantial risk. Mortality is high when the abdominal circumference is greater than the maximum chest measure.

AMERICAN JOURNAL OF OPHTHALMOLOGY.

August, 1914.

Supernumerary Eyelid.—J. F. Shoemaker and A. Alt report a rare anomaly met with in a woman twenty-six years old. She stated that she had always had a growth on her left eye and had been told by her mother that it was congenital. The growth was irregular in outline, was attached in the region of the caruncle, from which it protruded between the lids and extended about five mm. beyond their surface. Its only attachment to the edges of the lids was by a narrow band to the lower almost at its junction with the upper, where the skin was continuous from the lid. It was removed easily and the wound healed promptly. Microscopically it was made up of all the elements found in the caruncle and lid, but, particularly in the latter, arranged in an abnormal manner. The posterior broader part contained chiefly the tissues found in the caruncle, the thinner portion those of the eyelid. The detailed histological examination of the tissue makes it almost certain that the growth was a supernumerary eyelid grown from, upon, or out of a somewhat abnormal caruncle.

AMERICAN MEDICINE

August, 1914.

Who Will Discover the Causes of the Insanity of Youth?—Bayard Holmes states that: 1. It is his contention that the opportunity of solving the problems of insanity is in the hands of the state, and that politically organized society is under an obligation which the administrative and legislative officers of the state have not adequately provided for, but which they must, for economic reasons, ultimately assume. There is no private endowment which is undertaking the study of these problems on such a scale as to give confidence in their solution. 2. Up to the present time no one of the evils of life, no matter how mysterious it has appeared during our ignorance of its cause, condition, and cure, has ever proved to be due to anything except natural, physical causes, discoverable by the method known as scientific research. 3. The very fact that the insanity of youth is not symptomatically unlike traumatic insanity, general paresis, alcoholic psychosis, the delirium of the infectious diseases, and the frenzy of the toxemias, leads us to the reasonable presumption that its pathology can be made clear and rational by such biological, chemical, and physical researches (when pursued with sufficient faculty and equipment) as have been rewarded with success in these familiar instances. 4. The teachings of medical history and veterinary pathology have shown that there are no mysterious God sent or devil brewed diseases. There are no mystical, intangible, unapproachable sources of sickness and death. For every effect there is an adequate cause, and for similar effects similar causes. We have every faith in the unity

of natural phenomena and the existence of an adequate, tangible, rational, consequential, mechanistic cause for every malady, even though its major symptom may be a disorder of the mind. 5. To the modern scientific mind, and in enlightened public opinion, there are no "hoodoos," no "evil eyes," no "curses," no "banshees," no "twisted ideas," or anything like them, adequate to drive annually fifteen full regiments of our brightest youths into hopeless custody and start them on an irrevocable physical decline, to end either in permanent confinement or early death. 6. That society and civilization are not fit to exist, and cannot long exist, which expend a munificent quarter, or more of the state budget on the pessimistic custody of their unfortunate citizens, and yet provide no proportionate means of solving the riddle of insanity by such methods as have proved adequate to solve the problems of equally mysterious maladies. 7. Psychiatry presents the most promising field for research, and dementia præcox is the most important clinical group awaiting a scientific study and means of cure or prevention.

Diagnosis and Treatment of Malignant Disease of the Breast.—A. D. Willmoth gives the following points of difference between benign and malignant growths: Benign are slow in growth; localized and have definite capsule; and even when of large dimensions, do not affect the general economy; movable, unless restricted by inflammatory products, do not metastasize or become disseminated throughout the body, and are not fatal; are the tumors of youth. From fifteen per cent. to seventeen per cent. of breast tumors are benign. Malignant grow rapidly; are diffuse and not capsulated; quickly attain size and tell rapidly on the economy; are intimately connected to surrounding structures; adherent and immovable; rapidly metastasize, and are disseminated by blood or lymphatics; progress steadily toward a fatal termination, by metastasis or by an autointoxication commonly known as cachexia; found in women over thirty years old.

NEW YORK STATE JOURNAL OF MEDICINE.

August, 1914.

The Drop Heart.—Charles Lyman Greene says that the typical heart of this character, when not dilated, is abnormally small, low, in the median position, very attenuated, and vertical in outline. The domes of the diaphragm are also usually abnormally low. The fluoroscopic picture is that of a pulsating, elastic bag; with each systole the heart rotates in the direction of the hands of a watch. The thrust of the apex against the chest wall is sharp and is prominent and diffuse in thin chests. There is an extreme lateral mobility of the entire organ. Most characteristic are the small lateral dimensions, varying from 7.5 to 9.5 cm. when the patient is in the upright position, and even when dilated this diameter seldom exceeds thirteen cm., so that when a drop heart dilates and adds four to six cm. to its transverse diameter, it may still appear normal to percussion. This fact explains the lack of its consideration in chronic dilatation. Under restriction in physical activity, and under digitalis, the size of a dilated drop heart may recede as much as four cm. in a few days, and this may

be maintained for long periods of time by proper management. Another characteristic of this type of heart is that it seems wholly incapable of hypertrophy, except at times under the stress of a valvular lesion. These hearts frequently fail to show any of the recognized signs of incompetency, and especially, "those ordinarily expressed by obtrusive secondary changes in the lungs, liver, and kidneys." Edema is also a rare occurrence. These hearts are relatively immune from organic valvular disease and the commoner forms of myocarditis. Associated with drop heart there is usually a general visceroptosis, and also a peculiar phthisical type of body structure. There is usually pallor with very great instability of the vasomotor system. The subjects of this form of heart are usually generally asthenic and are prone to psychic instability and neurasthenia. The symptoms shown are often interpreted as neurasthenic; a sense of substernal or epigastric distention, a mild, wholly subjective dyspnea, subjective fatigue and exhaustion, insomnia, defects of memory, etc. It is extraordinary with what promptness these symptoms can be dissipated by a restoration of the heart to its normal-subnormal dimensions. Not all congenitally asthenic persons are bearers of drop heart, nor is it always true that those with the stigmata of congenital asthenia are necessarily chronic invalids, for early and proper training and exercises may do much to strengthen the body musculature, and with it that of the heart.

Tuberculin as a Prophylactic.—Horace Greeley suggests the use of tuberculin as a means of preventing tuberculosis. He recommends the use of the bacillus emulsion in the following way: First dose irrespective of age, 0.01 mg., second twice this at a month's interval, third twice the second at a similar interval, two months after this 0.1 mg., twice this after another two months, sixth dose three months later of 0.5 mg., after another three months one milligram, and after the first year, the one milligram dose at intervals of three months.

PEDIATRICS.

August, 1914.

Protection of Infants against Tuberculous Infection.—Clive Rivière cites statistics to show the extremely high morbidity and mortality from this infection in children below five years of age. Among the greatest factors leading to this infection in infancy and to the high death rate is the fact that the bacillus then falls on virgin soil. Rivière states: 1. Infection with the tubercle bacillus is inevitable for those living in crowded communities. 2. A mild infection is protective against further disease, or at worst against acute and rapidly fatal forms of disease. 3. Primary infection is always dangerous; the younger the infant, the more massive the infection; and the more virulent the type of organism, especially if air borne, the more serious is the outlook. The more massive infection at an early age results from the greater exposure to the bacillus laden dust of floors. The bovine type of organism has been shown to be much less virulent than the human type. As a result of these observations, Rivière offers two propositions: The first is the question of whether the bovine bacillus

is not at the present time doing useful work in protecting the community against the more virulent human variety. In Edinburgh, where bovine infection is very common, phthisis mortality is only one third that of Vienna, where bovine disease is very rare. Those who look askance at raw cow's milk as a medium of tuberculosis, seem to ignore infection with the human type into which their victims must inevitably drift, for there is no escaping one or the other among civilized communities, and for a first infection the bovine bacillus is incomparably the least dangerous. He raises the question whether we should not take measures to secure a mild bovine infection instead of leaving our children to risk a first encounter with the infinitely more virulent human organism.

Treatment of Pertussis.—Sidney J. Meyers says that the various drugs do nothing to cure the condition; drugs, unless pushed to the fullest limit, do little to control symptoms. On the other hand, his experience with simple hygienic treatment in combination with a vaccine containing the organism isolated by Bordet and Gengou was extremely favorable. In most cases thus treated in a recent epidemic there was almost total freedom from the usual nervous phenomena. In no cases were there any complications. The vaccine used contained fifty million of pertussis organisms, twenty million each of *Staphylococcus aureus*, *Micrococcus catarrhalis*, and *Bacillus influenzae*, and ten million *Streptococcus pyogenes* in each c. c. The usual initial dose was 0.5 c. c., and generally a total of three or four doses was sufficient. Under this treatment the usual duration of a case was twenty-five days. The injection produced no symptoms. A further use of pertussis vaccine—made of a pure culture of the bacillus of pertussis—lies in the prophylaxis of the disease in exposed children. The best results in treatment were obtained when the vaccine was given at the earliest stage possible.

Proceedings of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

*Stated Meeting, Held at the Academy of Medicine,
March 3, 1914.*

The President, Dr. SMITH ELY JELLIFFE, in the Chair.

Analysis of Some Substitution Reactions.—This article, by Dr. C. P. OBERNDORF, will appear in the JOURNAL.

Dr. I. STRAUSS said, as to one of the cases reported in Doctor Oberndorf's paper, of the girl who had been in Doctor Sachs's service at Mt. Sinai Hospital and who was afterward treated in the outdoor department, the improvement that followed this method of treatment was certainly very marked. In fact, the parents considered the child well.

Doctor JELLIFFE, in both his private and dispensary work, saw many cases similar to those reported by Doctor Oberndorf, and the histories they gave showed an appalling prevalence of cases that

had been subjected repeatedly to all the various strictly up to date diagnostic procedures, such as x ray examinations, blood cultures, examination of the gastric contents, etc., until he was led to reiterate the remark of Déjerine, "has any one taken the trouble to find out anything about your mental life?" In many of these cases, after a five minutes' talk, the outlines of their mental conditions were laid bare. The trouble in most of these cases did not lie in the intestinal tract, and he had utterly failed to trace any connection between their symptoms and an overloaded colon or a gastrointestinal intoxication, nor could he comprehend how an elaborate x ray examination or prolonged chemical tests of the various secretions had anything to do with the mental phenomena which were frequently such a striking example of a mental or psychical conflict which lay at the bottom of the whole difficulty.

The Relief of States of High Vascular, Muscular, and Mental Tension.—This paper, by Dr. WILLIAM J. M. A. MALONEY and Dr. VICTOR E. SORAPURE was published in the JOURNAL for May 2, 1914.

Dr. WALTER TIMME said that Doctor Maloney's theories began on the basis that the rapid heart action produced the fear. Personally, he did not think that the theory was susceptible of proof, but rather the converse. For example, if they took a cat and gave it sufficient atropine to diminish the autoactivity that had control over the heart's action, a sudden fright would fail to produce rapid heart action, but still the animal would be frightened. Fright might produce blanching of the skin and diarrhea, from stimulation of the autonomic nerve ends. In other words, the results of two factors were interwoven, the two factors being the sympathetic and the autonomic systems.

As to blood pressure, while in certain cases its reduction might prove beneficial, in other cases the high blood pressure might be compensatory, and its reduction would prove injurious. With a productive inflammation of the kidney, a high blood pressure was a purposeful action, and by reducing it the kidney could not function properly. With functional conditions the reduction of a high blood pressure was beneficial, but to attempt to reduce it below its physiological limits was of doubtful efficacy. However, their thanks were due to Doctor Maloney for giving them a method which promised so much in the relief of high tension cases of functional character, for it was just in these cases that a lowered tension was of lasting benefit.

Dr. RICHARD B. KRUNA had employed exercises similar to those described by Doctor Maloney in the reeducation treatment of infantile paralysis for the past eight years. He had also resorted to them in the treatment of cardiac neuroses, in conditions of disturbed innervation of muscular tissue, of increased muscular activity, such as they found in convulsive tics and in neurotic tachycardia, and he could subscribe to the fact that by this method they could establish greater regularity of the heart's action, and that in infantile paralysis it improved the innervation of the muscles that were affected by

the paralysis springing from certain segments of the cord.

Doctor JELLIFFE was glad that Doctor Maloney and Doctor Sorapure had emphasized the value of the psychical element in connection with this method of treatment. He believed, however, that they would have to relinquish their contention that fear was consequent upon the quickened heart's action. If anything had been shown by the recent work on the sympathetic nervous system, it was that the James-Lange theory failed fully to account for these phenomena, and that after all they were not afraid because their hearts beat, nor did their hearts beat because they were afraid, but these phenomena were the result of interrelatory phenomena operating through the sympathetic and the autonomic nervous system, using these terms as Eppinger and Hess had outlined.

Doctor MALONEY said there was no evidence to substantiate the theory that the kidneys functioned less actively under conditions of lowered blood pressure. At all events, the idea of bringing the pressure down to a danger point in nephritis did not enter into this discussion. In their cases they had noted that the systolic pressure was always lowered to a greater degree than the diastolic; and it was only in the functional conditions that a considerable fall in both the systolic and diastolic occurred.

Stated Meeting, Held at the Academy of Medicine, April 7, 1914.

The President, Dr. SMITH ELY JELLIFFE, in the Chair.

Chronic Progressive Cerebellar Tremor.—Dr. J. RAMSAY HUNT would direct attention to a group of cases which he believed belonged to a definite and undescribed clinical type of nervous disease. Three cases of this affection had come under his observation, two of which had been under treatment for a considerable time. The third was of more recent date and would correspond to an earlier stage of the disease.

In the outline of the clinical picture, the two advanced cases only would be considered, in which the disease had been constant and progressive over a period of six years. The affection began in one of the extremities, either the arm or leg, as a volitional tremor of the intention type, which very gradually increased in intensity. After an interval of a year or more, a similar tremor developed in another extremity and progressed in the same gradual manner as in the limb which was first affected. A year or so later, the other portions of the body were gradually involved, so that in the course of from three to four years the head, trunk, and extremities presented the clinical picture of a coarse, volitional tremor. The tremor was increased by all movements, however slight, and by any excitement or mental activity. It ceased during sleep, and was always greatly diminished by rest in a relaxed or recumbent posture and usually ceased entirely in this position. Some slight rhythmic tremor of the head, hand, or foot occasionally persisted even during rest in the recumbent position. It was distinctly an intention tremor, and any attempt at a coordinated movement directed toward

some object produced an increase of the shaking and atactiform tremor which they associated clinically with multiple sclerosis.

The gait was jerky and uneven, the smooth harmony of movements being interrupted by coarse tremors of the head, trunk, and extremities. There was no true ataxia, either kinetic or static. The equilibrium was easily maintained with the eyes open or closed, even when the whole body was in a state of shaking and oscillation. The speech was slow and scanning, with a tendency to explosive utterance, or it was simply slower than normal. Finer movements of the hands were rendered impossible, so that eating and drinking were difficult, and the handwriting became an irregular scrawl. There was no paralysis, no sensory disturbances, and all the tendon and skin reflexes were normal. The abdominal reflexes and the normal flexor type of the plantar reflex were preserved. The pupils were equal and reacted normally. There was no true nystagmus. Occasionally, when the head tremor was active and it was mechanically checked by holding, the tremor overflowed and appeared in the ocular muscles. When, however, the eye fixed and followed an object, there was no nystagmus. There were no explosive, emotional attacks nor crises of laughing and crying; no diplopia, no vesical trouble, visual disturbances, nor other signs of multiple sclerosis. The optic discs were normal, as were the other cranial nerves. Memory was intact; there were no unusual states of depression or exaltation, and there were no evidences of mental deterioration. There were no pigmentary deposits of the cornea, as had been noted in some cases of the pseudosclerosis.

Headaches were noted before the onset of the tremor, and from time to time since. These were chiefly frontal, not of great severity and not accompanied by nausea or vomiting. There was no true objective vertigo, but in the erect posture, when the oscillation of the head was pronounced, subjective sensations of vertigo occurred. There was no history of epileptiform seizures. The Wassermann test for blood and cerebrospinal fluid was negative, and there was no increase of albumin nor cells. The blood was normal, as was the urine, and the general visceral examination was negative, excepting for a small, firm enlargement of the thyroid gland in one of the cases, without symptoms of Graves's disease. There was no history of trauma nor symptoms indicative of hysteria. Except for the coarse, progressive tremor, which gradually involved one extremity after another, the only other symptoms indicating organic disease of the nervous system were the following, and these might be referred to a disorder of certain functions of the cerebellum.

The adiadokokinesis of Babinski was distinctly present on both sides. There was also a hypotonic state of the muscles, indicated by flaccidity and softness of the muscular tissue of the extremities and the presence of the Stewart-Holmes sign of hypotonia (failure of the rebound or movement of extension when flexion of the arm had been resisted and was suddenly released). In addition, certain symptoms of asynergia were also present, i. e., a failure of the harmonious grouping of the move-

ments concerned in a coordinated act. This was especially marked in the upper extremities. While there was no weakness of the muscles of the ordinary kind, there was demonstrable an intermittent asthenia or atony of a peculiar character, which consisted in the inability to sustain the muscle contractions of a voluntary movement, except for a brief period of time. For instance, if the patient grasped the hand of the physician and was instructed to sustain the contraction, even with special effort, relaxation took place, and another attempt was made only to suffer the same spontaneous relaxation. This could also be demonstrated in dorsal flexion of the foot and flexion of the arm. This was due to a defect in the mechanism regulating muscle tissue, and was, in a way, the reverse of what Babinski had described as cerebellar catalepsy, in which the tonus and the power of fixation was greatly increased when a limb, by an effort of will, was held in a certain position. The Bárány "pointing tests," the *vorbei Zeigen* had been unsatisfactory and difficult of interpretation because of the coarse atactiform tremor on intention. To summarize briefly, this clinical type, which was considered worthy of differentiation, was characterized by a chronic progressive tremor, associated with symptoms of asynergia, hypotony, adiadokokinesis, and the inability to sustain fixed or continuous muscle contractions. All of these symptoms were referred to disturbance of the cerebellar mechanism.

In the differentiation of this condition, the so called hereditary or essential tremor might be excluded by the absence of a hereditary or family tendency to tremor, by the slow method of progression, involving one extremity after another, and by the associated symptoms of a cerebellar affection. The "tremor type" of Parkinson's disease might be ruled out by the disturbance of tonus, which differed fundamentally from the rigidity and hypertonicity of that disease. There were none of the symptoms which would justify a diagnosis of hysteria, a traumatic neurosis, or the pseudosclerosis of Westphal. In the absence of any pathological support to the contrary, the question of multiple sclerosis was an important one in the interpretation of this group of cases. If the underlying lesion was multiple sclerosis, this group deserved a place among the recognized clinical types of that disease. As, however, the symptoms all indicated a disturbance of the cerebellar function, and were slowly progressive, like the degenerative system diseases in general, these cases represented a distinct and progressive disease of some portion of the cerebellar mechanism. This clinical type he would designate as the chronic progressive cerebellar tremor.

(To be continued.)

Letters to the Editors.

TUBERCULOSIS AND IMMUNITY.

NEW YORK, September 26, 1914.

To the Editors:

As a comment on Doctor Fishberg's article, Tuberculosis and Immunity, which appeared in your JOURNAL for the fifth and twelfth instants, I beg to say, that although the mortality from tuberculosis is much higher in more

primitive races and lower in the more civilized ones (as Doctor Fishberg has well illustrated), it does not prove that in the one case it is due to the tubercle bacillus meeting "virgin soil," and in the other case to an inherited immunity caused by generations of contact with tuberculosis.

The whole blame is placed on the tubercle bacillus which civilization brings to rural and primitive people. Doctor Fishberg cannot deny that civilization also brings a new state of environment to these races, although he makes no mention of this important factor in his article. In changing the environment, these primitive men are made to compete for a living with civilized men, their teachers. Here the survival of the fittest is well illustrated. Beside the state of poverty, which is due to their ignorance and incapacity for civilized methods, work, and thrift, they are also far behind the civilized men in hygiene, sanitation, and the care of the sick. Ignorance of the nursing and treatment of infectious diseases, such as measles, whooping cough, and influenza has its bearing on the high mortality of tuberculosis. The effect of new foods and habitations must also be reckoned with. The effect of alcohol, which is usually indulged in to excess by the more primitive men who have no control over their desires, is always a big factor in determining susceptibility to tuberculosis.

Doctor Fishberg contrasts the Jew who suffers the least from tuberculosis in the mortality table, with the primitive races who suffer the most. He must admit that, although the Jew is a pioneer in tuberculosis, he is also a pioneer in civilization. In the latter role, he has a knowledge and capacity for work, thrift, and sanitation necessary for existence in civilized countries. The contrast between the more primitive races and the Jew, in this respect, is worthy of consideration as a reason for the great disparity between them in the mortality from tuberculosis.

As an explanation for the great mortality in tuberculosis in infants who have been infected during the first year of life, Doctor Fishberg says: "In the infant we deal with a primary massive infection of an organism that has been free heretofore from tuberculous virus, real virgin soil." This is a flat contradiction to his own arguments, for if the infants in the first year of life are "virgin soil" for the tubercle bacillus, they cannot be said, in the next breath, to inherit the immunity of a racial "tubercularization." The comparison of a reliable hematological test in a large number of newly born healthy infants of healthy civilized and healthy primitive people should decide the question of inherited immunity more conclusively than the comparison of morbidity and mortality in these various races.

As regards the "immunity acquired by a mild infection with the tubercle bacillus during childhood," it would be interesting to know why the infection is mild during childhood and severe between the ages of seventeen and thirty years. Is the body more "virgin soil" at this latter period of life? This period of increased vulnerability should not be regarded too lightly, as the majority of deaths from tuberculosis in all races occur at this time. During this period there is an increase in all the bodily functions, an independence from parental influences which often leads to recklessness and indulgence in alcoholic and sexual excesses, and the assumption of financial and family responsibilities leading to more work and worry and less rest. The combination of these factors probably determines the high rate of mortality at this period. It stands to reason that the more enlightened races, who understand and are able to meet the numerous burdens and temptations of civilization, will more easily survive the other races.

The existence of an inherent individual and racial immunity to tuberculosis is not an impossibility. The proof, however, should depend on reliable scientific tests.

J. KAUNITZ, M. D.

145 AUDUBON AVENUE.

AUTOGALACTOTHERAPY IN WAR.

NEW YORK, September 22, 1914.

To the Editors:

Will you kindly give brief space in your valuable publication to the following communication:

SAN FRANCISCO, CAL., September 15, 1914.

DEAR DOCTOR DUNCAN—I have been very much interested in the articles which have appeared from time to time

in the NEW YORK MEDICAL JOURNAL under the titles of autotherapy and autogalactotherapy. I think it is no more than justice to you for others who have tried out your method, to write and tell you of it. I have used your autotherapeutic treatment in many infections and have produced splendid results, especially with the hypodermic injections of the filtrate. It seems to me your filtrate method is a great improvement over a vaccine.

F. C. CANNEY, M. D.

I wish to thank Doctor Canney, and many other physicians who have written in the same vein, for their kind words of encouragement. I earnestly invite others to report their experiences and cases treated by these means, for it is most satisfactory to know that others are having the same success that I am. Autotherapy is spreading to every quarter of the globe. Words of appreciation come from Delhi, India; Pretoria, South Africa; the Philippines; England, etc. The imperative and pressing need of this method for use in the greatest of all European wars is well known to those who have employed it; for it is peculiarly and especially adapted to army hospitals, where large numbers of wounded are treated daily. This treatment is simple and positive in its results, and is easily carried out. Since the writer is not familiar with foreign languages, and is therefore unable to set forth in these tongues the value of this procedure in the treatment of wounded soldiers, he will thank any one who can suggest means by which reprints on the subject can be placed in the hands of surgeons now in the field.

CHARLES H. DUNCAN, M. D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Die Klinik der Tuberculose. Handbuch und Atlas der gesamten Tuberkulose für Aerzte und Studierende. Von Dr. B. BANDELIER, Chefarzt des Sanatoriums, Schwarzwaldheim in Schömberg bei Wildbad, und Prof. Dr. O. ROEPKE, Chefarzt der Eisenbahnheilstätte Stadtwald in Melsungen bei Cassel. Dritte vermehrte und verbesserte Auflage. Mit 79 Abbildungen und 18 Kurven im Text, sowie 189 Abbildungen auf 45 farbigen und 5 schwarzen Tafeln. Würzburg: Curt Kabitzsch, 1914. Pp. xiii-791.

In modern works on tuberculosis there is a pronounced cult of the contagion of the disease. This may be a healthy sign, but we find more hope in the present treatise. It is faithful, exceedingly painstaking in every detail, a genuine work of knowledge. The authors are not "crusaders"; to them the clinical study of tuberculosis is everything, the views of zealots nothing. Evidently Doctor Bandelier and Professor Roepke are concerned with the essence of the problem, how to recognize the different forms of tuberculosis and how to understand why they occur. The book begins with a history of the disease. Pulmonary phthisis is considered from the point of view of anatomy and symptoms, the signs of auscultation and percussion are described much better than we usually find them, above all, there is an excellent chapter on the Röntgen diagnosis. The plates, in our judgment, are fine examples of this kind of work. Opinions differ as to the value of the x ray; the objections or criticisms are chargeable more to the operator than to the method. After symptoms and diagnosis, comes the treatment of consumption. Here we do not find much that is new, but the practice of the authors is sound and can be studied with profit. They avoid many errors. Tuberculosis of the pleura, of the larynx, is described and illustrated with plates. The occurrence of tubercle bacilli in the urine and blood is another branch of the subject. This part we can unreservedly recommend; there has been too much loose writing on these two subjects. Tuberculosis in children is described with judgment. No doubt the popular thing would have been to improve on the statisticians who find nearly all children tuberculous. The authors state the figures differently. Of all deaths, fifteen per cent. occur from tuberculosis in children of one year;

among older children the ratio of tuberculosis to the mortality is seventy per cent.

Anatomy and Physiology. A Textbook for Nurses. By JOHN FORSYTH LITTLE, M.D., Assistant Demonstrator of Anatomy, Jefferson Medical College, Philadelphia. Illustrated with 149 Engravings and 4 Plates. Philadelphia and New York: Lea & Febiger. Pp. vi-483.

The education of nurses is well known as one of the most important questions of medical practice. More than two thirds of the present work is unexpectedly a textbook of elementary anatomy and physiology. It contains little that is not in the standard treatises, it is clear and concise, and easily establishes the thesis, which we fully commend, that anatomy and physiology, judged by the test of one's ability to remember their elements, are two of the most difficult branches of medicine. Whether the nurse can master all the knowledge in this book is doubtful. It is well not to be carried away by accounts of the deficiencies of nurses. We should examine this question without passion. What is likely to be the fact about the nurse's knowledge? When a nurse has heard lectures and read books, it is often of the kind that smells of the lamp, but we believe that experienced nurses are most careful of their professional position. They do not attempt to take the place of the physician, yet they are very deft in making his knowledge tell. Good nurses are really invaluable. Doctor Little realizes this truth and has written a useful book. The questions at the end of each chapter to test the memory are especially good. We could wish that for his purpose he had given a different form to his matter. It reads too much like a series of lecture notes. We have noticed some typographical errors. The illustrations of Testut are, we think, too sketchy.

Psychopathology of Everyday Life. By Professor Dr. SIGMUND FREUD, LL.D. Authorized English Edition, with Introduction by A. A. BRILL, Ph. B., M.D., Chief of Clinic of Psychiatry, Columbia University; Chief of the Neurological Department, Bronx Hospital and Dispensary; former Assistant Physician in the Central Islip State Hospital, and in the Clinic of Psychiatry, Zurich. New York: The Macmillan Company, 1914. Pp. vii-342. (Price \$3.50.)

The application of psychoanalysis to the faulty actions of everyday life among normal people by Professor Sigmund Freud led him to the conclusion that there is nothing arbitrary in any morbid manifestation. Such commonplace occurrences as the forgetting of proper names, mistakes in speech and writing, actions erroneously carried out, can with proper analysis be traced to definite causes. Studies of this phase of psychopathology form the groundwork of the book before us, which is full of human as well as of purely medical interest. Doctor Brill, in making the translation into English, has occasionally substituted his own cases for those appearing in the original text, where his cases seem to be more easily comprehensible to the English speaking reader. While the follower of the Freudian school of psychoanalysis will be particularly attracted to this volume, it will prove interesting and even instructive reading to every physician.

Isolation Hospitals. By H. FRANKLIN PARSONS, M.D. (London), D.P.H. (Cambridge), Formerly First Assistant Medical Officer of the Local Government Board. Cambridge: University Press, 1914. Pp. xiv-275. (Price 12s. 6d.)

This book is one of a series on questions of public health to be issued by the syndics of the Cambridge University Press; it is intended especially for medical officers of health, hospital superintendents, and others interested in the establishment or management of hospitals for infectious diseases. On matters of controversy, such as the utility of isolation hospitals, the prevention of cross infection, the nature of contagion, etc., the author has given the arguments from all sides. The chapters comprise historical matter, utility of isolation hospitals, areas and sites, design, varieties, methods of removing patients and their discharge, the staff required, the laws affecting isolation hospitals, and their cost. The author concludes with descriptions of some typical institutions. The book is illustrated with drawings and diagrams and possesses interest for a larger audience than might appear at first thought.

Interclinical Notes.

Sir Boyle Roche might have been proud of a delightful bull which adorns an article by Arthur Bullard (*absit omen*) in the *Outlook* for September 23d, as follows: "A German diplomat is reported to have said that the Kaiser was going into this war carrying a corpse. Austria has lived up to his expectation." The italics embody our pained sympathy with the brilliant son of the author of *Rollo*, who overlooked this example of taurology.

* * *

Edna Valentine Trapnell has a dirge entitled *Who Pays?* in the *Outlook* for September 23d, the first stanza of which is:

Drum and trumpet and banner, banner and trumpet and drum!

Tramp, tramp, through the city streets the new listed armies come.

Song and laugh on the transports steaming under the stars, Wet eyes star blind of those behind who pay for the nations' wars—

(The women who pay and have paid, dear Lord, for immemorial wars).

* * *

Alas! Alas! The *Dial*, which we have always associated with carpet slippers, a grate fire, good literature, and peace, succumbs in the issue for September 16th to the master topic. Of interest is an extract from *Vanity Fair*, describing the effect on Brussels of the first guns of Waterloo; it reads deceptively like a paragraph from a recent newspaper, save that no automobiles are mentioned. This number contains, beside the usual excellent criticisms and well flavored essays, a list of new publications of unique value to the man or woman of books. The editorial article discussing the poet on the battlefield is admirable.

* * *

We learn from *Collier's Clip Sheet*, released September 14th, that Arthur Ruhl in an article, *Going to the War*, was to say on the 19th, among other things: "The work of the men of the ambulance corps and of the Red Cross with the armies in the clash of empires across the sea is seldom mentioned in front page headlines, and consequently few of us realize, except in a vague sort of way, that the acts of heroism are not all performed by those who wound and slay. There have been long periods of continuous fighting in woods or in other slightly protected places, and litter bearers have gone out in the face of the most terrific firing and, with the assistance of the soldiers, gathered up the wounded. They have risked their lives as willingly as any of the soldiers. The medical staff of the armies in the present war is equipped upon theory, based upon estimates from the other wars of the last half century, that seven per cent. of the soldiers will be wounded."

* * *

Allan L. Benson writes about the causes of the war in the September *Pearson's*; like the *NEW YORK MEDICAL JOURNAL*, Mr. Benson does not blame individuals. He attributes the conflict to the desire of capital to extend its powers and influence. Mr. Benson's remedy for war is radical, amusing, and perhaps effective. He would not give the power to declare war even to Congress, but would have the people vote on it. In case war was decided upon, these who voted for it should go first to the front. No one who voted against, would have to take up arms until every voter for war had enlisted.

* * *

"If no war could take place without at least 8,000,000 affirmative votes," says Mr. Benson, "each representing a man who, in case of conflict must, if called upon, join the army, there is no chance whatever that any of those opposed to war would ever have to fight. No nation ever assembled an army of 8,000,000 men. We should even take further measures to enable the fire eaters to eat the fire. We should compel each writer who urges aggressive war to sign his articles, and we should compel the publisher of such articles to send marked copies of his publications to the War Department. We should compel each public speaker and each member of Congress who urges aggressive war to file notice of such fact with the War Department. In case fire eating gentlemen should so inflame the people that a majority of them should vote for war, the

writers, speakers, and Congressmen who urged war should be sent to the front ahead of everybody else and compelled to lead all bayonet charges, storm all forts and, in all cases, be nearest the enemy's guns. They should not be permitted to be officers, whatever their heroism or military ability. Officers of the higher sort usually sit back a few miles at the end of a telegraph wire where there is no particular danger. Gentlemen who urge offensive war, by voice or pen, should be kept in the ranks and given the fullest opportunity to glut their thirst for gore."

Meetings of Local Medical Societies.

MONDAY, September 28th.—Psychiatric Society of Ward's Island; Poughkeepsie Academy of Medicine.
TUESDAY, September 29th.—Medical Society of the County of Chautauqua.

THURSDAY, October 1st.—New York Academy of Medicine; Brooklyn Surgical Society; Practitioners' Club, Buffalo; Geneva Medical Society; Glens Falls Medical and Surgical Society.

FRIDAY, October 2d.—New York Academy of Medicine (Section in Surgery); New Utrecht Medical Society, Brooklyn; New York Microscopical Society; Manhattan Dermatological Society; Practitioners' Society of New York; Corning Medical Association; Saratoga Springs Medical Society; Society for Serology and Hematology, New York.

SATURDAY, October 3d.—Benjamin Rush Medical Society, New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the week ending September 23, 1914:

Allen, R. L., Assistant Surgeon. Directed to proceed to Stapleton, N. Y., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. **Cox, Ora H.**, Assistant Surgeon. Continued on duty in the quarantine of the Delaware River at Marcus Hook, Pa. **Frost, W. H.**, Passed Assistant Surgeon. Detailed, at the request of the secretary of the Association of Military Surgeons of the United States, to represent the Service at the meeting to be held at Cincinnati, Ohio, September 29, 1914. **Hughes, T. E.**, Assistant Surgeon. Directed to proceed to Mobile, Ala., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. **Keating, T. F.**, Assistant Surgeon. Continued on duty in the investigation of rural sanitation at Bedford, Ind. **Lombard, M. S.**, Assistant Surgeon. Continued on duty in plague eradication measures in New Orleans, La. **McLaughlin, A. J.**, Surgeon. Granted additional leave of absence, without pay, for six months from October 1, 1914, for duty as sanitary expert with the International Joint Commission. **McMullen, John**, Surgeon. Directed to proceed to Louisville, Ky., for conference with the health officer relative to the establishment of a trachoma hospital by that city. **Michel, Carl**, Assistant Surgeon. Directed to proceed to New Orleans, La., and report to Assistant Surgeon General W. C. Rucker for duty in plague eradication measures. **Mitzmain, M. B.**, Technical Assistant. Directed to proceed to Pee Dee, N. C., for duty with the field party now engaged in studies of malaria in that vicinity. **Oleson, Robert**, Passed Assistant Surgeon. Granted sixteen days' leave of absence from September 14, 1914. **Preble, Paul**, Passed Assistant Surgeon. Directed, in order to complete the sanitary surveys undertaken in connection with investigations of the Ohio River, to proceed to such points on the Ohio River watershed as may be necessary for the performance of these duties. **Robinson, D. E.**, Surgeon. Detailed at the request of the secretary of the Association of Military Surgeons of the United States, to represent the Service at the meeting to be held at Cincinnati, Ohio, September 29, 1914. **Scherescshewsky, J. W.**, Surgeon. Directed to proceed to Pittsburgh, Pa., for conference

with officers conducting studies of the sanitation of metallurgical plants in that district. **Slaughter, W. H.**, Assistant Surgeon. Leave of absence for four days from August 11, 1914, revoked. **Sprague, E. K.**, Surgeon. Detailed, at the request of the chairman of the Bureau of Sanitary Science, Pennsylvania State Homeopathic Medical Society, to attend the meeting of that association at Galen Hall, Wernersville, Pa., September 24 to 26, 1914. **Tanner, W. F.**, Assistant Surgeon. Directed to proceed to Spartanburg, S. C., and report to Passed Assistant Surgeon R. A. Herring for duty in special studies of pellagra. **Trask, J. W.**, Assistant Surgeon General. Detailed to represent the Service at the Annual Conference of Health Officers of New York State at Saratoga Springs, N. Y., September 15 to 17, 1914. **Von Ezdorf, R. R.**, Surgeon. Granted seven days' leave of absence from September 21, 1914, under paragraph 193, Service Regulations. **Waring, C. H.**, Assistant Surgeon. Continued on duty in the investigation of pellagra, at Jackson, Miss. **Wheeler, G. A.**, Assistant Surgeon. Continued on duty in the investigation of rural sanitation at Cambridge, Md. **Witte, W. C.**, Assistant Surgeon. Directed to report to the medical officer in charge of the Marine Hospital at Chicago, Ill., for duty and assignment to quarters. **Worley, J. F.**, Assistant Surgeon. Directed to proceed to San Francisco, Cal., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. **Wynne, R. E.**, Assistant Surgeon. Continued on duty in the investigation of rural sanitation at Bedford, Ind. **Yarbrough, H. C.**, Assistant Surgeon. Continued on duty in the investigation of rural sanitation at New Albany, Miss.

Appointments.

Dr. James F. Worley, Dr. William C. Witte, Dr. Ora H. Cox, Dr. Marion S. Lombard, Dr. William F. Tanner, Dr. Carl Michel, Dr. Thomas W. Hughes, and Dr. Robert L. Allen, commissioned as assistant surgeons in the United States Public Health Service.

Board Convened.

Board of medical officers convened to meet at Seattle, Wash., for the reexamination of an alien suspected of trachoma. Detail for the board: Surgeon B. J. Lloyd, chairman; Acting Assistant Surgeon F. R. Underwood, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending September 26, 1914:

Chunn, George D., First Lieutenant, Medical Reserve Corps. Ordered to active duty and station at the Army Medical School, Washington, D. C., for a course of instruction. **Duval, Douglas F.**, Major, Medical Corps. Relieved from present temporary duty pertaining to the transport service and will return to his proper station. **Hoskins, Albert J.**, First Lieutenant, Medical Reserve Corps. Will accompany troops en route to the United States from Vera Cruz, Mexico, and upon arrival in the second division will report in person to the commanding general of that division for assignment to duty. **Jones, Glenn I.**, Captain, Medical Corps. Granted two months' leave on a surgeon's certificate of disability; upon expiration of leave of absence will proceed to Fort H. G. Wright, New York, and report to the commanding officer of that post for duty. **Lyster, Theodore C.**, Major, Medical Corps. Relieved from duty at Vera Cruz, Mexico, and will report to the commanding officer, Fort Monroe, Virginia, for duty. **Page, Henry**, Major, Medical Corps. Relieved from present temporary duty pertaining to the transport service and will return to his proper station; granted fifteen days' leave of absence. **Rutherford, H. H.**, Major, Medical Corps. Granted two months' leave about October 1, 1914. **Scott, George H.**, Captain, Medical Corps. Relieved from present temporary duty pertaining to the transport service and will return to his proper station. **Smart, William M.**, Captain, Medical Corps. Relieved from present temporary duty pertaining to the transport service and will return to his proper station. **Tefft, William H.**, Captain, Medical Corps. Relieved from duty at the general hospital, Fort Bayard, New Mexico, and will proceed to San Francisco, Cal., relieving Cap-

tain H. S. Hansell, Medical Corps, who upon being thus relieved will proceed to Fort Bayard, New Mexico, and report in person to the commanding officer, general hospital, at that place, for duty. **Whitcomb**, Clement C., Major, Medical Corps. Relieved from present temporary duty pertaining to the transport service and will return to his proper station.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending September 26, 1914:

Angwin, W. L., Passed Assistant Surgeon. Detached from the *West Virginia* and ordered to the Asiatic station. **Gill**, J. E., Passed Assistant Surgeon. Detached from the *Tonopah* and ordered home to await orders. **Halsey**, W. H., Passed Assistant Surgeon. Detached from the *Montana* and ordered to the *Tonopah*. **Hoyt**, R. E., Surgeon. Detached from the *Illinois* and ordered to the *Wisconsin*. **Little**, R. M., Assistant Surgeon, Medical Reserve Corps. Detached from the Marine Expeditionary Force, Atlantic Fleet, and ordered home. **Noble**, D. H., Passed Assistant Surgeon. Detached from the *Ohio* and ordered to the *Dolphin*. **Raison**, T. W., Passed Assistant Surgeon. Detached from the *Maine* and ordered to the Naval Hospital, Great Lakes, Ill. **Traynor**, J. P., Surgeon. Detached from the *Dolphin* and ordered to navy recruiting station, Boston, Mass. **Wilson**, Talmadge, Assistant Surgeon, Medical Reserve Corps. Ordered to the Naval Medical School, Washington, D. C. **Ziegle**, J. G., Passed Assistant Surgeon. Ordered to the *Georgia*.

The following assistant surgeons have been ordered to the Naval Medical School, Washington, D. C.: W. A. Brams, F. L. Conklin, C. P. Deeping, Arthur Freeman, E. L. Matthews, R. L. Natkemper, and A. C. Thompson.

Births, Marriages, and Deaths.

Born.

McKay.—In Sharon, Pa., on Sunday, September 13th, to Dr. and Mrs. Walter W. McKay, a son.

Married.

Burlingham—Tiffany.—In Cold Spring Harbor, N. Y., on Thursday, September 24th, Dr. Robert Burlingham, of New York, and Miss Dorothy Trimble Tiffany. **Craddock—Smith**.—In Tuscaloosa, Ala., on Wednesday, September 16th, Dr. F. H. Craddock, Jr., of Sylacauga, Ga., and Miss Edith Smith. **Fitzsimmons—Rogers**.—In Boston, Mass., on Tuesday, September 15th, Dr. Henry Fitzsimmons and Miss Grace Rogers. **Friedmann—Weiss**.—In Bangor, Pa., on Wednesday, September 16th, Dr. Leonard L. Friedmann, of Trenton, N. J., and Miss Ethel Weiss. **Hill—Plympton**.—In Brookline, Mass., on Tuesday, September 15th, Dr. Noble H. Hill and Miss Edith Plympton. **Hutton—Whitney**.—In Twilight Park, Haines Falls, N. Y., on Wednesday, September 23d, Dr. Lefferts Hutton, of New York, and Miss Esther Whitney. **Knight—Youngman**.—In Philadelphia, on Tuesday, September 15th, Dr. George B. Knight, of Camden, N. J., and Miss Victoria Youngman. **Lang—McAlpine**.—In Brownsville, Pa., on Saturday, September 26th, Dr. George W. Lang, of Alicia, Pa., and Miss Leta McAlpine. **MacPherson—Anderson**.—In Jerseyville, Ill., on Wednesday, September 2d, Dr. Charles H. MacPherson, of Michigan City, Ind., and Miss Lora Frances Anderson. **Stephens—Hamilton**.—In Braddock, Pa., on Tuesday, September 22d, Dr. Thomas W. Stephens, of Wilkinsburg, and Miss Fannie M. Hamilton. **Stouffer—Dawson**.—In Hagerstown, Md., on Saturday, September 19th, Dr. Clyde B. Stouffer and Miss Ora Lee Dawson. **Weaver—Hendry**.—In Marion, Ind., on Tuesday, September 15th, Dr. Cleo Earl Weaver, of La Belle, Fla., and Miss Pearl Hendry. **Yates—Sage**.—In Philadelphia, on Saturday, September 19th, Dr. Robert W. Yates and Mrs. Sarah Sage.

Died.

Adams.—In New York, on Friday, September 25th. Dr. John Lanson Adams, aged fifty-four years. **Ainsworth**.—In Addison, N. Y., on Thursday, September 3d, Dr. Herman R. Ainsworth, aged seventy-three

years. **Albers**.—In Fulda, Ohio, on Friday, September 18th, Dr. John G. Albers, aged eighty years. **Beary**.—In Allentown, Pa., on Friday, September 18th, Dr. Mahlon H. Beary, aged seventy-four years. **Byrns**.—In Ware, Mass., on Friday, September 18th, Dr. William Francis Byrns, of Washington, D. C., aged sixty-seven years. **Charette**.—In Montreal, Canada, on Friday, September 18th, Dr. Joseph A. Charette. **Clausen**.—In Binghamton, N. Y., on Thursday, September 24th, Dr. Bernard Clausen, aged forty-nine years. **Coble**.—In Westerville, Ohio, on Saturday, September 19th, Dr. D. W. Coble, aged seventy-four years. **Coonley**.—In Detroit, Mich., on Saturday, September 19th, Dr. Raymond B. Coonley, aged twenty-five years. **Cushing**.—In Lynn, Mass., on Monday, September 21st, Dr. Eugene B. Cushing, aged sixty-eight years. **Davison**.—In Cambridge, Mass., on Saturday, September 19th, Dr. Archibald T. Davison, aged eighty years. **Duncan**.—In Quincy, Mass., on Wednesday, September 23d, Dr. Stanley F. Duncan, aged twenty-seven years. **East**.—In Clinton, S. C., on Sunday, September 20th, Dr. C. D. East, aged sixty years. **Edwards**.—In Newark, N. J., on Sunday, September 13th, Dr. Arthur M. Edwards, aged seventy-eight years. **Fischel**.—In St. Louis, Mo., on Tuesday, September 15th, Dr. Washington E. Fischel, aged sixty-four years. **Fleming**.—In Burlington, Iowa, on Monday, September 14th, Dr. John C. Fleming, aged sixty-six years. **Gladding**.—In Oakland, Cal., on Tuesday, September 15th, Dr. Charles Francis Gladding, aged fifty-eight years. **Goodell**.—In Hillborough, N. H., on Saturday, September 12, Dr. John Goodell, aged eighty-five years. **Hascall**.—In Shrewsbury, Mass., on Saturday, September 19th, Dr. Henry Jefferson Hascall, aged sixty-two years. **Hawk**.—In Newton, Iowa, on Tuesday, September 15th, Dr. W. W. Hawk, aged seventy-one years. **Hinkle**.—In Sullivan, Ind., on Tuesday, September 15th, Dr. James Reid Hinkle, aged eighty-two years. **Hogg**.—In Senoia, Ga., on Tuesday, September 8th, Dr. John W. Hogg, aged sixty-two years. **Howes**.—In Dorchester, Mass., on Friday, September 18th, Dr. Pitts Edwin Howes, aged sixty-one years. **Huber**.—In Ephrata, Pa., on Monday, September 21st, Dr. Harry J. Huber, aged thirty-six years. **Infield**.—In Troy, N. Y., on Wednesday, September 16th, Dr. Clifton L. Infield, of Hudson Falls, aged fifty-four years. **King**.—In Glens Springs, Watkins, N. Y., on Sunday, September 20th, Dr. James Kossuth King, aged sixty-four years. **Longstreth**.—In Barcelona, Spain, on Saturday, September 19th, Dr. Morris Longstreth, of Cambridge, Mass., aged sixty-eight years. **McCabe**.—In Duluth, Minn., on Friday, September 4th, Dr. Walter F. McCabe, aged fifty years. **McShane**.—In Milwaukee, Wis., on Friday, September 18th, Dr. B. E. McShane, aged forty-four years. **Mackley**.—In Fairfield, Pa., on Wednesday, September 16th, Dr. John F. Mackley, aged fifty-nine years. **Mohr**.—In Birmingham, Ala., on Saturday, September 19th, Dr. Herman B. Mohr, of Montgomery, Ala., aged fifty-six years. **Moyer**.—In Junction City, Kansas, on Wednesday, September 9th, Dr. Deville J. Moyer, aged fifty-two years. **Poe**.—In Butler, Ky., on Friday, September 18th, Dr. Lafayette J. Poe, aged, sixty-seven years. **Rencher**.—In Mobile, Ala., on Thursday, September 17th, Dr. Eugene Rencher, of Jamestown, Ala., aged thirty-nine years. **Ross**.—In Canton, Mass., on Sunday, September 13th, Dr. George I. Ross, aged sixty-seven years. **Thompson**.—In Listowel, Ont., on Sunday, September 13th, Dr. Lorenzo W. Thompson, aged sixty years. **Turner**.—In Rochester, N. Y., on Wednesday, September 16th, Dr. Jennie M. Turner, of Newark, N. Y., aged sixty-four years. **Wales**.—In Elmira, N. Y., on Wednesday, September 9th, Dr. Theron A. Wales, aged seventy-two years. **Walker**.—In Dayton, Pa., on Saturday, September 19th, Dr. W. B. Walker, aged sixty-three years. **Webb**.—In Brighton, Ont., on Saturday, September 12th, Dr. A. L. W. Webb, aged thirty-five years. **Willard**.—In Syracuse, N. Y., on Friday, September 25th, Dr. I. N. Willard, of Utica, aged seventy-years. **Wilson**.—In Tyrone, Pa., on Wednesday, September 23d, Dr. James T. Wilson, aged seventy-four years. **Woodbury**.—In Southampton, N. Y., on Thursday, September 24th, Dr. John McGaw Woodbury, aged fifty-nine years. **Worthington**.—In Annapolis, Md., on Monday, September 21st, Dr. Joseph Muse Worthington, aged sixty-seven years.

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THE TECHNIC OF SPINAL ANESTHESIA.*

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Philadelphia,

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The introduction of a local anesthetic within the dura is followed by a more or less complete arrest of conduction in those spinal nerve roots which come in contact with the solution. If the solution is sufficiently concentrated, there is complete arrest of motor, sensory, and sympathetic conduction of the segments affected. The effect upon the cord proper is relatively slight, and it is often possible under high spinal anesthesia to demonstrate evidences of conduction along the paths of the cord. With weak anesthetic solutions sensory conduction may be arrested with but imperfect loss of motor or sympathetic conduction, while very weak solutions may cause only an imperfect analgesia. As would be expected, the loss of protopathic or pain sense involves a wider area and is more intense than that of epicritic or touch sense. Patients may, therefore, feel the knife, although it does not hurt them, or they may complain that alcohol burns the skin, although they do not recognize the incision of tissues. The duration of the effect of the intradural anesthetic is influenced by the dose and concentration of the drug employed, and varies from twelve minutes to two hours. One to one and one half hour is the average duration for the adult. The most effective percentage strengths for intradural use we have found to be four per cent. for stovaine, four or five per cent. for tropacocaine, and seven or eight per cent. for novocaine. The weaker solutions may give too light and transient an anesthesia and tend to become too widely diffused, while the stronger solutions are so concentrated as to diffuse imperfectly, limiting their area of action and at times increasing their danger. To secure efficiency when using a strong solution, the operator may be tempted to increase the dose. For example, Jonnesco, who uses a ten per cent. solution for lower spinal work, advocates nearly twice what we consider a normal dose. Five or six cgm. of stovaine in four per cent. solution will give an analgesia that lasts about ninety minutes; two or three cgm. of stovaine in four per cent. solution will produce an analgesia that lasts about fifteen or twenty minutes. It follows that, in very young children for whom

only small doses may be given, prolonged operations are not conveniently done under spinal anesthesia.

Spinal anesthesia acts with great rapidity, the analgesia appearing within a few seconds after the injection and being rapidly followed by loss of motor power and muscular sense. With the average adult dose, the analgesia reaches its intensity about fifteen minutes after the injection, and then gradually fades. First, the motor loss and muscular sense gradually return, the sympathetic regains its tone, the area of epicritic becomes gradually reduced, and finally the area of protopathic arrest disappears. The effect is tidelike, the influence gradually spreading upward along the cord until the highest nerve roots in the effective range of diffusion of the drug are affected, and then the wave of analgesia recedes. This tide which washes upward and then returns is not so clearly noticeable in a downward direction, although, when a small dose of the analgesic has been injected near the upper part of the cord, there may be observed waves of analgesia passing simultaneously upward and downward, to reach their full intensity and widest limits and then gradually to recede toward the segments close to the point of injection. As the analgesic wave diffuses upward, the strength of the drug is weakened by the diluting cerebrospinal fluid. For this reason the nerve roots near the apex of the wave are more lightly and transiently affected than the nerve roots first washed by the injection. For prolonged and complete analgesia it is desirable, therefore, to make, as far as is feasible, the injection into the dura through an interspace adjacent to the nerve roots which supply the field of operation. Thus, for operations upon the perineum or anus, the injection is especially effective if made through the third or fourth lumbar interspace; for operations upon the leg through the second lumbar interspace; for the lower abdomen or groin, through the first lumbar interspace; while for operations upon the stomach, gallbladder, or liver, the injection is most effective when given through the eleventh or twelfth dorsal interspace. With a minimum dose injected through the twelfth dorsal interspace, although the analgesia may be sufficient for upper abdominal work, it may be transient and patchy for operations upon the legs or perineum. It is obvious that the operator who injects the solution through the fourth lumbar interspace and then attempts to do a gastroenterostomy, will condemn the anesthetic as ineffective and unreliable, as may also the operator who attempts an operation upon the toes after injecting a small quantity of the analgesic in the twelfth dorsal interspace.

*Read before the American Therapeutic Society, Albany, N. Y., May 29 and 30, 1914.

The injection of weak solutions in the lower part of the cerebrospinal canal is relatively safe, for as they diffuse upward toward the phrenic nerve roots of the cervical region, they are so weakened as to have little effect. Weak solutions injected in the middle or upper dorsal region or in the cervical region are, however, dangerous, as they interfere with the innervation of the muscles of respiration. Strong solutions of high specific gravity injected in the lower part of the arachnoid cavity may be dangerous by upward gravitation unless watchful care is taken not to elevate the pelvis until a sufficient time has elapsed to permit the absorption of the bulk of the drug. It should be evident, therefore, that for successful spinal anesthesia the operator should not only understand clearly the physiological action, but should understand the dose and the interspace most suited for the special operation to be performed. The operator should also realize the transient nature of spinal analgesia and should be prepared promptly to start the operation after the injection; otherwise valuable time may be lost and the patient may emerge from the influence before the operation has been completed. Although spinal anesthesia is relatively safe and very effective when used skillfully, it is an exceedingly dangerous and unreliable anesthetic in the hands of those who do not understand its action. As would be expected, the criticisms of spinal anesthesia come from those who have had little experience in its use. Equally important with a knowledge of the proper dose, the point of administration, and the handling of the patient, is the ability to select patients who are suitable for the injection. The operator who etherizes patients with advanced nephritis, with bronchitis or early pneumonia, and who finds that the mortality from the ether is high, is hardly justified in blaming the anesthetic, nor should the operator who selects for spinal analgesia patients with profound hypotonus of the circulation from shock, toxemia, or great mechanical embarrassment to respiration, lay the blame to the analgesic employed. Spinal anesthesia lowers blood pressure, restricts respiratory power, releases the inhibitory activities of the upper autonomic system. Only patients prepared to withstand alterations in these systems are suitable subjects for spinal anesthesia, otherwise the surgeon should no more think of using spinal anesthesia than he should of administering croton oil for peritonitis or morphine for uremia.

SOLUTIONS EMPLOYED.

My associates at the Samaritan Hospital and myself have now operated under spinal anesthesia over 6,000 times. We have employed a variety of drugs and solutions. I have experimented with cocaine, stovaine, alypin, eucaïne lactate, novocaine, tropacocaine, and chloretone in various combinations. Of these only stovaine, tropacocaine, and novocaine need be considered. The addition of salt, gelatin, epinephrine, gum Arabic, quinine, mannitol, glucose, and the like, is, as a rule, to be deprecated. Under certain circumstances, to increase the specific gravity of the anesthetic solution, milk sugar, glucose, or mannitol may be added. As a rule, these additional substances increase the unpleasant byeffects of the puncture, particularly the tendency to cephalalgia.

The analgesic may be prepared in the form of sterile powders, tablets, or a solution in the form of sealed ampoules. The powder or tablet may be dissolved directly in the cerebrospinal fluid of the patient or in other suitable medium. Personally, we prefer solutions in ampoules, on account of their convenience, accuracy, known specific gravity, and greater assurance of sterility. In any case the preparation should, as far as possible, be of unquestioned reliability. Unfortunately this is not always assured and we have found living microorganisms in solutions upon the market.

One of the problems in spinal anesthesia has been to produce a sufficiently high effect for upper abdominal work. This may be accomplished, first, by selecting a high interspace for the injection; second, by withdrawing a considerable quantity, five to fifteen c. c. of cerebrospinal fluid, adding the analgesic and reinjecting or injecting a corresponding quantity of the analgesic in weak solution or, third, by employing gravity to retain the solution in contact with the selected nerve roots. This latter method is based upon the fact that any solution introduced within the cavity of the arachnoid rises or falls, according as its specific gravity is heavier or lighter than that of the cerebrospinal fluid. By adding glucose, milk sugar, or mannitol, the specific gravity of the solution may be increased, and by giving the injection of such a heavy solution with the patient upon his side, his shoulder and hips elevated, and then cautiously rolling the patient on his back, while still maintaining the elevation of the hips and pelvis, the heavy solution remains in the most dependent portion of the dural cavity, the lower dorsal region. This is the method elaborated by Barker. As it is frequently desirable to operate with the patient in the Trendelenburg posture; or, should there be marked circulatory depression, as it is often desirable to lower the head of the patient—I have for several years used chiefly a solution lighter than that of the cerebrospinal fluid. The injection is usually made with the patient sitting upon the operating table, and before the solution has had time to ascend to the cervical region, the needle is withdrawn and the patient quickly laid upon the table with his shoulders about two inches lower than the hips. Cerebrospinal fluid has a specific gravity of about 1.0055. The addition of ten per cent. of absolute alcohol to a four per cent. solution of stovaine reduces its specific gravity to about 0.992. This light solution ascends in cerebrospinal fluid with a speed somewhat approximating ten cm. a minute. Stovaine has the property of alkaloids of being precipitated by alkalis, and therefore a minute quantity of lactic acid is added to the solution to retard precipitation by the alkaline cerebrospinal fluid. In cases where it is desirable to elevate the head and shoulders of the patient during the operation, a solution made heavy by the addition of five per cent. of milk sugar is employed. The following are the formulas that we have found useful:

Light solutions.

A. Stovaine	0.08 gm.
Lactic acid	0.04 c. c.
Absolute alcohol	0.2 c. c.
Distilled water	1.8 c. c.

B. Tropacocaine	0.1 gm.
Absolute alcohol	0.2 c. c.
Distilled water	1.8 c. c.
C. Novocaine	0.16 gm.
Absolute alcohol	0.2 c. c.
Distilled water	1.8 c. c.

Heavy solution.

D. Stovaine	0.08 gm.
Lactic acid	0.04 c. c.
Milk sugar	0.10 c. c.
Distilled water, to make.....	2. c. c.

The solutions are kept in sealed ampoules, each containing two c. c. of the solution. They should be prepared under aseptic precautions and sterilized by the intermittent method at a temperature about 65° C. Although manufacturers sometimes contend that these substances withstand the temperature of boiling water with impunity, we have found boiled solutions objectionable. The dose for the adult of each solution is from one to one and one half c. c. Novocaine is the weakest of the anesthetics, is not precipitated by the cerebrospinal fluid, and does not hemolyse blood. It does not produce as satisfactory a loss of epicritic sense and motor power as solution A, which at the present time we prefer. Solutions extemporized from powders or tablets, I have abandoned from fear of bacterial contamination.

SELECTION OF THE PATIENT.

We have employed spinal anesthesia in patients of all ages, from the newborn to those of advanced life. It may frequently be employed where ether is inadmissible or has produced dangerous symptoms. Probably no anesthetic gives as great a degree of muscular relaxation with as little danger as spinal anesthesia. As a rule, patients who have a marked hypotension of the circulatory system, or those in whom a marked reduction of vasomotor pressure would be dangerous, should not have spinal anesthesia. Should it be administered to such a person, a cannula should be tied in a vein of the arm, connected with a funnel of salt solution before the intradural injection, and any dangerous fall of blood pressure counteracted by the cautious intravenous introduction of the salt solution containing adrenaline. By this expedient, I was enabled successfully to carry a patient at the beginning pulseless and apparently moribund from a ruptured uterus, through a Porro operation. A patient pulseless or nearly pulseless from traumatic shock, should not as a rule, be given spinal anesthesia until reaction has occurred. Patients with advanced peritonitis, with great abdominal distention, and cyanotic extremities, are not good subjects for spinal anesthesia; especially is this true of the middle aged obese patient. Patients in collapse from traumatic ileus, do not withstand the hypotension of spinal anesthesia well. Patients with advanced septic disease of the biliary system and associated marked myocardial weakness, are bad subjects for spinal anesthesia. Patients greatly depressed and toxic or with mechanical limitation of respiratory space, as from large pleural effusions of pus or serum, or massive intrathoracic growths, are not good subjects for spinal anesthesia. In patients in collapse from hemorrhage the intradural injection should be made with great caution. Obese patients with short thick

chests and limited breathing apparatus are less favorable than patients with large respiratory mechanisms. Those very depressed patients who may be carried through an operation by local anesthesia or a few whiffs of ether, should not be given the intradural injection. Patients with large fibroid tumors and myocardial degeneration should be given the injection with great caution. The aged and debilitated should be given relatively small doses. Young or middle aged adults of the robust type, patients with the hypertension of renal disease or eclampsia, are good subjects for the injection. Children withstand relatively large doses. Thus 1.5 cgm. of stovaine may be given to the newborn; three cgm. to a child of five years; four cgm. to a child of ten. The proportionate size and robustness of the child are more important than the exact age.

PRELIMINARY NARCOTISM.

The retention of consciousness by the patient while in the operating room, is often objectionable and in many instances this may be obviated by the preliminary injection of narcotics. We have employed morphine and scopolamine chiefly. For a robust adult one sixth of a grain of morphine sulphate with 1/100 of a grain of scopolamine or hyoscine hydrobromide is given by hypodermic injection about seventy-five minutes before the time of operation. If in twenty minutes the patient answers questions without evidence of mental confusion, the injection is repeated; while for certain very robust and resistant patients a third injection of morphine either alone or combined with a one fifteenth of a grain of apomorphine is given if the delirifacient action of the scopolamine predominates, or of both morphine and scopolamine if the previous injections have produced little effect. These injections should be given at intervals of about twenty minutes, and should be used with great caution or avoided in the debilitated, toxic, or aged patient. In patients under thirty years of age the delirifacient action of hyoscine or scopolamine often predominates and is objectionable. In these patients the initial dose of morphine may be one quarter grain, combined with 1/150 of a grain of atropine. In children narcotics are rarely required. After the intradural injection, if properly reassured the child usually quickly adjusts itself to the environment of the operating room, and when convinced that the numbness and loss of power of the legs are quite proper, the little patient often will fall asleep during the operation. Narcotics intensify and, by reducing the epicritic sense, increase the duration of spinal analgesia. When properly used, they enable the patient to pass through the operation oblivious of the fact that he has been removed from his bed, and often strongly protesting on awakening that he has not been operated upon or even been asleep. While narcotics render the patient oblivious of the operation, they may increase the danger of spinal anesthesia or of any other anesthetic that may be administered, as they depress the centres of the central nervous system, suppress certain metabolic processes, and produce undesirable although often transient alterations in the parenchymatous organs. In the asthenic, shocked, debilitated, or aged patient they should be used with the greatest care or

avoided. Preceding or during spinal anesthesia, consciousness may also be dulled by the administration of ether or other anesthetic by inhalation. Often a minute quantity of the anesthetic will serve to divert the mind or slightly obtund consciousness during the operation. If there is no other contraindication, the presence of spinal analgesia does not contraindicate the associated use of ether, chloroform, or nitrous oxide-oxygen.

ASSOCIATED LOCAL ANESTHESIA.

Local anesthesia is at times of value in association with spinal anesthesia. Thus the operator may desire to extend his incision above the level of the analgesia and it may be inconvenient to give a second intradural injection; or the operation may be prolonged and the intradural effect may partly pass off before the operation has been completed. In these cases the injection of weak solutions of novocaine locally is valuable, a one per cent. solution in normal saline being employed for the skin and subcutaneous tissues, and a 0.25 per cent. solution for the deeper tissues. These solutions may be used very freely without fear of a toxic action. Likewise, in very extensive amputations it is desirable to employ Crile's method of nerve blocking in association with the spinal analgesia. A two per cent. solution of novocaine should be injected in the important nerve trunks, not only to guard against imperfect arrest of conduction in the spinal nerve roots, but also as an aid, in prolonging and intensifying the local analgesia.

AFTERTREATMENT.

Immediately after the operation patients who have received narcotic injections, usually are given a large enema. Two quarts of warm water, to which may be added two ounces of glucose and three drams of sodium bicarbonate, are slowly run into the bowel, and each fourth hour thereafter for the first twenty-four or forty-eight hours, the patient receives from four to eight ounces of fluid by rectum. If the narcosis is too prolonged or intense, there is incorporated into the first enema a pint of black coffee and two drams of tincture of capsicum. The deeply narcotized patient must constantly be watched until awake, and if there is any evidence of cyanosis or of obstruction in the upper air passages, the tongue and lower jaw must be held forward in such a manner as to give a free air way. In several instances death from suffocation has resulted from failure to observe this rule in patients comatose from scopolamine-morphine.

METHOD OF INJECTION.

Before being brought to the operating room, the back of the patient is scrubbed with acetone and painted with a 2.5 per cent. tincture of iodine; a dry sterile binder is then applied. In the operating room the patient is placed across the operating table so that he sits well back from the edge. The dressing is then removed and the back either flushed with alcohol or given a second coat of one half strength tincture of iodine. The assistant observes that the patient sits squarely across the table, that the hips are even, that the elbows are parallel and at the sides of the patient, and that the forearms are crossed in front of the patient's body. Facing the

patient, he then stands on a low stool, holds the patient's hands with his right hand, while his left arm encircles the back of the patient's neck and his fist makes pressure against the patient's abdomen. The patient's chin is thus forced down upon his chest, the back is arched, but the patient is not permitted to lean forward. The desired spinal interspace is now selected. If the edge of a sterile towel is stretched between the iliac crests, it will cross the fourth lumbar spine or interspace, and from this known point the operator may count upward until the desired interspace is located. Often the space may be located by simple inspection; the seventh cervical or vertebral prominence being noted above, the eleventh interspace is recognized as being the first interspace below this point that shows a distinct concavity, the depression of the twelfth dorsal and first lumbar interspace being more distinctly marked.

POINT OF INJECTION.

The point of injection for an abdominal operation should be approximately on a plane with the operative area. Thus for operations upon the stomach, liver, or gallbladder, injections through the twelfth dorsal interspace give the best analgesia. For operations upon the lower half of the abdominal cavity, the first lumbar interspace; for operations upon the leg, the second or third lumbar interspace; for operations upon the perineum, the fourth lumbar interspace may be selected. Practically most of our operations have been done by injections through the first or second lumbar interspace with an occasional twelfth dorsal injection when it was desired thoroughly to anesthetize the upper abdomen. As a rule, the lower point of injection is safer, as the involvement of the upper dorsal nerve roots interferes with the respiration, and increases the fall of blood pressure.

APPARATUS.

A syringe of two c. c. capacity of the Luer type is preferred. If properly made, the piston of such a syringe fits loosely enough to be forced out by the pressure of the intradural fluid. This is important, showing that the needle has properly entered the interspace. The Record syringe is rather heavy, and the piston does not move with sufficient ease. To insure delicacy of manipulation, the needle should likewise be small and light. It should be of iridium, platinum, or gold to avoid breakage; have a length of about seven cm. and a diameter of 0.1 cm. A well fitted stylet should be provided so that the needle cannot become clogged during introduction. The syringe, needle, and stylet should be wrapped in gauze and boiled in water free from alkali for fifteen minutes just before using. The apparatus should be brought to the operator while still boiling hot, not only to insure sterility, but also to serve to warm the anesthetic solution. The assistant now wipes the surface of an ampoule with a bit of gauze moistened with alcohol and breaks the ampoule at its neck. The contents of the ampoule are drawn into the syringe, and air bubbles and excess of solution expelled. For an adult the syringe usually should now contain from 1.2 to 1.5 c. c. of the solution. The needle containing the stylet should be inserted close to the midline, at right

angles to the body and about the middle of the interspace. It should be carried directly forward until it is felt to be grasped by the dense interspinous ligament. Only in the dorsal region is it necessary to tilt the needle somewhat upward. In the lumbar region the greatest success is obtained by entering the needle at right angles to the surface of the body. Following this rule, I have failed to enter the spinal cavity only once in over 4,000 personal cases, the failure being in the case of a cyphotie dwarf. If the patient shows a scoliosis, do not insert the needle in the midline of the body, but along the midline of the spinous processes, and pass the needle directly forward instead of attempting to deviate it to the midline of the back. The grasp of the needle by the cartilaginous interspinous ligament usually indicates that the needle is passing in the proper direction. The stylet is now withdrawn, the needle pushed forward a few mm. at a time. The hand notes the cessation of resistance as the needle passes through the interspinous ligament and enters loose areolar space external to the dura, and finally the slight resistance succeeded by a snap as if a drum head had been punctured when the needle penetrates the dura. If the needle, being rather dull, does not immediately puncture the dura, it is given a partial rotation so that its edge may cut through the dura. As soon as the dura is entered, cerebrospinal fluid should begin to drop from the needle. If it does not do so, the needle is cautiously rotated and slightly moved until there is a free flow of fluid. At times it is necessary to reintroduce the stylet, make a very cautious aspiration with the syringe, or seek another interspace. If there is much difficulty with the first attempt, it is usually best to try another interspace. At times, if the needle enters directly in the median line, the plexus of veins external to the dura will be punctured and a few drops of blood may flow from the needle. We have observed no evidence of harm from this injury, and the flow of blood is usually quickly succeeded by clear cerebrospinal fluid. With the cerebrospinal fluid running freely, and *only when it is running freely*, the charged syringe is affixed to the needle. The piston is first withdrawn a short distance to permit the cerebrospinal fluid to enter and mix with the solution, as well as again to prove the proper introduction of the needle. If a thorough diffusion is desired, a part of the solution is now injected, more cerebrospinal fluid is withdrawn by the syringe, and this procedure is repeated two or three times until the syringe is empty. The needle is now quickly withdrawn and, if a light solution has been used, the patient is immediately laid upon the table, which is so tilted that the shoulders are two inches below the level of the hips. This is to prevent an undesirable upward diffusion of the drug. Not over twenty seconds should be consumed in the injection. The pulse and respiration are now continuously watched, the latter by the movements of a wisp of cotton affixed to the end of the nose. If the patient is awake, diverting conversation is often desirable, and if not contraindicated by the nature of the operation, small bits of ice or sips of water may be administered. If the patient is very weak, an injection of four grains of caffeine and one fifteenth of a grain of strychnine sulphate are given subcutan-

eously to anticipate any respiratory depression. A nearly pulseless patient should also have a needle tied into a convenient vein, connected with a funnel containing physiological salt solution. The salt solution is permitted to run into the vein from time to time as may seem to be indicated, and to each six ounce funnellful is added from one to ten drops of adrenaline. The adrenaline must be used with caution, and we do not add it unless the patient becomes pulseless at the wrist. The flow of adrenaline is also to be cut off by pinching the tube as soon as the pulse returns for fear of an excessive action upon the heart. For weak patients, not sufficiently asthenic to require the intravenous use of adrenalized salt solution, the subcutaneous injection of one ampoule of pituitrin at the onset of the operation may be of value. For nervous faintness, the inhalation of aromatic spirit of ammonia or a few drops of ether may be tried.

Should the patient show evidence of nausea, the head and shoulders are lowered to a greater degree by inclining the table and the patient carefully watched for fall of blood pressure or respiratory depression. As long as the wisp of cotton upon the nose is oscillating regularly, showing that the patient is breathing, a fall of blood pressure need cause little alarm. When, however, the respirations become shallow or imperfect, then the patient should be watched with great care. Not only should a stimulating injection of strychnine and caffeine be given, but the surgeon should be ready to undertake artificial respiration. As a rule, this is best carried out by the rhythmic compression of the thorax. The patient's arms are extended above the head, the surgeon faces the patient's head, clasps his fingers palms down over the patient's sternum, and makes pressure downward and inward over the thoracic wall. Compression of the thorax may be aided by the hands of the assistant placed under and below the elbows of the surgeon. The proof that the efforts are effectual is found in the oscillations of the cotton indicator upon the patient's nose. Compression alternating with complete relief of pressure should be made rhythmically from sixteen to twenty times a minute. It should be continued, if necessary, for one hour or more, or until the patient is able to resume spontaneous respiration. If the patient is so obese, or should the intrathoracic condition so interfere as to prevent artificial respiration by compression of the thorax, then forced artificial respiration should be tried. In such an emergency we doubt the value of the Meltzer intratracheal method. The pulmotor or lungmotor, if quickly available, may be used. In a sudden emergency we can certify to the value of a full sized tracheal tube and the direct rhythmic inflation of the lungs by the surgeon or assistant. With a piece of drainage tube cut off square at the end, pressed over the opening of the tracheal tube, the surgeon inhales deeply and inflates the patient's chest by blowing through the rubber tube. Exhalation occurs when the tube is lifted from the external plate of the tracheal tube. The pressure of the inflation cannot be harmful for an adult as it cannot exceed or indeed reach the pressure within the surgeon's chest. While this method involves the dangers of a tracheotomy wound it may be quickly carried out with but few instruments.

After spinal anesthesia, no special after treatment is required. In over 6,000 punctures without an occlusive dressing, none have shown any signs of infection so that we consider the sealing or dressing of the point of puncture unnecessary. Secondary headaches should not occur, and when of the characteristic spinal type, that is when they are increased by raising the head from the pillow, and associated with some stiffness of the posterior muscles of the neck, they indicate the use of contaminated or decomposed solutions. Such solutions may not only cause intense headaches, but also abducens palsy and should promptly be discarded. We do not believe that abducens palsy follows the employment of pure solutions. The anesthetic does not contraindicate the prompt administration of water, either during or after the operation, and such food is given as in the particular case seems best without regard to the fact that the patient has been anesthetized. Secondary nausea or vomiting should not occur as a result of spinal anesthesia and the patient should have less postoperative pain, less headache, less backache, and general discomfort than the patient who has received ether. Finally, it is to be emphasized that the novice should not attempt spinal anesthesia without carefully investigating the subject and should use the method only upon robust patients until he acquires dexterity and familiarity with the technic.

2033 WALNUT STREET.

CONTINUOUS UTERINE DRAINAGE.*

A Résumé of 252 Cases of Intermenstrual Plus Intramenstrual Obstructions—Retention, with Especial Reference to the Former in Causing Uteropelvic Disorders and Infections.

BY A. ERNEST GALLANT, M. D.,

New York,

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In a paper read before this society, at the annual meeting in 1909, I presented a résumé of the Therapeutic Drainage in 185 Cases of Uterine Obstruction and in part said: "For the obstructed uterus there is no rest, during the three weeks, more or less, of the intermenstrual period. After menstruation ceases, the uterus remains congested, an excess of mucus is secreted, accumulates in the uterus, and must be expelled by frequently repeated contractions, bringing about muscular hypertrophy, thickening of the walls, and a dilated cavity. The heavy organ dragging on its ligamentous attachments excites numerous aches and pains.

"It is our firm conviction, based upon careful study of several thousand women, that intermenstrual uterine obstruction is far more productive of chronic pelvic disease than the more readily recognized discomfort, distress, or actual suffering during menstruation. . . ." (*Medical Record*, April 16, 1910.)

Since that report, to January 1, 1914, we have had occasion to drain sixty-seven additional cases,

making a total of 252 cases treated by this plan.

The *modus operandi* of intermenstrual retention is a simple, mechanical one. As menstruation subsides or involution progresses, the uterus and cervix contract more or less tightly, closing the internal os; the uterus fills with mucus or serum, the best nutrient media for any pathological bacteria which may be present in the uterus to feed upon, and they multiply in almost incalculable numbers. The internal os being tightly closed or the cervix ante-flexed, this infectious material finds outlet in the direction of least resistance, and entering the Fallopian tubes, sets up an active salpingitis, and not infrequently peritonitis.

This mode of infection we actually witnessed when operating on Mrs. R-64, who presented all the cardinal symptoms of appendicitis, with a mass in the right iliac fossa, and a yellow vaginal secretion, but nothing palpable in the pelvis. Doubting the appendicular origin of the peritonitis, the abdomen was entered through a median incision, disclosing a mass of adherent omentum in the right fossa, the unruptured appendix swimming in pus, which was seen to pour out of the ends of the tubes, collect in the cul-de-sac, and follow the broad ligament up to the caput coli, and there set up a true peritiphylitis.

A few days after operation, the patient, fearfully and tearfully, admitted that her husband had recently acquired a urethral discharge.

SUMMARY OF 252 CASES INTERMENSTRUAL PLUS INTRA MENSTRUAL OBSTRUCTION—RETENTION.

Groups.	Nulli- paræ.	Multi- paræ.	Sterile.	Infec- tions.	Totals.
Ages	18-45	20-55	20-36	19-43	18-55
Conditions:					
Single	51	0	0	9	60
Married	13	50	80	49	192
Para—					
Children	0	49	9	30	88
Miscarriages	2?	3	2	3	10
Chief symptoms:					
Menorrhagia	9	7	3	4	23
Metrorrhagia	6	7	1	22	36
Dysmenorrhea	55	19	41	5	120
Pains—					
Headache	11	10	10	0	31
Backache	20	13	18	0	51
Hips, thighs	5	9	8	0	22
Abdominopelvic	10	11	15	0	36
Sterility	0	1	80	2	83
Abortion	0	0	0	47	47
Post partum	0	0	0	6	6
Subinvolution	0	0	0	1	1
Placenta prævia	0	0	0	2	2
Tubal gestation	1	5	1	0	7
Gangrene, vagina	0	0	0	1	1
Septic	0	0	0	23	23
Syphilitic	2	4	1	3	10
Peritonitis	1	0	0	0	1
Pyosalpinx	6	5	3	0	14
Vaginal discharge	7	3	4	2	16
Uterine abnormalities:					
Small os externum.....	0	0	11	0	11
Anteflexed cervix	28	6	23	4	61
Anteflexion and version.	2	1	8	1	12
Anteflex. vers. fix.....	1	2	3	0	6
Version and fixation.....	9	10	13	0	32
Version	10	11	11	7	39
Retroflexed uterus.....	3	1	1	1	6
Thick uterosacral ligaments	11	9	17	0	37
Sequels:					
Pregnancy	2	5	24	2	33
Recurrent dysmenorrhea.	3	2	2	0	7
Vaginal hysterectomy....	1	2	0	1	4
Menorrhagia	1	0	0	4	5

Indications for drainage.—Thinking backward, as we examine the table giving a summary of our 252 cases, we cannot fail to be impressed with the fact that whereas we are apt to associate cervical obstruction with periods of uterine activity—menstruation, labor, abortion—and it cannot be denied that symptomatically it is during these times that

*Read at the fifteenth annual meeting of the American Therapeutic Society, May 30, 1914, Albany, N. Y.

we are called upon to take notice thereof, yet, on the other hand, we signally fail to accept the fact that the *origin and cause of obstruction* is always a product of the so called quiescent period, the intermenstruation period, viz., anteflexions (seventy-nine cases), the versions (eighty-nine cases), the retroflexions of the body (six cases), small os externum



FIG. 1.—Gallant's silver bivalve uterine drains (two and three inch). The number of days of continuous drainage is indicated by the figures above each drain.

(eleven), etc., which the uterus has to overcome, at all times, by abnormal and incessant expulsive efforts, the *bête noire* of the human female from puberty to the menopause.

From this viewpoint, how can we hold ourselves guiltless if we neglect to insist that every suffering woman seek relief, and, at the same time, gain security from the dangers which lie lurking within her genital tract, and which may flame up at any time to her destruction.

Do we ever stop to think what incalculable agony



FIG. 2.—Gallant's fenestrated rubber uterine drains (two inch).

must have been the fate of the 120 women here shown to have suffered from dysmenorrhea? Take for instance Case II-1, Miss D-63, who from her sixteenth to twenty-fourth year suffered twelve hours a day, four days each period, thirteen times a year, or not less than 4,892 hours of bedcompelling dysmenorrhea, which was entirely relieved and cured by dilatation and drainage? To have relieved so many as has been my privilege, is something of which I speak with becoming modesty, but pardonable pride.

Having been associated with Dr. Paul Outer-

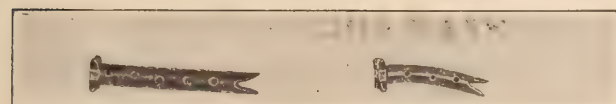


FIG. 3.—Gallant's perforated rubber uterine drains (two and three inch).

bridge in his private and hospital work for three years; having seen others make use of several forms of drains; having designed and successfully used the bivalve silver drains for eight years, the fenestrated drain for fourteen years, and in view of the fact that five years have elapsed since our last report, during which time many hundreds of

the drains have been sold by the makers to many widely distributed practitioners, a number of whom have, by word of mouth at least, confirmed their usefulness and efficiency in draining the uterine cavity, we have taken the liberty to bring to the reader's notice cases demonstrating the fact that these drains can be and should be worn for many months.

To illustrate how first I learned this lesson is recorded in the history of:

CASE XXXIII-1. Miss McC14, suffered so severely each month from menstrual cramps, excessive flow, supraorbital and temporal headache, that she was compelled to go to bed. Two years ago the cervix was dilated and the uterus curetted by Doctor A., but after two months' relief the trouble returned. June 27, 1905, I found the cervix sharply anteflexed, os internum very hard, inelastic, and tightly closed. *Operative technic:* The cervix was dilated to the full extent of a Wylie divulsor; the internal os incised with a blunt bistoury to a depth of one eighth to three sixteenths inch—right, left, and front and back—and the dilatation carried up to 35 F. male sound. The curette brought away a considerable quantity of so called "fungosities." A two inch, silver, bivalve drain was inserted in the cervix, and the vagina packed with gauze.

While the drain was in place, her menstrual periods

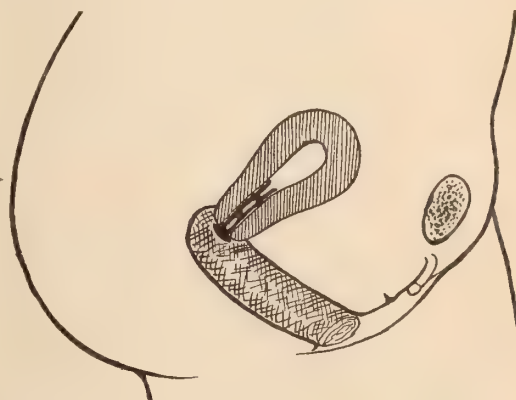


FIG. 4.—Showing bivalve drain in the cervix and roll gauze wick in vagina.

were free from pain, headache, and of normal quantity and duration; but on March 24, 1906, she begged for its reinsertion, which was done under nitrous oxide anesthesia. However, at the next period, the drain was again forced out and she suffered as usual. April 16th, ten per cent. cocaine was applied to the cervix and the drain pushed into the canal. In a few days she returned with the drain in hand. By this time I was thoroughly convinced of two things; 1, that her suffering could be overcome by keeping the drain in the cervix; and, 2, that the drain must be kept in the cervix for a long enough period to neutralize the uterine irritability and keep the cervix from again flexing. April 25, 1906, for the first time I sutured the drain in the cervix, securing it by a silkworm gut suture passed through the right and left cervical wall and the drain fenestra, leaving the ends long, for future ease in their removal. This, however, was unnecessary, as on September 14, 1906, five months after (one hundred and eighty-two days in all) (Fig. 1) suturing in the drain, she wrote me saying that having felt "something at the front" she had removed the drain and returned it to me. During the past eight years, she has experienced about one hour of cramps at the onset of the menses, but being free from headache and menorrhagia, she is content to let well enough alone.

The details of this case are here given, as it shows the technic of the introduction of the drain and also taught me that:

1. While the drain is *in situ*, symptomatic relief can be secured.

2. To overcome the expulsive action of the

uterus, the drain must be sutured into the cervix by some insoluble material.

3. To prevent the recontraction of the internal os, the reflexion of the cervix, and secure permanent patency of the cervical canal, the drain must remain continuously therein for six or more months.

4. That on account of oxidation of the silver drain, the fenestrated, or perforated rubber drain must be employed.

Ever since the return of that badly oxidized silver drain, it has been my practice in all cases operated in for intermenstrual obstruction, whether caused by antelexion of the cervix (seventy-nine cases), fibrous internal os, or other obstructing factors, indicated by dysmenorrhea, headache, menorrhagia, metrorrhagia, sterility, etc., to suture the drain in the cervix, from which it was not removed until a permanent cure was looked for. On the other hand, in the presence of an acute infection, after abortion or miscarriage, or post partum sapremia, for the relief of post partum pains, and whenever the uterine cavity measured four inches or more, the three or four inch silver bivalve drain was inserted and there remained until expelled from the cervix by the rapidly involuting uterus, when, if necessary, it was replaced by the two inch drain, sutured into the cervix.

That the "fenestrated" rubber drain (Fig. 2) may be securely and safely left in place for long periods is shown by the following cases:

CASE LXIV-1. *Menstrual headache, colitis, prolapsed right kidney and stomach.* Miss O'C.-202, suffered severe headache over right temple, at each menstruation; and for some weeks with colicky, diarrheal movements after each meal, and excessive nervousness, running up along the descending colon. Considerable mucus passed in each stool. Her whole colon was very sensitive; right kidney prolapsed six inches below the chondral border; greater curvature of the stomach on a level with the symphysis pubis. May 28, 1913, the antelexed cervix was dilated, uterine cavity irrigated, a 30 F. fenestrated drain sutured into the cervix, and appropriate treatment and diet for the colitis instituted. January 20, 1914, the drain, after being *in situ* seven months and twenty-one days (233 days) was removed. The menstrual headaches had ceased, there was no "slime" in the stools, the bowels moved once daily; and she had increased in weight twenty-four pounds. A special corset had been worn for the past six months.

CASE LXVIII-1. *Menstrual diarrhea, and collapse.* Miss L.-69, aged twenty-four years, since her menses began at fifteen, had always had diarrhea the day before, followed by vomiting of bile, weak spells, and unconsciousness, lasting from a few hours to, of late, the whole day. There were no cramps, but during the fainting spells she perspired profusely, turned cold, her legs jerked, and she felt as if at death's door. September 23, 1911, after dilatation and curettement a two inch fenestrated drain was sutured in the cervix and the retroverted uterus restored to proper position by an Albert Smith pessary. The drain was worn until July 7, 1912, nine months and fourteen days (284 days), and the pessary until just prior to her marriage, on Christmas day, 1912. May 22, 1913, she wrote of her good health and freedom from attacks for over a year past. Recently this patient miscarried.

CASE LXI-1. *Menstrual, pendulous kidney crises.* Miss L.-202, for several years, had suffered with an aching pain, just below the waist line, to the right of the navel, and associated bilious headaches; only relieved by going to bed, and followed by frequent urination after getting on her feet. Examination showed antelexed cervix; right kidney prolapsed, pendulous, lying at the umbilicus, replaceable; prolapsed stomach on the symphysis pubis. Appendix palpable, tender. June 26, 1912, cervix dilated, with difficulty, fenestrated drain sutured in cervix. Appendix

removed through right oblique incision, after uncoiling it from behind the caput coli. July 30th she was fitted with a corset. September 27, 1913, the drain having been *in situ* fifteen months and a day (396 days), was removed and she was furnished with a new corset. From the time of her recovery after the operation, she was able to work daily without interruption, and gained nine pounds.

CASE LIV-1. *Dysmenorrhea; chronic acne vulgaris treated by autogenous culture.* Miss D.-70, aged twenty-two years. Stepmother said, "she was born with the heat"; nymphomania since baby. Did not manipulate, but went into a sort of spasm which ended in orgasm. Mentally and morally defective, stole anything. Her mother was said to have watched animals in *flagrante delicto*. Always had nocturnal incontinence. For past seven or eight years had a persistent, incurable acne. On applying to Dr. E. D. Lovejoy for treatment of her face, he, believing the menstrual disorder should be corrected at the same time as the skin, on December 8, 1910, after curettement, a No. 2 silver bivalve drain was sutured in the cervix. The thickened uterosacral ligaments were forcibly stretched and partial mobility restored. Gauze roll drain in vagina (Fig. 4). She stated that her flow was some months prolonged, at others lasting but three days; but her stories were not always to be depended upon. The drain was removed after being in the cervix four months and nine days. Her facial acne slowly improved, under the hypodermic injections of autogenous cultures as reported by Doctor Lovejoy, Isolation and Growth of the Acne Bacillus (*Journal Cutaneous Disease*, February, 1911).

CASE LXXIX-3. *Sterility, nightmare, dysmenorrhea, retroversion.* Mrs. G.-207, married four months, had been flowing six to seven days (formerly three to four days); terrible nightmare the night before flow began. Fundus uteri and right broad ligament and ovary prolapsed posteriorly; the cervix one inch from the hymen. July 28, 1913, uterosacral ligaments were very tough, Y shaped; thoroughly stretched, and uterus lifted. Cervix dilated, very tough internal os incised on four sides. Fenestrated rubber drain sutured in cervix, gauze roll in vagina. Next day, a two inch round pessary inserted. During the following five months, menstruation more normal, lasting from three to five days. January 20, 1914, after five months and fifteen days (165 days), the drain was removed. April 16th, having had no more of the "nightmares," she wished the pessary removed. The character of the vaginal discharge, and the pelvic condition led me to suspect gonorrhea.

CASE LXXX-3. *Primary sterility due to antecurved cervix; perforated drain (Fig. 3).* May 3, 1913, Mrs. McG.-210, aged twenty-nine years, married two years. Menses regular, painless. Fundus forward, cervix curved forward, one inch from the hymen. Left broad ligament thickened and shortened, under anesthesia was thoroughly stretched. Cervix dilated; uterus three and one half inches deep, hollow, curetted, and irrigated. New model perforated drain sutured in cervix. Gauze roll in vagina. Menses: May, normal; June, ten days; July, eight days; August, four days. September 19th, drain removed (201 days *in situ*) in the hope that she would become pregnant at once. When seen, April 2, 1914, menstruation had been somewhat irregular; at times a sharp pain on left side of pelvis; and a burning sensation in the appendix region. Fearing ectopic gestation, she was cautioned to return if the sharp pain continued. May 23d, menses regular, colicky pain had ceased and this she attributed to the daily eating of two tablespoonful of prepared bran. Her weight had increased fifteen pounds. She was advised to cohabit in the knee-breast posture, as offering the most favorable chance for insemination.

CASE XLVII-2. *Drainage at seventy-seven years for hemorrhage due to intramural fibroid.* Mrs. L.-203, aged seventy-seven years, during the past six months had lost considerable blood from the vagina. October 26, 1912, under gas-ether, a tumor was found, extending to the umbilicus. In the vagina a large cervical cyst attached at the external os, was cut away; the sound was passed five inches into the uterus, and an intramural fibroid disclosed. The cervix was bent forward at an acute angle, the bleeding evidently coming from the uterine cavity. As her son, a physician, feared hysterectomy, we compromised by suturing into the cervix a three inch silver bivalve drain. For over a year, when last heard from, there had been

no flowing, and the drain was still *in situ*. The curve of the drain corresponded to the curve of the fibroid and overcame its ball valve action, permitting free drainage, and the bleeding stopped.

CASE LIII-4. *Flooding due to necrotic cervical polypus; menorrhagia.* April 3, 1912, Mrs. K.-201, patient of Dr. B. D. Skinner, had been flooding at menses for one and one half year, with "show" all the time. Necrotic polypus protruding from os externum, easily removed, from just inside os. Cervix dilated, uterus curetted; two inch rubber drain sutured in cervix. The drain was left *in situ* until September, five months (150 days) and removed on account of "too much flow." After the drain was removed, the excessive flow ceased.

EXCESSIVE FLOW WHILE THE DRAIN IS IN THE CERVIX.

A somewhat inexplicable condition in some cases, has been menorrhagia and metrorrhagia while the drain is in the cervix, controllable in some by ergot and quinine, in others by potassium iodide or mixed treatment; in a few cases only by removing the drain, when the menses return to the normal. At present I am using a drain of smaller calibre than those used heretofore (28-30 F.), and shall diminish the size to 20 F., hoping to work out some rational explanation to report later. As shown by the following list, we have kept the drain in for some months in spite of the flow:

CASE LX-1. Cervical polypus, excessive menstruation; ergot; drain in 133 days.

CASE LXIII-1. Dysmenorrhea, menstruation two weeks each month; drain in 201 days.

CASE LXXVIII-3. Sterility, leucorrhoea, cannot stand up during menstruation; drain in 151 days.

CASE LXXX-3. Sterility, excessive flow two months; drain in 142 days.

CASE LIII-4. Cervical polypus, excessive flow till drain out; drain in 150 days.

CASE LIV-1. Dysmenorrhea, prolonged menstruation; drain in 131 days.

SUMMARY.

1. Normally the menstrual blood condenses in the passive uterus, escapes drop by drop, or trickles from the os externum in a bright red, intermittent stream, without malaise, pain, headache, or any sort of reflex manifestation.

2. Obstruction to the free outflow may be caused by fibrosis, cicatrization, flexure, neoplasm of any portion of the cervical canal or involving the lower uterine zone.

3. Obstruction is primarily an intermenstrual condition, which (a) causes retention of mucus, etc., within the uterus; (b) retards the outflow of menstrual blood; and (c) shuts in the dangerous remnants after abortion, miscarriage, and labor, and the gonococcus.

4. Obstruction excites the uterus to laborlike activity, brings about hypertrophy of its wall, enlargement of its cavity, increased weight, and an abnormal condition of its mucous membrane.

5. Obstruction during menstruation causes colicky cramps, laborlike pains, backache, headache, and other reflex pains; (b) obstruction during labor causes serious dystocia; (c) obstruction after labor induces after pains, facilitates infection, and favors subinvolution; (d) obstruction between periods, intermenstrual, forces infection into the tubes and peritoneum, and results in peritonitis, tubal gestation, hydrosalpingitis and pyosalpingitis, and, by thus obstructing the tubes, is the most common cause of sterility, and frequently is at the bottom of

marital infelicity, leading to the divorce courts and the hospital, and if the woman escapes with her life, she will be compelled to live an aphoric life, subsisting on the alimony which the courts offer as her only means of redress.

6. Obstruction in young or older women can be and should be remedied, by dilatation, drainage, replacement, pessary support, or suspension of the uterus.

7. Continuous efficient drainage can be secured only by the use of a drain which will permit the cervical mucus to pour into the drain, mingle with the secretions, and prevent clotting and plugging.

8. To prevent recontracture of the internal os, reflexure of the antelexion, the drain must be of rubber, fenestrated or perforated, sutured in the cervix and must remain *in situ* for six or more months.

9. Experience teaches that, except for the removal of detached secundines or placenta, curettage is unwise and can therefore be dispensed with.

10. To secure uninterrupted drainage from the uterine cavity in acute cases a gauze roll wick should be placed in the vagina, with its upper end under the drain and the lower end projecting through the vulva so as to come in actual contact with the vulva pad, otherwise pus will collect in the vagina and sapremia will result.

70 EAST SIXTY-SIXTH STREET.

CERVICAL ADENITIS.*

By NATHAN P. STAUFFER, D. D. S., M. D.,
Philadelphia,

Otologist and Rhinologist, Presbyterian Hospital Dispensary;
Assistant Otologist and Rhinologist, Pennsylvania Hospital
Dispensary; Laryngologist, Tuberculosis Wards,
Blockley Hospital.

This paper is presented after reading the excellent article by Dr. J. H. Jopson, lamenting the lack of unanimity upon the part of the profession regarding the treatment of the troublesome and common children's disease, cervical adenitis (Figs. 1 and 2, J. G.). Doctor Jopson was correctly led to defend operative measures by reading a medical journal's poor advice to a general practitioner, advocating internal and local treatment for these enlarged nodes until they suppurated; and he also objected to another surgeon's paper complaining of the large number of recurrences following radical operations upon cervical glands.

I wish to present a rhinologist's observations on cervical adenitis, as most of the papers on this subject have come from the general surgeon's hands, and I believe they see only the later stages of the disease when cures are most difficult to obtain. It is my intention to discuss the causes, and the effect on the child, the parent, and the public, of cervical adenitis. I shall include my reasons why I believe internal and local treatments failed and why many external operations were unsuccessful. Some ideas in this paper were declared before the Orthodontia Society of Philadelphia, 1910, and the Tri-County Society of New Jersey in 1911, when I gave results of many adenoid and tonsil operations.

*Read before the College of Physicians, April 1, 1914.

Later results from over a hundred cases still further confirm these beliefs.

Seventy-five per cent. of cervical adenitis cases can be cured without external operations by the methods which I shall describe later; in the remaining twenty-five per cent. may be, 1, those



FIG. 1.—J. H. G. (Vermont), Cervical adenitis; cause, adenoids and hypertrophied tonsils.



FIG. 2.—J. H. G. (Vermont), five years later. Complete cure and no recurrence.

which are not true lymphadenitis, but soft lymphadenomas with enlargements of a group or groups of lymph glands, as described by Stengel; 2, Hodgkin's disease, where there is a progressive general hyperplasia of the lymph glands, but no increase of leucocytes and with seldom a necrosis or suppuration; 3, the forms reported by Symmers, "a type of Hodgkin's disease exists, either primarily in the cervical region or in the thorax, in which growth may invade surrounding structures and imitate secondary nodules in distant parts; 4, the true lymphatic leucemia (Fig. 3) as described by Osler, with the usual increase in leucocytes, and the enlargement of superficial groups of glands; 5, the sar-



FIG. 3.—Lymphatic leucemia; cervical, axillary, and inguinal glands hypertrophied.



FIG. 4.—J. N. R., aged twenty-one years. Had four operations in twelve years for enlarged suppurating cervical glands; now has a recurrence, which was caused by adenoids and hypertrophied tonsils being still present in the throat. Note the large disfiguring scar and enlarged glands under the chin.

comas. Many of these latter glands cannot be cured by any operation, and do not usually contain tubercle bacilli.

There is a distinct group of cervical adenitis cases, which is most common in this portion of America in children between the ages of two and seventeen years, who show a gradual enlargement

of the submaxillary or cervical glands, proceeding slowly from gland to gland, which gradually follow one another in breaking down and suppurating. According to Doctor Jopson, ninety per cent. of those surgically treated are in this group. Any one who has handled these difficult cases, with their months of gradual glandular enlargement and an ever increasing irritability of the child, followed by the suppuration stage with its months of constant dressing, the unsightly after scars or fistulas, not to mention the expense, must realize what a terrible burden they are to the parents as well as to the patient.

The preventive treatment and cure is not expensive nor difficult, and I am sure if only applied early enough will prove as successful in other surgeons' hands as in mine. When we consider that thirty per cent. of these enlarged cervical glands are followed by tuberculous lesions in other parts of the body, the need of acting promptly is certainly apparent, especially as the operative mortality is practically nil, Mayo reporting 649 cases with two operative deaths, and Dowd, 465 cases, with but two operative fatalities. When a child has enlarged glands, it usually begins to lose weight, has a capricious appetite, becomes pale, and lacks ambition; the parents are naturally worried and, if the glands are not soon relieved, are apt to wander from one physician to another. Usually the end is in the hospital or dispensary, when it is too late to relieve the condition by the adenoid and tonsil operation, and we are compelled to operate, externally and internally. As Doctor Jopson correctly states, any surgeon knows that it is a very tedious operation to dissect these glands.

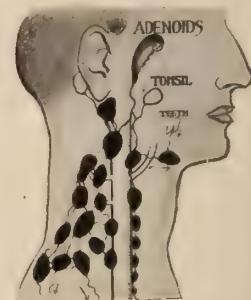


FIG. 5.—Showing drainage of the adenoids and tonsils, teeth and ears into the lymphatic circulation of the neck.

The reason why I became interested in cervical adenitis, was the number of scars on children's necks that I observed, commonly called tuberculous gland scars (Fig. 4). Many of these children had been in general surgeons' hands and had recurrences. While I realized that the causative agent might be *Bacillus tuberculosis*, I knew that many pathological examinations did not always reveal the presence of this bacillus alone, but of other organisms as well, and the textbooks did not explain the mode of entrance of these bacilli into the child nor why the glands enlarged (Figs. 1 and 2). It was necessary to determine the entrance of the bacillus into these glands. I knew they were a primary and not a secondary infection, following tuberculosis of the lungs. Meeting children, day after day, in the Pennsylvania and Presbyterian Hospital clinics, I noticed that these enlarged glands were usually in children who were mouth breathers, tonsillitis habitués, or who had purulent otitis media. Investigation followed along the lines of the circulation and drainage of these cervical lymphatic glands to locate the portal of infection (Fig 5).

The lymphatic circulation. The word lymphatics is derived from *lymphe*, meaning water. (Lymphatics are also absorbents.) A lymphatic or lacteal vessel, previous to entering a gland, divides into smaller branches or afferent vessels as a water carrier. On emerging from this gland, there is an-

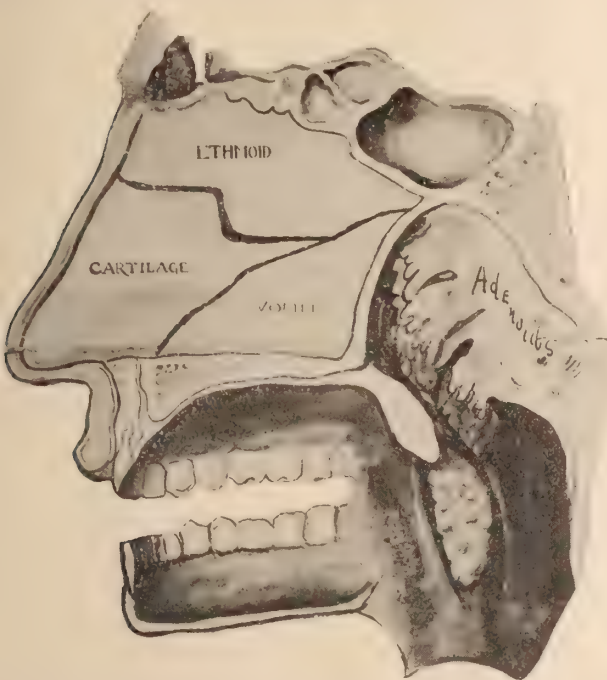


FIG. 6.—Hypertrophied adenoid blocking off air supply and causing enlargement of tonsils and cervical glands.

other plexus formed called efferent vessels. Gray divides the glands of the head and neck into the superficial and the deep lymphatics, further subdividing them according to their location, into occipital, postauricular, parotid, zygomatic, buccal, submaxillary, etc. All these glands drain into the lymphatic glands of the neck, where they further divide into the superficial and deep cervical groups. As we are all familiar with the anatomy of these parts, all I need to recall is that these cervical glands of the head, face, and neck, drain im-



FIG. 7.—Portrait of Emperor Ferdinand I of Germany, King of Spain, illustrating how even kings appeared to have had adenoids in 1524.

FIG. 8.—A. D., mouth breather. Sensitive because family and friends chided him on having mouth constantly open. Adenoids and tonsils had been removed, but another cause of mouth breathing was still present; a deviation of the septum entirely blocked the left naris. Note malocclusion of the teeth, patient unable to shut his mouth or masticate his food. A submucous operation was followed by complete cure.



8

mediately into the thoracic duct as it empties into the large innominate vein at the root of the neck between the internal jugular and the subclavian veins, whence the circulation of the lymph is carried to the heart and lungs. As Dr. George Wood so ably demonstrated the possibility of tuberculosis being carried from the tonsil to the cervical glands and thence to the innominate veins, we can easily imagine that the next probable lodging place is the lungs. Hence we have established another means of contracting tuberculosis apart from inhaling the germs, a pathway far more dangerous than the air passages. These cervical glands are acting sentinels (or forts) lying under or below the adenoids, tonsils, teeth, and ears, and their duty is immediately to try to repel or destroy any invading host. If unable, they call upon the body for reinforcements, whereupon the gland enlarges. If the invading host is more powerful, the gland suppurates, and the invasion may become general, and septicemia or tuberculosis becomes established, just as in an abscess of the hand, the glands of the elbow and axilla try to repel the infection, and, if they fail, ultimately break down. Similarly, a lymphadenitis of the inguinal glands may follow a gonorrheal urethritis. Seeing these glands enlarge between the head and the upper portion of the thoracic cavity, realizing that glands usually enlarge from the irritation above them, I naturally examined more in detail the most adjacent structures, which happened to be the adenoids, the tonsils, the teeth, and the ear.

1. "Adenoids are superficially placed lymph glands most frequently found between the third and fifteenth years of age" (Ballenger, Fig. 6). It is a physiological structure which atrophies before adult life. Note the close relationship of the adenoid age—three to fifteen years—to the cervical adenitis age—two to seventeen years—as stated by Mayo, Dowd, Mueller, etc.

Many parents have queried, "Why is it we never heard of adenoids in the old times?" I reply, "Why didn't we have phonographs 100 years ago?" They weren't discovered. Adenoids were also undiscovered. I can show you some prints that are proof positive that people had adenoids as far back as 1524. Fig. 7 is a "reproduction of the portrait of Emperor Ferdinand the First, of Germany, King of Spain, painted by the great Dutch painter, Lucas, of Leyden. It is in the gallery of Florence and is such a typical adenoid facies that from it alone a diagnosis of the affection can be made today, more than 400 years later. The usual well marked Hapsburg family type has been completely lost through obstruction to nasal breathing for many years. The whole face is elongated, the nose is pinched and drawn, and the small nostrils all show retarded bodily development" (Allbutt and Rolleston).

2. The cause of the hypertrophy of the adenoids



FIG. 9.—Cervical adenitis due to adenoids, hypertrophied tonsils and purulent otitis media; note enlargement of glands, anterior set and posterior set.

is constant irritation and then inflammation (Fig. 6). Children, especially, do not understand how to blow their noses when they have colds, consequently the nasal discharges are retained in the nares and posterior nares, causing further engorgement of the turbinated bones, which cause the exit to be still more effectually blocked off. The whole nasal mucosa feels this extra invasion of debris and bacteria, the engorgement and nasal stuffiness are increased, the irritation and inclination to adenoid hypertrophy are present, and the first step toward cervical adenitis has been made.

3. The actual cause of the disappearance of adenoids after fifteen years of age, is the growth of bone and gradual enlargement of the postnasal cavity, allowing air to pass; accompanying this development of bone, there is a growth of a fibrous tissue, especially around the bloodvessels of the adenoids.

As I previously stated, adenoids usually disappear before adult life. It may be asked: 1. "If they disappear usually after fifteen years of age, why operate?" Because they cause so much damage beforehand, as mouth breathing is established for life, cervical adenitis follows, then otitis media and mastoiditis, etc. The pain, inconvenience, and cost of these is more than most parents can afford. 2. Some people say, "Nature evidently meant us to have them or why did she give them to us?" If so why does she cause them to atrophy after twenty years of age, and why do so many children not have them? As an example of how Nature will reproduce what she needs, we may recall how our teeth erupted from six months onward and then decayed, but were replaced by a secondary set; why are the adenoids and tonsils in some people not replaced after the fifteenth year, while in others they are large enough to block the entrance of food into the throat?

Cause of adenitis. After examining thousands of throats, and finding many adenitis cases linked with hypertrophied tonsils, I concluded that the cervical adenitis was due to the irritation of the lymphatic system by these overworked and necrotic adenoids and tonsils, and I concluded that when next I saw a child with cervical adenitis, I would first operate upon the adenoids alone to see what effect it would produce upon the adenitis.

My next patient had had a brother (E. B.) who had been operated upon for purulent cervical adenitis, and the involvement (and operation) had been so widespread that a paralysis of the entire left side of the face had resulted. Now the brother was younger and had presented the same early symptoms of acute adenitis. His father, desiring to save this child the trouble and disfigurement of the older boy, brought him to me. I found that he had acute cervical adenitis; the glands were the size of peachstones and hard; he was a mouth breather, with the typical night terrors and enlarged tonsils. I informed his father of my conviction that the glands were enlarging from nasal and pharyngeal irritation, and asked permission first to remove the adenoid growth and, if necessary, we could afterward dissect out the diseased cervical glands. After the adenoids and tonsils were removed, the enlarged glands immediately became smaller, and the child is

a healthy robust boy at this date, four years later, and no operation was ever necessary on those enlarged cervical glands; they disappeared as if by magic. Since that day, I have found the adenoid and tonsil operation sufficient to cure all cervical adenitis cases if the operation is performed early, i. e., before the glands have proceeded to the suppurative stage.

But the early and complete dissection of the tonsils and adenoids will not permanently cure the cervical adenitis, even though the surgeon has dissected out the tuberculous glands, if the teeth and the ears are also in need of proper attention. Why the teeth? What has the dental profession to do with the condition? Adenoid patients are mouth breathers, and usually they have trouble with their teeth, either early or late in life. Cervical adenitis may come from adenoids, tonsils, or from decaying teeth. Doctor Starck, a Frenchman, was the first to find tubercle bacilli in decayed teeth. Dr. G. M. Dorrance reports seventy-two cases of cervical adenitis, of which forty-five were caused by decayed teeth, his minority being from the tonsils.

Usually adenoid patients have malocclusions. I recall one patient who had a marked malocclusion. This patient had adenoids which were not removed because the family physician was opposed to operation. This patient to this day can only use the four molar teeth. If he had had a competent dentist, or a good specialist to examine his nose, he might now sleep in peace instead of being compelled to awake each morning with a dry and parched mouth, with brown crusted teeth causing premature decay (Fig. 8).

That nasal obstruction has a close relation to the cause of oral deformity, most rhinologists agree; Kyle says, "the effect of impaired respiration due to postnasal obstruction is also manifested in an ill formed supermaxillary arch, with marked irregularity in the arrangement of the teeth." This irregular development is largely caused by the repeated contractions of the muscles controlling the nasal orifices, necessitated by the forced nasal inspiration and sniffing. By this drawing down of the facial muscles, the upper jaw is retracted, and the contour of the upper arch is altered. The hard palate, instead of forming a perfect dome, has its anterior portion tilted out and its upper portion at the base of the nose, drawn in (Fig. 8). Without this interference, the pressure of air within the natural passage counterbalances that upon the external surfaces, and normal development takes place. This will occur only when the obstruction takes place in early age, before the bones are firmly united. This irregularity in the arch will produce unevenness in the development of the teeth, causing their eruption high up in the alveolar process, or, if placed in the arch, they will be crowded and irregular. If the eruption occurs high up, it will add to the protrusion of the upper lip, increasing the facial deformity so characteristic of adenoid obstruction. A blocked up nose means bad drainage; the lymph system has extra duty, and then the glands will soon enlarge. Unless perfect nasal breathing is established before the seventh year, the individual becomes of necessity a mouth breather—a condition difficult to rid oneself of (Fig. 8).

Lately much discussion has arisen over the inability of certain orthodontists to widen the intermaxillary arch. Some time ago Doctor Black (I believe) advocated the use of the separation of the teeth and widening of the arch to relieve nasal stenosis. Since then, many men have argued pro and con as to the actual widening that does take place. Doctor Cryer, the eminent University of Pennsylvania oral surgeon, arguing that none does occur, and Doctor Darby that it does (*Cosmos*); while Dr. A. B. Crane, of Washington, thinks it possible, and many are in Doctor Marston's class and are in doubt. Whichever side is right, the fact is that it helps the patient, and to me that is the most important point.

Whether mouth breathing is stopped because of the occlusion being made regular by the orthodontist, thereby giving a rear support for the lips, which otherwise fall apart, or whether the nasal chamber is widened by the separation of the intermaxillary suture, are scientific matters, offering a field for enthusiastic pursuit and investigation. Personally I am convinced that malocclusion helps to produce mouth breathers.

Finally the ears may cause cervical adenitis (Fig. 9). Many children with prolonged suppuration of the ears show enlargement of the glands, and if the discharge is not stopped or a mastoid operation is not done, the glands continue to enlarge. Then we have nose, glands, and ears discharging, and the child is dull mentally, easily exhausted, and finally becomes deaf. A deaf child is a retarded child, and a retarded child is a charge on every one. You must protect or pay to have protection.

I wish to call your attention to several important points all relating to nasal or aural diseases, economic questions, vital facts for us or our sons:

1. Of 90,000 deaf people in the United States enumerated in the census of 1900, 51,000 were deaf from childhood, of which number 34,000 had deafness, due to catarrh (another name for adenoids or hypertrophied tonsils in children); 31,000 due to unclassified causes (probably catarrh).

2. Seventy-five per cent. of deafness is caused by running ears; seventy-five per cent. of running ears are due to adenoids and hypertrophied tonsils.

3. Pennsylvania has 7,500 deaf children (deaf children tend to become dumb so you must support them. You must pay higher taxes. Extra millions every year to hospitals are needed).

4. The report of 1906 of the board of health of Philadelphia shows 31,544 defective school children. One of the best equipped medical inspectors tells me that twenty per cent. of children are defective. Of these the majority have defects of the eye, ear, nose, throat, or teeth.

5. Doctor Miller and Doctor Woodruff, of the Tuberculosis Ward, Bellevue Hospital, report that forty-seven per cent. of children with tuberculosis have adenoids and hypertrophied tonsils (*Journal A. M. A.*).

SUMMARY.

Adenoids, hypertrophied tonsils, deformed teeth, and cervical adenitis are usually associated, and as the patients grow older, many have rheumatism or tuberculosis. Surely such an array of facts, coupled with such strong circumstantial evidence, calls for

prompt and radical treatment, as recommended by Doctor Jopson and Doctor Mueller, which has yielded such excellent results in my hands.

In conclusion, I would state that I believe that the reason the majority of these adenitis cases have recurrences and are not cured by an external operation, is the fact that they do not have the cause thoroughly removed. To secure permanent cure, I would emphasize:

1. Early cleansing of nose, teeth, and ears.
2. Early removal of adenoids and tonsils by complete dissection.
3. Early adjustment of irregular teeth or filling of decayed teeth or removal of decayed roots.
4. Early mastoid operation for any purulent otitis media present.
5. Plenty of good food, regular baths, exercise, and plenty of sleep. These children with enlarged glands are being poisoned by the toxins from the lymphatic glands. Their adenoids and tonsils block the air supply from their lungs and deprive them of oxygen. It is essential to the growing child to have plenty of fresh air, day and night.

218 SOUTH TWENTIETH STREET.

PRESENT STATUS OF THE VERUMONTANUM IN DEEP URETHRAL DISEASES.*

By JOHN A. HAWKINS, M. D.,
Pittsburgh,

Genitourinary Surgeon, South Side Hospital.

After reading over the discussion of my paper presented to the American Urological Association in June, 1906, at Atlantic City, I concluded that some of the questions of that time could be better answered now, as we have had sufficient experience in the treatment of diseases of the verumontanum intelligently to discuss and criticise statements which might have then seemed more the result of enthusiasm than judgment.

It is now fourteen years since I treated my first patient for inflammation of the verumontanum, rather unconsciously I admit, and I am more than ever convinced that the verumontanum is the seat of nearly all, if not all the genitourinary neuroses. I only wish I could as positively announce a cure for its lesions.

It might be well again to call attention to the symptoms of inflammation of the verumontanum, to wit: 1. Sacral pains. 2. Pain or burning in the distal inch of the urethra. This should at once attract attention and care should be taken not to be misled because, on examination, no lesion is found in the anterior urethra. 3. Urinary frequency with effort to expel what seems to be "the last drop"; sometimes the tenesmus is followed by the appearance of a drop of blood. 4. A sense of fullness or heaviness, in the region of the deep urethra, or reflected to the perineum or rectum, is very common. This is particularly marked during or after coitus, and during ejaculation sharp pain may be felt in this location due to a stenosed condition of the puncta

*Read before American Urological Association, Philadelphia, June, 1914.

jaculatoria. The sexual apparatus usually shows some evidence of irritability. 5. Frequent and prolonged erections without sexual or mental excitations are not uncommon. 6. Pollutions may be frequent; the continued engorgement of the structures involved tends to increase the inflammatory process. Later, the opposite train of symptoms becomes apparent. Loss of sexual desire, weak or unstable erections with premature, delayed or incomplete ejaculations. 7. Pruritus ani is not uncommon. 8. Hypochondriasis is quite frequent, as before stated. 9. Shreds in the urine are inconstant; they may be absent today and present tomorrow. 10. Discharge, principally of mucus plus epithelium is commonly observed and noted with suspicion by the patient. 11. Examination per rectum will in a few cases show vesiculitis seminalis and prostatitis, either or both, and these conditions should first be corrected. It has been a wonder to me that the vesicles and prostate are not infected in all cases. I have never counted the cases where inflammation of the verumontanum has been complicated by inflammation of either the vesicles or the prostate, but the percentage, in my opinion, is not great.

The normal verumontanum in the prostatic urethra



FIG.—Prostate gland showing a third lobe apparently arising from the right lobe posteriorly; no trace of verumontanum or ducts in specimen.

projects upward about three mm., and at its base is about the same width. As seen when it bobs into the fenestrum on the convex curve of the long Leiter tube, it appears conical, and as I stated in my first paper on this subject, I can liken it only to a small erect clitoris. A frenum runs anteriorly from it, and my belief is that this frenum is composed of muscle fibres and tends to tilt it forward during ejaculations. On its anterior superior surface is the utricle, and near its lower lateral margins, one on each side, can sometimes be seen the openings of the ejaculatory ducts. On each side of the verumontanum, on the floor of the urethra, are a number of minute openings of the ducts leading from the prostatic glands. When inflamed, these openings sometimes become quite large and patulous. In one patient I inserted a No. 5 ureteral catheter to a depth of one half inch in one of these glands.

The past five years' work and observation has shown that bachelors and widowers are very frequently affected by the neuroses from chronic inflammation of the verumontanum, due either to unsatisfied desire or to excessive masturbation. Many bachelors and widowers suffer severely from neurasthenia in its various forms. They are morose, "have nothing to live for," have no ambitions, complain either of premature ejaculations after long

continence (a normal condition, usually) nocturnal emissions, or when a pathological process is present, of impotence with insufficient erection or none.

These patients frequently complain of headaches and the like. Inquiry will develop that constipation is frequently present, and removal of this condition by laxatives rather than purgatives will aid materially in their relief. Note that I say *relief*. I am not so sanguine as I was a few years ago. Some patients do well, the results being just short of miraculous while others I grow tired of seeing.

Examination with the deep urethroscope will show a turgid deep red urethra. In a recent case, the entire posterior urethra and even the bulbous urethra bled on passage of the tube. The verumontanum will be rendered more conspicuous by swabbing first with a dry mop, then quickly applying a ten per cent. solution of silver nitrate and again drying. Enough of the silver solution comes in contact with the tissues to whiten them, the blood on the dark red surface absorbing much of the light. If a lamp at the distal end of the tube is used the blood covers it, and all the light possible is needed. The Buerger cystourethroscope, the Goldschmidt, or the cystoscope of Wappler are useful in examining the deep urethra, as irrigation not only washes away the blood, but dilates the urethra sufficiently to push away from the lens the adjacent structures.

The appearance of the verumontanum when inflamed, varies somewhat, but it is usually wide, high, and thick and bleeds freely when touched by the tube or later by the applicator. It is frequently deformed by disease as shown in illustrations accompanying my former papers. Rarely can the utricle or ejaculatory ducts be seen when the verumontanum is so swollen, and it is in these cases that the very strong silver nitrate solution renders best service.

The use of the straight tube in the examination or treatment of the verumontanum, is not to be compared with the curved tube of Leiter, into the fenestrum of which the verumontanum "bobs like an erect clitoris." It is well to remember that one can have any number of pseudoverumontanums bobbing up in the fenestrum as he withdraws the tube, if one is not careful, owing to the bulging mucosa on the floor. This can be rectified by changing the position of the tube slightly.

The use of the solid stick of silver has, when used by me, produced no better results than fifteen to twenty per cent. solution of the nitrate, and on several occasions patients have suffered severely. In one case—that of a man from out of town—the patient was taken to a hospital and blood clots were removed from his bladder by a suction apparatus. I shall not use it again, as the danger is too great, even though I could be shown any advantages, which I seriously doubt. This patient failed to return and I do not blame him.

The use of oil, applied to the deep urethra either by swab or syringe after the silver nitrate, is of great benefit and eases the patient's suffering. I have used liquid petrolatum and automobile cylinder oil and like the latter much the best. It is preferable to use a charcoal filtered oil and not one clarified by acids, for obvious reasons. I am now

using oil of eucalyptus one part, charcoal filtered cylinder oil seven parts. Crude oil is too irritating. During the ten days between treatments, I use, each third, fourth, or fifth day, instillation of oil with the Ultzmann syringe, or irrigation of eight drops of nitric acid to the litre of water. Frequently I alternate the use of oil and irrigations.

Some years ago, a statement was made at one of our meetings that sometimes the verumontanum "extends clear up into the bladder, and in the bladder forms the basis for the enlargement that is frequently called the third lobe of the prostate." This is not correct according to my observation and knowledge of the anatomy of these parts. I show here a prostate removed suprapubically, as nearly as one can see, in its entirety. We note a third lobe arising from the right lobe posteriorly, not from an extension of the verumontanum. We also note the entire absence of any vestige of the verumontanum, which, as I asserted in a previous paper, is not a part of the prostate, but is enclosed in a separate sheath or capsule and is rarely removed, either by a suprapubic or perineal prostaticectomy when done by a skillful genitourinary surgeon who is, naturally, familiar with the anatomy of the region.

The question has been asked me, whether epididymitis ever followed treatments directed to the verumontanum, and the experiments of Oppenheim and Löw were cited to show that stimuli applied to the verumontanum might possibly cause infection of the epididymis by transmission of bacteria. In my whole experience, I have not seen a case of epididymitis follow application to the deep urethra or even the passage of a tube or sound. Epididymitis, in my experience, usually appears when unexpected and without apparent cause, and so I warn all patients to expect an epididymitis with their gonorrhea, even though no treatment is pursued; it is always the result of progression or extension of the process and in no way due to any form of treatment.

In addition to the use of nitrate of silver solution of fifteen to twenty or even fifty per cent. and the use of the punch recommended by Doctor Gardner, of Buffalo, the verumontanum may be attacked through the Wappler cystoscope with the high frequency unipolar spark of Oudin. This to my mind is the neatest and most artistic method of diminishing an enlarged succulent verumontanum and it is not followed by bleeding. This bleeding is a drawback to any cutting operation, and after the result above referred to of my patient with a bladder partly filled with blood following an application of stick silver, I am certainly loath to take any unnecessary chances of a repetition.

As to the prognosis in these cases, I would say that if any good is to result, we shall see the inflammation begin to subside after three or four treatments at ten day intervals. When the inflammation once begins to improve, the cure is usually rapid, and if the patient's urethral trouble is not well in three months, I acknowledge that I can do little more if the patient has not already become disgusted. The symptoms of hypochondriasis frequently begin to disappear when, or even before the

urethral lesions show improvement. Tonics, baths, change of scene, and all methods to cheer up the patient and get his mind off himself and his woes will assist greatly. These are all chronic cases and require chronic treatment, in which patience and tact play most important parts.

6126 JENKINS ARCADE BUILDING.

ACQUIRED ORGANIC HOURGLASS STOMACH.

BY G. A. HUMPHREYS, M. D.,
New York.

CASE. Miss N. N., aged thirty years, five years ago weighed 150 pounds and enjoyed perfect health. Prior to five years ago, had no trouble with digestion, although she was accustomed to eating rich indigestible foods, particularly sweets. About five years ago began to suffer with slight indigestion—some distress after eating, eructations, palpitation of heart; there were also noticed at that time constipation and slight loss of weight. These symptoms gradually increased and continued, with varying degrees of intensity, for three years, but she was able to continue at her work, although steadily losing weight.

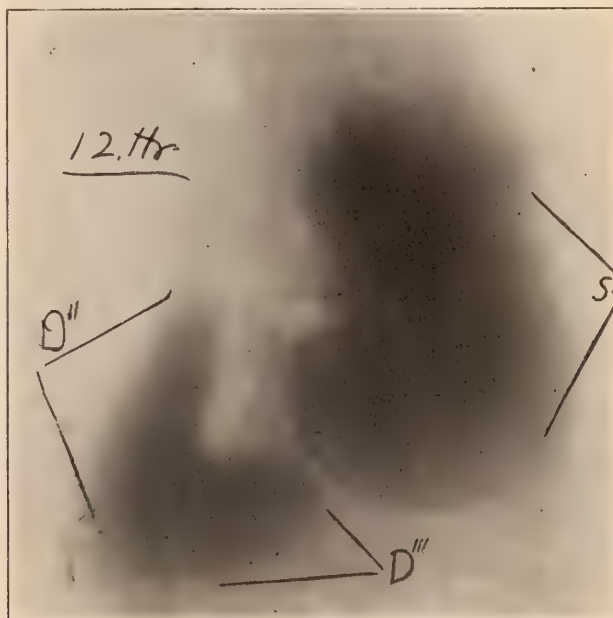


FIG. 1.—Showing the bismuth in the two portions of the stomach twelve hours after ingestion. Little or none of the bismuth has escaped into the intestines. The pyloric pouch was thought to be a dilated duodenum.

About two years ago, she began to grow decidedly worse—vomiting at intervals, constipation more troublesome, and distress after eating regular and more severe than formerly; there was no vomiting of blood or coffee ground matter. For another year she failed steadily till December, 1912, when she became decidedly worse—vomiting more, had severe epigastric discomfort at times, but regularly more discomfort after eating; she regularly had to struggle to keep down any food and felt that if she could retain it for an hour and a half, it was going to stay with her. Vomiting relieved her. Appetite became poor, and she felt that she was more rapidly growing weaker. By May, 1913, she was unable to work and menstruation had ceased.

When I first saw her, early in October, 1913, she weighed with heavy clothing 94.5 pounds, pulse was 100, and temperature 100° F. She was much emaciated; the abdominal wall was markedly retracted; the bodies of the vertebrae were very prominent.

Nothing definite could be made out on physical examination, except a dilated stomach and a probable general ptosis of stomach and intestines. There was no tenderness over stomach, nor could any tumor be felt.

Test meal October 9, 1913.

Total stomach contents	515 c. c.
Free acid	16
Combined acid	16
Acid salts	28
Organic acids	none
Total acidity	60

No blood.

Test meal October 13, 1913.

Total stomach contents	367 c. c.
Free acid	34
Combined acid	16
Acid salts	16
Organic acids	none
Total acidity	66

Some mucus. No blood.

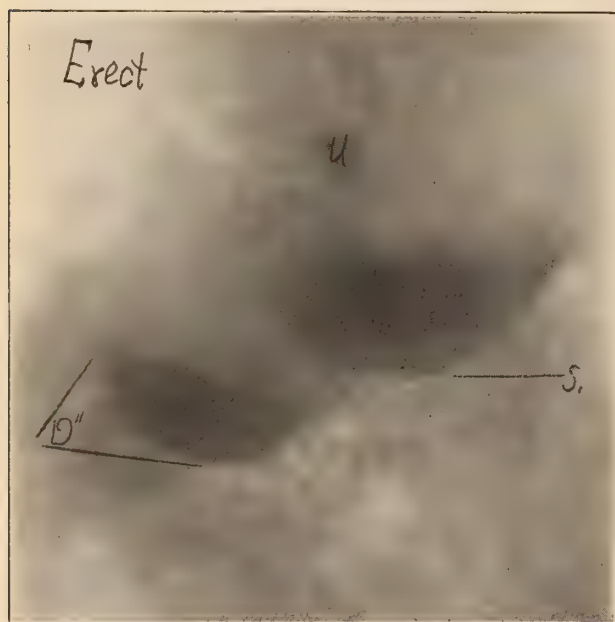


FIG. 2.—Showing the position of the two parts of the stomach when patient was standing; both have dropped far below the umbilicus and the pyloric portion is in the pelvic cavity.

The radiographic and fluoroscopic examination was made by Dr. A. Judson Quimby, whose excellent radiographs accompany this communication.

The patient's general condition was not favorable for major operation. She was put on light diet, mainly liquids, for ten days, with instructions to recline two hours after meals. She was then kept in bed for ten days. During this time the pulse became better and she gained a few pounds. She constantly had to struggle to keep her food down, and under the most favorable circumstances vomited once in two days.

Operation.—Operation was performed November 4, 1913. An incision was made, about six inches long, through the right rectus. The middle of the incision was slightly above the level of the umbilicus. The stomach was found to be of the hourglass variety—undoubtedly acquired, as the isthmus joining the two pouches was composed mostly of cicatricial tissue, thicker and more cicatricial on the upper than on the lower border. The isthmus was

about four inches long and its lumen small, not easily admitting the blade of a blunt pointed scissors. On the lesser curvature of the cardiac pouch

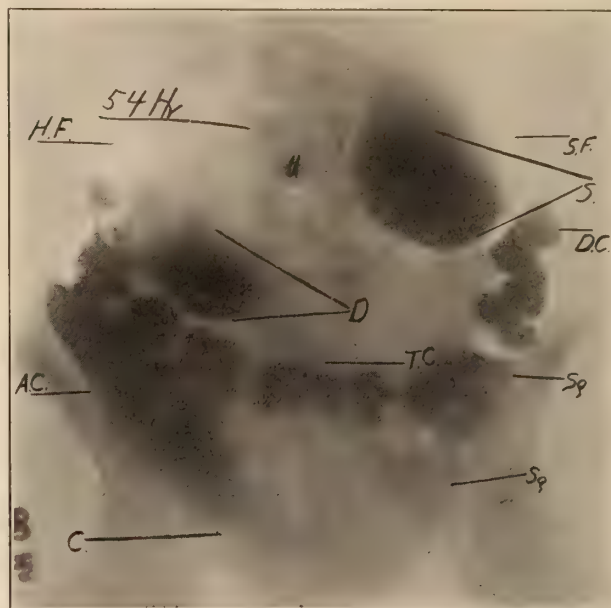


FIG. 3.—Radiograph taken fifty-four hours after bismuth was given, showing much bismuth still in both divisions of the stomach, more in the colon; ascending colon and cecum dilated; cecum and transverse colon lying in the pelvis.

was a large saddle back ulcer, about four inches from the isthmus. The tissue on the upper surface was cicatricial between the site of the present ulcer and the isthmus.

A posterior gastrojejunostomy was done between the cardiac pouch and the first portion of the jejunum. The two pouches of the stomach, which were rather widely separated, were united by a plastic operation after the method suggested by Kammerer, which is to the stomach what the Finney operation is to the pylorus, but in this case, on a very large scale. The appendix was removed, as it was adherent to the terminal ileum.

The patient had an uneventful recovery; she left

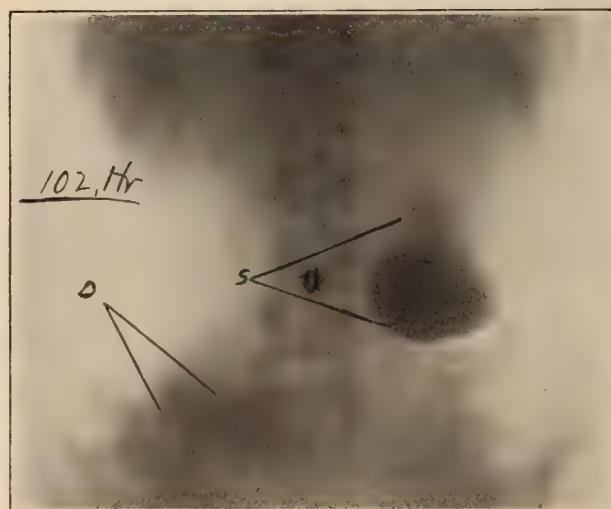


FIG. 4.—Radiograph taken 102 hours after bismuth was given, showing a quantity of bismuth in the cardiac pouch of the stomach and a smaller quantity in the pyloric pouch lying in the pelvis.

the hospital on the twentieth day. Relief of all symptoms followed the operation; her weight, December 20, 1913, was 129.75 pounds; January 1, 1914, menstruation was reestablished; January 15,



FIG. 5.—Radiograph taken on the eighth day after bismuth was given by mouth, showing traces of bismuth still remaining in both pouches of the stomach. The bismuth enema shows in rectum and colon.

1914, she weighed 140 pounds. The bowels have been regular since operation.

Examination of stomach contents January 16, 1914.

Total stomach contents	160 c. c
Free acid	none
Combined acid	10
Acid salts	2
Total acidity	12
Lactic acid	none
Blood	none

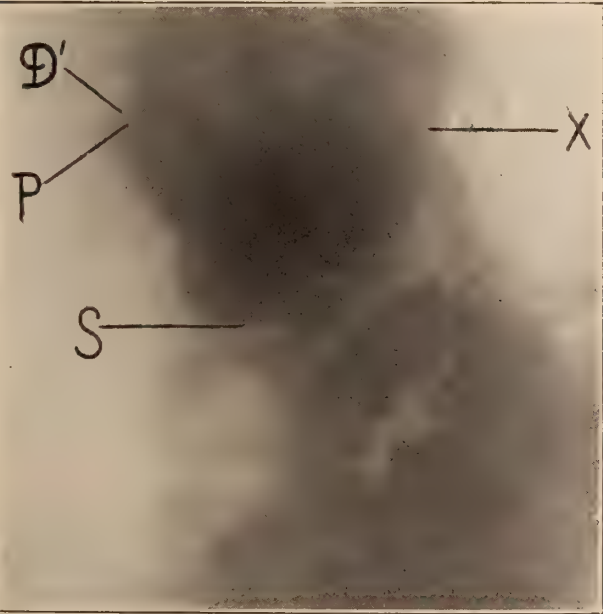


FIG. 6.—Radiograph taken three months after operation. Exposure was made fifteen minutes after bismuth was given. It shows only one rather elongated stomach cavity; bismuth escaping through the pylorus and also through the gastroenterostomy incision, marked X; a large quantity of bismuth in the ileum.

Patient was married January 22, 1914. She takes entire care of her home, and was free from all digestive disturbances and felt perfectly well when I last saw her in April, 1914.

101 WEST EIGHTY-FIRST STREET.

THE MODERN TREATMENT OF BRIGHT'S DISEASE.

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Modern metabolic research during the past twenty years has had an especial influence on the treatment of kidney diseases, its results bearing particularly on the mechanism and consequences of retention in renal insufficiency. The idea of lightening the kidney's work now predominates the therapy. The excretion of salts and water is now considered to be due to a secretory renal activity more important than the purely physical renal processes. The strain on the kidneys caused by water secretion should not be overstimulated even under pathological conditions, and the relations of the liquid contents of the organism to the retention process should be borne in mind when the therapeutical consequences of the amount of water drunk by the patient are calculated. Since the experiments of Stockvis and other authors, an injurious action of large saline doses on diseased kidneys cannot fully be rejected. H. Strauss recommended years ago the use of isotonic sugar solution instead of the physiological salt solution for subcutaneous and intravenous injections in cases of severe parenchymatous disorders, such as grave anemic or toxic states. A greater limitation of the nitrogen contents of the food in higher grades of oliguria has been advised by authorities for some time. From the researches of Chittenden, Mendel, and others, we know that the body does not suffer, even when the albumin contents of the food are reduced to daily doses of about fifty to sixty grains. So this dose may be used for a considerable period. As to the choice of albuminoid foods, Strauss thinks that even in acute nephritis two to four eggs daily may be taken. The von Noorden school of research has recently proved that there is no great difference between red and white meat for nephritic patients. Strauss advises very well done meat. Strauss believes also that the residual nitrogen of the blood is far more dependent upon the state of the renal function than upon the alimentary factor. As for water retention, Strauss considers that patients inclining to the retention of nitrogenous substances must be given at least the normal amount of fluid. Von Noorden now alternates drinking periods with thirst periods in chronic nephritis. A temporary reduction of the fluid given the patients may be judicious in certain cases of contracted kidney with beginning decompensation of the heart, but only as part of a Karell milk cure (as this cure also limits the introduction into the food of all fluid and of salt). Soups should be taken sparingly. Ortnor interdicts game and salt water fish, unless the latter is very fresh. Cereals, butter, cream, oil, moderate smoking, and one cup

of coffee in the morning are allowed. Tomatoes, asparagus, onions, garlic, radishes, celery, fried and greasy foods, hot sauces, pepper, mustard, cress, and rich and strong cheese are to be avoided. Alcohol, except in light wines with meals, irritates the kidneys. Water should not be taken in excess, particularly when edema is present. In general, the patient's thirst is a good guide. In chronic interstitial nephritis, the German plan is to have patients take a large amount of water (two to four quarts) to flush out the system one day a week, and only a reasonable amount on other days. Von Noorden, Pal, and Korányi advise limiting the amount of water, holding that large amounts increase blood pressure. Alkaline and chalybeate waters are to be preferred, as they induce catharsis and diuresis. To lower blood pressure, the bulk of both liquid and solid food should be cut down. Rest in bed, free catharsis, and nitroglycerin administration are indicated. When the heart has given out (dyspnea, cyanosis, edema), rest in bed is imperative on a diet of eggs, cream, and cereals. Digitalis, strophanthus, caffeine, strychnine, or camphor should be administered. Bloodletting to the amount of 500° c. c. is beneficial, as is morphine. Together with rest in bed, a hyperemization of the kidneys is sometimes of use, according to the Cohnheim-Royés law of a simultaneous reaction of the cutaneous and renal bloodvessels. On the same basis, warm woolen clothing is indicated for all the year round, and care should be taken to avoid cold. Sweating procedures are beneficial in case of edema or of threatened uremia. Warm baths are recommended by Strasser and Wolf; a dry warm climate also induces sweating. For those who can afford it, the winters should be spent in Florida, Texas, or California, and the summers in the mountains of New England, New York, or Canada.

Some valuable aids have been gained for the medicinal treatment of nephritis. The theobromine preparations have proved highly valuable for the removal of retained substances. They create diuresis and polycholuria, and frequently eliminate nitrogenous sediments. They act with double force when used together with the digitalis preparations. The citrate and the acetate of potassium, liquor ammoniæ acetatis, and strophanthus have retained their old place as diuretics to combat edema. Saline preparations should be given on an empty stomach in sufficient dose to cause two or three loose, watery stools a day. The simplest method of stimulating the skin is by hot baths (105° F.) followed by wrapping in hot blankets. Hot baths, Turkish baths, and hypodermic injections of one fourth grain of pilocarpine hydrochloride may also be given. Fluid may be removed by aspiration of the body cavities and by puncture of the skin under aseptic precautions. Castaigne undertook puncture with Southey's tubes and abstracted ten litres of fluid in cases of edema in the asystolic phase of chronic nephritis. The strain on the heart was lightened and the asystolia receded. Fluid in the legs can be let out by making one cut, two or three inches long, in the skin on the shin or by a cut behind each malleolus. A salt free diet has been used with some success, with milk left out of the dietary. Tyson's milk diet of two ounces of milk

every two hours, adds almost nothing to the amount of fluid in the blood. Hypnotics are required sometimes, and chloral, the bromides, veronal, and sulphonals are the best.

In acute nephritis, the success of bloodletting with subsequent isotonic grape sugar infusion is remarkable, but Strauss does not find it very encouraging in the different forms of uremia in chronic nephritis, although even in the latter temporary alleviation may be procured. For the eclamptic forms of uremia, lumbar puncture has been recommended, and Strauss uses it together with bloodletting. Eppinger and others recommend the extirpation of the tonsils for a removal of the cause of the disease in hemorrhagic nephritis with frequent relapses, in which signs of increase of blood pressure or dropsy are mostly absent. This procedure is based on the assumption that the source of the inflammatory attacks is to be sought in the bacterial deposits in the body, the production of toxins of which varies periodically. As the tonsils are frequently the seats of these deposits, they are removed, but this method has often failed. Edebohl's decapsulation of the kidney operation was much used some years ago, but its results were disappointing. H. Strauss recommends it only in cases of high grade oliguria which have lasted for a long time and are accompanied by an uremic or suburemic condition. It may also be used for the rare cases of unilateral nephritis dolorosa hæmaturica, *néphralgie hématurique*, or, as Kummel advises, in the unilateral nephritis apostematosa. J. F. Percy has used thyroid extract in nephritis with excellent results, but there have been no further reports to confirm his experience in a larger number of cases.

In conclusion, it may be said that free elimination by the skin, lungs, and bowels is of paramount importance in chronic interstitial as well as in chronic parenchymatous nephritis. Lung elimination is aided by fresh air, as is the anemia. The bowels are kept active by fruit, green vegetables, the coarser cereals, salines, cascara, senna, or aloes, and by occasional series of calomel or by elaterin. The stomach should be invigorated by bitter tonics, the headaches relieved by bromides, and the anemia combated by a judicious use of iron, and moderate exercise when the patient's health permits it. When the urine or urinary solids are deficient, digitalis, caffeine, potassium acetate, or theobromine sodium-salicylate may be employed.

The prognosis of chronic nephritis is much less favorable than that of the acute forms, but if the strength is kept up and the quality of the blood improved, life may frequently be protracted without suffering to the patient, and amelioration within certain limits may even be attained.

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30 EAST FORTY-SECOND STREET.

SUBSTITUTION REACTIONS.*

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In a pamphlet published in 1909, Lowenfeld (1) discussed a topic to which psychiatrists had hitherto devoted comparatively scant attention, namely those dreamlike states in which, as he says, usual impressions, customary sights, and occurrences appear altered to the patient, "as though they were unknown, strange, or the product of fantasy" and in which the patient feels as though he were "in a dream or half sleep, hypnotized or moving in his sleep."

Abraham, approaching this phenomenon from an analytic standpoint, has differentiated three stages of dreaminess, the first of which is dependent upon a fantastic trend of thought, the second upon an alteration in consciousness, and a further third stage of emptiness of consciousness which the patient may designate as a standstill of thought. He concludes, as the result of several carefully studied cases that these states often represent a substitutive activity for masturbation which has been discontinued (2).

Most of the patients in whom such symptoms appear, belong to that class of neurotics who begin masturbation early in childhood, and later engage in an unrelenting struggle to overcome the tendency. Although failure repeatedly attends their attempts to relinquish the habit, various expedients, some psychical, some physical, and others again punitive, are invoked to prevent sexual excitation and especially ejaculation. Not infrequently such a struggle results in ostensible conquest of the habit, and all physical manifestations may vanish, but unconsciously a demand persists for some substitution to satisfy the irrepressible libido.

The conflict between the wish and repression unconsciously finds a solution in the form of a compromise, but the significance of this substitution compromise is not recognized by the individual, or if its true nature is suspected, it is either condoned by him as being less pernicious or welcomed as being less obvious to outside observers. The substitution reaction is then permitted to proceed unrestrained until it interferes with the individual's normal activities or attracts the attention of his environment as an abnormality. It is in the light of Abraham's interpretation that the following cases are presented:

CASE I. The disorder of the patient in question, who was admitted to the service of Dr. B. Sachs, to whom I am indebted for the privilege of reporting the case, at the Mount Sinai Hospital, in April, 1913, is described by the house physician, Doctor Poll, as follows: "During the past six days the patient has had nine of her seizures. During these attacks she is apparently unconscious, holds her arms and legs rigid but her eyes fall limply closed. The pupils react to light. There is frothing at the mouth. She never cries out before an attack. In some attacks her face is noticed to twitch and grimace, and her fingers perform a movement as if playing the piano. She cannot be aroused by pressure on the supraorbital nerves nor by being pricked with pins." I might also add that the attacks lasted from twenty minutes to two and a half hours; that the patient was apt to lie down before they made

their appearance, and that after an attack, she felt languorous, weak, and thirsty. During these states, while the eyes were staring and apparently insensitive to visual stimuli, the corneal reflex was not abolished. The Babinski sign was not obtained after the seizure. The patient did not respond to threats or sensory stimulation during the attacks. When the patient was not in an attack, she showed ticlike movements of the hands, occasional grimacing of the face, and twitching of the body.

The patient's history and heredity, excepting as brought out subsequently, was irrelevant. She was an attractive, slightly undersized, intellectually alert child of thirteen years, who though, at first shy, when the restraint of diffidence was removed, conversed vivaciously and quite frankly.

Owing to the obvious differences between the symptoms which the patient manifested and chorea on the one hand and idiopathic epilepsy (whatever that might really be) on the other, it was thought advisable to make an investigation of factors which might have some determining force in the development of the disorder. Experience has shown that practically all of the so called diagnostically differential points between classical epilepsy and hysteria will not stand the test of rigid application, for even immobile pupils have been frequently observed in hysterical attacks, not to mention biting of the tongue, frothing at the mouth, and even incontinence of urine.

While acquaintance with the results of psychoanalytic investigations directed my attention to possible influences in the production of such a disorder, no analysis in the true sense of the term has been made—really nothing more than a synthesis of cause and effect, but the facts ascertained seem to support the theory of the Freudian school, that in such manifestations repressed wishes are allowed to attain a free egress.

After parrying for a long while to determine the type of personality under consideration and gaining nothing more than a casual knowledge of the patient's associates, her aims at school, and superficial home life, when I happened to banter her about a little crippled boy whom she had met at Lakewood, where she had been sent for a rest cure, she retorted with some vigor that she didn't care anything about him—"it was only child's love." The selection of this term "child's love" on the part of this twelve year old necessarily implied the conception in her mind of another and possibly more mature form of love, which assumption proved to be correct and furnished a basis for further revelations.

The absence of any palpable etiological factor seemed in itself significant, for the attack occurred early in February, after the child had successfully finished her examinations for promotion into a higher grade, and no plausible worry in school or at home could be held responsible for the disorder. To be sure a previous attack of "chorea" had been recorded, but as the malady from which she was then suffering could not be forced into that category, it was interpreted as functional, and on dynamic psychological theories must represent a reaction to antedating psychical processes.

According to the patient's own recollection, at the age of five years she began to manifest a lively curiosity and wonder in regard to the adult female breast, with an accompanying excitation at its exposure. In order to obtain such excitement, the pa-

*Read before the New York Neurological Society, March, 1914.

tient resorted to a method to which Freud has called attention—namely, the voluntary retention of stool, which he believes often affords a source of auto-erogenous sexual gratification. While in this case such a gratification may have occurred unconsciously, the child voluntarily “held back” until such times as her mother was taking a bath, when she would experience an imperative desire for stool and knock petulantly at the bathroom door until admitted. Although the subterfuge was abandoned after two or three years, sexual excitement at the present time is apt to produce an ardent desire for urination or stool.

Repeated *voyeuse* experiences of this kind had the effect of augmenting desire and clandestine curiosity, which shortly was transferred to women other than the mother, with fancies as to their physical formation. Even at the age of eight years, when her school teacher, concerning whom she had entertained fancies, fell backward, exposing herself slightly, the patient became intensely aroused. As a matter of fact, during recent years, the classroom had been a place for constant indulgence in fantastic imaginings.

From the patient's history, I was somewhat inclined to scepticism concerning the first attack of “chorea,” which the patient suffered at nine years. This, she subsequently acknowledged, began at the seashore as a nervous fidgeting while watching a young lady, to whom she had formed an attachment, bathing. So far as I can determine, the fidgeting, which began simply as an erotic manifestation, enlisted the young woman's sympathy and was protracted throughout the summer and for some weeks after the patient's return to the city.

Up to the age of nine and a half years, it appears that the patient's libido secured gratification through masturbation alone or with those visual fancies of females exposed. During the summer of 1910, a new means of gratifying her curiosity was offered her in assisting young ladies at their toilet in preparation for ocean bathing. She became violently infatuated with one of them, a Miss B., a well developed girl of seventeen years, whom she designates as “the dirty blond,” by which she indicates a person whose hair, while not blond, can hardly be called brown. After the child, as the aggressor, had excited this young lady in various ways, they began masturbatory intercourse, during which the patient, assuming the masculine role, would make her body entirely rigid while Miss B. performed coitus movements. The rigidity of the patient's body ceased after she had experienced an orgasm. Homosexual practices of this type with Miss B. continued throughout the summer without remorse on the patient's part—in fact, she was entirely happy. The following winter, the arrival from Europe of a young lady cousin, who shared the patient's room, permitted her to indulge her homosexual *voyeur*, and, to a certain extent, her contact desires.

During the summer of 1912, came the interruption in the patient's sexual activities. The European cousin had moved elsewhere shortly before the patient returned to the seashore for the summer vacation, where Miss B. also reappeared. Instead of exhibiting her former interest in the patient, however, Miss B., now a woman of eighteen years,

seemed engrossed in her own affairs with young men. This the patient could not tolerate and she began to mope, became abstracted and reticent, yielded to fancies and day dreams which frequently culminated in manual masturbation or orgasm by stiffening the body.

Masturbation with a love object seemed no longer to satisfy her, for in the patient's words, she “spent a dreary summer,” during which she “became like an old woman, and would not play with a young child,” and, “always liked to be in the company of older people.” On her return in the autumn to school where by chance her teacher, Miss C. happened to correspond to her homosexual physical ideal, she promptly recovered her interest, sublimated in extraordinary devotion to her teacher, which was rewarded by official recognition in allowing the patient to become “teacher's pet.” The exalted position in which the child held Miss C. impelled her to combat all sexual fancies in this direction—and quite successfully. On the other hand, reflections would occur during which the patient came to experience a phenomenon which she describes as follows: “It seemed that I always had to assume a certain position whenever I saw a woman exposed. I just felt stiff and could not move. I had to grip myself hard.”

When the patient was promoted in February, 1913, her first symptoms which led the family to consult with Dr. I. Abrahamson, became manifest. At first, these constituted merely jerky, choreiform movements, but later, also the seizures with rigidity of the body, noted by Doctor Poll. When confined at home at the outset of her illness, the patient wrote to Miss C., her former teacher, to come to visit her. Miss C. complied and, on entering the room, kissed her, which the patient says, made her “thrill all over.” After this first and last visit of Miss C., the patient's affection could not be transferred to her new teacher, and simultaneously a strong conscious effort to avoid thoughts which she believed unworthy had been growing upon her. The rigidity which began in connection with her sexual fancies, was combined with them to form an attack. In the words of the patient, “I go into the attacks to be alone with my thoughts.” So, though the patient attains the desire to be still more alone and avoid sexual activities which have become consciously distasteful, at the same time in the seizure psychical and bodily excitation is also gratified.

With the intense transference of the infantile libido upon the mother, so definitely established, it is not a far step to assume that the patient has begun unconsciously to identify herself with her father and perhaps wishes to assume her father's place with her mother. At all events, the rigidity seems definitely to represent the active role in coitus. On account of the patient's infatuation for the night nurse, it was considered advisable to remove her from Mt. Sinai Hospital. Inasmuch as she still maintains a certain degree of control over her attacks, which are consciously an attempt to secure isolation for her fancies at whatever time some external stimulation may induce desire for relief, she has usually managed to defer them until she is alone. The relatives, seeing no further active symptoms, are inclined to abandon treatment,

though the child, fully appreciating the situation, has urgently begged me for aid. Naturally, under the circumstances, in view of the patient's youth, it has been necessary for me to drop the case.

CASE II. The patient, aged eighteen years, the son of a prominent Newark physician, was referred to me by Doctor X, whom he had consulted for a fear of insanity. I might mention that he had previously applied to his father for aid, complaining of nervousness and relating his fears, but when his father treated the affair lightly, and prescribed a favorite spring tonic from one of the large demijohns in his drug room, the patient, very naturally convinced that his case was misunderstood, refrained from asking further advice from his father and struggled alone for a short time before seeking aid elsewhere. According to the patient's own account of his life, he remembered practically nothing of his infancy, except certain rooms in the house which the family occupied up to the age of six years when he entered school. For the next six years, he made excellent progress in his studies and enjoyed the companionship of boys of his own age, with all the apparent happiness of the average child. Toward the age of thirteen years, he became aware of certain mental peculiarities, namely, "a feeling of unreality came over him several times" and occasionally there was "a numbness of the mind," which was soon followed by an appreciable deterioration in his school work, notwithstanding more vigorous attempts at application to his studies. Simultaneously, he began to experience a feeling of being "apart from his fellows," "of self consciousness," and a "growing inability to converse."

Notwithstanding these handicaps, he entered the boys' high school at fourteen years of age, where he encountered great difficulties in studying through incapacity for concentration. He finally left school to take a course in a business college, after which he entered various mercantile houses in inferior positions, but repeatedly lost his place. After his first few visits, at my request the patient wrote of his condition in the following terms: "At intervals, a feeling of not being totally conscious comes over me . . . a certain blurred condition of persons and things about me which I do not think is due to any faulty state of my eyes. . . . It is a numbness of the mind. . . . Moreover, every five or six months, a feeling of morbidly comes over me—a sensation which as nearly as I can describe it, is one of dissociation—as though I were not part of the earth. It comes without warning and leaves me suddenly. Ever since the first attack at thirteen years, I have so dreaded the next, that the strain is such, that I can bear the condition no longer . . . I have lived a perfectly chaste life and have no sexual disorders."

When the patient's extreme reticence had been replaced by a certain degree of confidence—"transference," if you will—he recalled many facts through which the disorder might be traced. Instead of the emphatic chastity of which the patient wrote, in actuality there had existed a fairly early sexual precocity, including attempts at coitus at the age of six years with a little girl of the same age, and a pronounced interest in suckling, both actively at the breast of his little girl playmate and passively as the observer of a mother with a child at the breast, both of which acts caused him definite erotic excitement. He was surprised while in an attempt at coitus by his elder sister, at that time a young woman, who warned him against such practices or allowing his mind to dwell upon anything obscene.

Frequently from the age of six to ten years, he slept with a maternal aunt, which enabled him to humor his curiosity, and when at the age of eleven years, he began masturbation, it was largely stimulated by retrospective fancies concerning his aunt and of the intercourse with his six year old girl playmate who had passed out of any social contact with him after their first meeting. Shortly after beginning masturbation, his sister's warning recurred to him, but he pacified himself with the excuse that while actual-physical contact with the opposite sex might be open to censure, no evil effects could result from autoerotic thoughts alone. At eleven years, he began the practice of massaging the arms and neck of the maternal aunt with whom he had formerly slept, and though this continued for more than two years with the complete assent of the aunt, the episodes caused the patient to have erections and a constantly augmenting sense of guilt. Finally, fearing the

aunt might suspect that he derived sensual gratification from the practice, he abstained completely at the age of thirteen years.

About this time the dreamy states made their appearance, and although the patient never consciously attempted to induce them, when his attention was called to it, he admitted that they at times replaced the impulse for masturbation. The first feeling of unreality occurred when the patient was actively struggling to obliterate sexual desires while at a variety theatre with his parents. Although the patient has no definite recollection of the nature of the performance, nearly all his associations with that particular theatre were of a sexual character, and it seemed not improbable from other sensations which the patient described, that this feeling of numbness or emptiness represented an ejaculation at a time when the customary relief for the libido was denied him.

Similar experiences took place, but curiously enough only when the patient was alone. For the past two years masturbation had been entirely mastered, but the dreaminess, the abstractions, and the numb feelings multiplied, and before beginning treatment were complicated with frequent emissions without erections.

CASE III. The patient, aged twenty-six years, had been brought up with every advantage* which education and wealth afford, with the exception of attention to the direction of the sexual demands of his nature; a graduate of Columbia University; first consulted me for what he described as "an explosive feeling in the testicle." It soon developed that a great number of other symptoms had harassed the patient, one of the most annoying being a feeling of drowsiness, especially when traveling in trains. Such sensations coming over him at inopportune moments, had compelled constant caution as to his movements and restricted his social activities. This symptom occurring in a barber's chair in connection with the testicular pain, was one of the circumstances which decided him to seek treatment. The household in which the patient lived was one in which conventionality and propriety were developed to such an extent of prudery that any reference to matters of sex was considered improper, and on the occasion of the inevitable little household occurrences of a sexual nature, the patient was taught to consider them as being funny. Both parents would pass such episodes off with laughter which the patient suspected was intended to conceal their own embarrassment. Notwithstanding the artificial attempts of the parents to ignore sex, the patient's innate libidinous forces revealed themselves early, in the form of an attachment to the mother, which was coupled with such evident sexual curiosity that the patient was repeatedly warned that if he entered his mother's room while she was disrobing, he would become blind.

Disregarding for the purposes of this brief presentation, the manifold evidences of childhood sex activities and the ramifying disease symptoms of this case, not one of the least significant of which was his blurred vision (possibly originating a mother's warning of blindness), suffice it to state that masturbation began at twelve years with the rather unusual procedure of lathering the genitals while in the bath (possible connection of dreamy state in the barber's chair). Though no sense of guilt, on the contrary, a playful spirit accompanied the act at this initial stage, presently the inevitable conflict between the parental attitude on such matters, strengthened by terrifying information gained from external sources and the patient's increasing adolescent libido, took place, with attempts to regulate the desire.

Shortly after the onset of the habit, nocturnal emissions following erotic dreams often troubled the patient. As he began to complain of weakness of the eyes, he was taken to the family physician who referred him to an ophthalmologist. At one time, however, the family physician, a leading consultant of this city, inquired of the patient whether he masturbated, at which the patient promptly and stoutly lied. When this query was followed by another, in a milder tone, as to nocturnal emissions, the patient deeming this less harmful, confessed and, to his astonishment, found that the physician seemed to approve of such a circumstance as being quite natural. After receiving medical sanction for the pollutions, the patient consciously attempted to defer erotic gratification until it should find its egress in nocturnal pollutions. This compromise for the masturbatory activities not proving completely satisfactory, he

substituted a voluntary dreamy, half sleep stage, during which he humored his desires with fancies of contact and exhibition, a substitute which might or might not be allowed to culminate in ejaculation.

When engaged in the conflict which always preceded masturbation, he would usually think of his mother, with the idea that the thought of her would enable him to banish his own erotic cravings, but when unsuccessful in curbing the impulse, he would intentionally direct his thoughts to a person of a lower social scale who had at some time excited him—usually a servant girl. Very probably, the thought of his mother, the object of his early infantile fixation, in itself unconsciously furnished an erotic stimulus, which very natural resistances, engendered through a high ethical sense, forced him to displace into a lower social plane. Not until he entered college would the drowsy periods occur without conscious knowledge on the patient's part of their connection with sexual activities. Invariably at 3 p. m., he noticed a feeling of drowsiness which he would fight for ten minutes, but he would grow more and more sleepy. This was succeeded by a feeling of absolute absence of any mentation—a mental vacuum—for five minutes, from which he would awake with a sensation of general muscular shrinking and a start, which he always attempted to prevent his classmates from observing. With the exception of slight nausea after such an attack, the patient could continue his classroom work without the slightest impairment of intellectual discernment.

While it is impossible to adduce many other points on which the following interpretation is based, it would seem that the fight represented the struggle against masturbation; the dreaminess stood for the fancies, the mental vacuum corresponded quite closely to the emission completed, and the feeling of muscular contraction on awakening, to the contraction after ejaculation. The significance of nausea—for which the patient was often treated in his childhood as "stomach trouble"—is also interesting, for it was a very general accompaniment of his erotic activities. It seems to be more than a matter of chance that the patient's classes at three o'clock—at time of the drowsy attacks—during his college course were economics, social ethics, and philosophy.

Masturbation has been practically discontinued for over three years, but the drowsy states have increased alarmingly, though their connection with his former habit, as being another form of the same thing, never even occurred to the patient until the explosive feeling in the testes made its appearance about a year and a half ago and caused him to think that his mental lapses might have a sexual significance. From an analytic point of view it is not without import that in college the patient specialized in sociology, devoting particular attention to street cleaning and to prostitution, and also, that not long after his mother's death, he became engaged to a young woman of inferior social station—a barber's daughter.

The presentation of these fragments of analysis is offered for the purpose of showing the transition to, and substitution of dreamy or abstracted mental states, which in two of the cases has been almost conscious, in the process of relinquishing masturbatory activities. The fact that in each of these cases, the dreamy or abstracted states have occurred at such times when the patient still yielded more or less frequently to masturbation, is only an apparent contradiction to the interpretation of these conditions as a substitution reaction. For, as Abraham has pointed out, it is just at such times that urgent moral remonstrances prevent the patient from sur-

rendering to the pressure of his desire with entire abandonment. Moreover, the libido has usually advanced to such a plane that simple masturbation no longer yields full sensual compensation. I have expressly refrained from including the various other psychopathic manifestations, such as hallucinatory experiences, anxiety states, and psychical symptoms, such as palpitation, tremors, asthmatic attacks, etc., which may be produced by transient or persistent repression of the libido.

The very much broader scope of normal psychical substitution or sublimatory reactions into art, music, religion, and philosophy, which in two of these cases appear quite transparent—music and Bible study in the case of the physician's son, art and settlement work in the Columbia graduate—have not been pursued, though they are inestimable in their effect. For the cultivated person of the present time, whatever his social or material condition may be, is compelled to restrict his libido in a sexual sense, unless he wishes to combat the important hygienic, social, and ethical demands of society, and, not infrequently unconsciously, is driven ardently into the accepted activities of life with the practical result of such a devotion to his work of valuable original achievements in science and art, exploration, and invention.

Whether one agrees with the interpretation of the mental states in these cases or not, they at least indicate that mere elaborate description of these or other neurotic conditions is insufficient without some effort on the part of the neurologist to grasp their origin and explain the motive forces and stipulations which they serve to represent.

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249 WEST SEVENTY-FOURTH STREET.

GONORRHEAL STOMATITIS.

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CASE. Woman, aged twenty-one years, single, living at home, not employed. General appearance and physical condition good. Family history negative. First noticed, about a week before, a hot, burning sensation in mouth and throat. Hot or cold liquids or foods did not seem to aggravate or relieve this at first. Later an attempt to swallow anything caused a great deal of pain. Had noticed a very foul breath and incessant desire to expectorate for past two days. Swelling and aching under the tongue and at the angle of the jaws present for twenty-four hours.

Objectively, the patient presented the symptoms of mercurial salivation. The breath was very foul, expectoration was frequent but not copious, the sublingual and anterior cervical glands were enlarged and tender. The parotid on the left side was visibly enlarged, and wide opening of the mouth was impossible without great pain. There was evidence of pyorrhœa alveolaris, and on close macroscopic examination of the expectoration it seemed to be true pus, stained slightly pink with blood. The tongue was swollen and covered with granular patches that bled easily. Pus was seen oozing from under the tongue and from the region of the tonsils.

Patient stated that she had taken no tablets nor internal medication of any sort for months and had had no injections. Being unmarried and giving no history of any symptoms of a syphilitic character, I dismissed my first impression of mercurialism.

I informed her that in my opinion she should consult a

throat man as her trouble seemed to be of tonsillar or pharyngeal origin. Her hesitating manner of answering my questions, and her refusal to consult another man led me to a closer questioning that elicited the confession of the practice of a sexual perversion, *fellatio*, with her sweetheart. Microscopical examination showed typical intracellular gram negative diplococci. Later cultures proved the organism to be the gonococcus.

The alternate use of organic silver preparations and mild astringents followed later, when the acute symptoms had subsided, by local applications of silver nitrate and subcutaneous injections of autogenous vaccine, readily controlled and cleared up the condition. The source of infection was proved later, when the sweetheart came under my observation with a gonorrheal prostatitis.

I report this case, because gonorrheal stomatitis is not a common condition, although the presence of the gonococcus in the mouth and throat without other pathological conditions, is not an uncommon thing, especially among those who suffer from sexual perversion.

THE ATHERTON.

THE PRESENT STATUS OF FUNCTIONAL LIVER TESTS.*

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For some years efforts have been made to establish satisfactory tests for the functional capacity of the liver, which, owing to the complexity of the processes involved, have never been altogether reliable nor have they added definitely to our grasp of the case under consideration. The recent striking successes with similar tests on the functional capacity of the kidneys—a far simpler problem—have naturally stimulated such efforts, with the result that no less than seven different types of tests have been suggested in the past two years.

The functions of the liver, upon one or the other of which these tests are based, comprise: 1. Secretion of bile; 2, detoxification of poisons; 3, storage of fat; 4, storage of glycogen and conversion to sugar; 5, formation of urea from ammonia; 6, formation of urobilinogen; 7, relation to the formation of fibrinogen and antithrombin.

All these functions are ultimately referable to the single homogeneous unit of the liver cell, whether concerned with the external secretion through the bile capillaries or its internal secretion through the blood stream. Several difficulties, however, stand in the way of getting at the functional state of this unit—the liver cell. The bile cannot (like its analogue the urine) be secured for study in clinical cases; the liver possesses a large “margin of safety” which may prevent the exhibition of functional disability until an overwhelming disorder exists; in chronic processes the accompanying regeneration of liver tissue might effectually mask the destruction that had occurred; and finally it is highly probable that different types of injury might

affect different functions or the several functions disproportionately. With these reservations in mind let us consider briefly several tests that have been suggested for the clinical use.

Based on Sach's observation that dehepatized frogs showed a lessened tolerance for levulose, but not for dextrose, Strauss proposed, in 1901, the well known levulose test. One hundred grams of levulose in a half litre of water, taken on an empty stomach, should be sufficient to cause the appearance of levulose in one or more of four hourly specimens of urine, if liver disease is present. The presence of levulose is determined by polariscope or by the Seliwanoff hydrochloric acid-resorcin test. Following several unfavorable criticisms of this test, Strauss last year again emphasized its value; but his own collected figures illustrate just how valuable it is: In 127 cases of cirrhosis of the liver, it was positive in eighty-three per cent.; in twenty-seven cases of catarrhal jaundice, positive in seventy per cent.; in thirty-two cases of obstructive jaundice, positive in 62.5 per cent.; in twelve cases of syphilis, positive in seventy-five per cent.; and forty-two cases of tumor, positive in thirty-eight per cent. In 175 cases of nonliver disease, however, it was positive in 14.8 per cent., or twenty-six cases. In six cases of liver disease at the Pennsylvania Hospital, I found the Seliwanoff reaction positive in all; but in twelve cases of nonliver disease (typhoid fever, pleurisy, fracture of femur, etc.), it was also positive in eight. It is better not to consider the test positive unless sufficient levulose is present to reduce Fehling's or Trommer's solutions, which might eliminate the positive reaction in many nonliver cases. In none of the above nonliver cases was the reduction reaction present.

A similar test has been proposed by Bauer with forty grams of galactose. I have had no personal experience with this test. Bauer considers it to be chiefly of value in testing the liver function in catarrhal jaundice. According to Strauss, it is less frequently positive in liver disease and “seems to be more sensitive with disturbances of nervous origin.” Hohlweg has varied the levulose test by determining the threshold response of alimentary levulosuria thus: At two to three day intervals, different amounts of levulose, fifty to 100 grams, are given under identical conditions. The lower the amount necessary to produce levulosuria, the more severe the liver involvement.

The urea forming function has been utilized as a basis for another type of liver test, but is open to the serious objection that urea is probably formed in other parts of the body as well as in the liver. Recently, however, several French observers have reported that the urea content of the blood is constantly diminished in liver disease. By the more accurate, recently described, methods of Folin and Denis, C. B. Farr and I have examined the blood in twenty-seven cases of liver diseases with normal controls. We found that in fourteen cases of cirrhosis and passive congestion of the liver, the urea content of the blood, expressed both in grams and in percentage of the total noncoagulable protein, remained practically unchanged. In a few cases of cancer of the liver, catarrhal jaundice, and eclampsia, a lowered urea percentage was usually, but not

*Read before the Section in Medicine, College of Physicians, Philadelphia, May 25, 1914.

constantly found. No opportunity was offered for studying such acute types of liver disease as acute yellow atrophy or phosphorus poisoning, which correspond more closely to the experimental liver injuries on which are based some of the tests about to be described. The urea content of the blood, therefore, is certainly, according to our present knowledge, an unreliable test of liver function, though it may be of value in certain restricted types of liver disease.

The relation of the liver to the production of fibrinogen in the blood, has furnished Whipple, Peightal, and Clark with another test of liver function. The blood of dogs whose livers had been experimentally injured by chloroform poisoning, etc., was found by them to contain much diminished quantities of fibrinogen. Whereas the normal amount varied between 0.2 and 0.5 gram per 100 c. c. of blood, in chloroform poisoning it might fall below 0.04 gram. The amount of fibrinogen is estimated after heating the oxalated plasma of ten to fifty c. c. of blood at 59° C. for twenty to thirty minutes, either volumetrically by centrifugating at a given speed for five minutes, or by weighing the washed and dried precipitate. I tried this test on ten of the series above mentioned with controls, but was unable to find any noteworthy or constant difference from the normal amounts, which would be of any diagnostic or prognostic value clinically.

Another test proposed by Whipple concerns the amount of lipase present in the blood serum. Using Lowenhardt's method, he found that the normal amount, 0.2 to 0.3 c. c., is greatly increased in the experimental liver lesions before described. The test is performed by adding 0.26 c. c. of ethyl butyrate to one c. c. of oxalated plasma or serum diluted with 4 c. c. of water and 0.3 c. c. of toluol, to duplicate tubes. After shaking, stoppering, and incubating twenty-four hours at 38° C., the amount of butyric acid converted by the blood lipase from the ethyl butyrate is determined by titration with decinormal hydrochloric acid and sodium hydrate (azolitmin indicator). Whereas the control tubes (without ethyl butyrate) should show an alkalinity equal to 0.1 c. c. decinormal acid, the butyricized serum normally shows an alkalinity equal to from 0.1 to 0.2 c. c. decinormal alkali (i. e., the blood lipase equals 0.2 to 0.3 c. c.). In Whipple's experiments, blood lipase was found as high as one to two c. c.; here again I was unable to find any noteworthy or constant differences in the ten cases examined. These two tests, therefore, which give such admirable results after experimental lesions, are apparently not applicable at present to the ordinary type of liver disease. In the more obscure toxic conditions corresponding more closely to experimental lesions such as acute yellow atrophy and phosphorus poisoning, these tests may prove of value.

The presence of urobilinogen in the urine, if associated with skin hemorrhages, was first taken to indicate liver disease by von Jaksch, in 1892. This has been confirmed by Folk and Saxl, Nesbitt, Eustis, Hausmann, and others, but I cannot speak about it from personal experience.

The most promising of the more recent proposals is the phenoltetrachlorophthalein test put forward by

Rowntree, Hurwitz, and Bloomfield. During the course of a previous pharmacological search for a cathartic of protracted action, it was observed by Rowntree and Abel that this phthalein derivative was eliminated entirely by the bile. The success of sulphonephthalein as a kidney test suggested its use, therefore, in the analogous liver situation. The test is performed as follows: The fluid must be freshly prepared by boiling 2.5 grams of the drug with five c. c. of a double normal sodium hydroxide solution and 45 c. c. of freshly distilled water in an Erlenmeyer flask under a reflux condenser for twenty minutes. Eight c. c. of the filtered solution, approximately isotonic with blood, is given intravenously by gravity, washing in with normal¹ salt solution until the entering fluid is colorless. With free purgation the stools are collected for forty-eight hours, diluted to one to 1.5 litre, shaken, and one tenth the amount added to five c. c. of forty per cent. sodium hydroxide, and shaken. To 100 c. c. of this preparation five c. c. of saturated basic lead acetate is added, giving a clear fluid. Five c. c. of sodium hydroxide is again added, bringing out a red color. The contents are made up to 200 c. c., filtered, and compared in a colorimeter with a standard solution, twenty mgm. of the drug to the litre with sodium hydroxide, enough for maximum color. About thirty to forty per cent. is normally recovered.

Thirty-seven cases of liver disease were studied. Of eighteen cases of passive congestion associated with myocardial insufficiency, eleven were practically normal, seven showed some reduction. Two cases of cirrhosis and three of carcinoma of the liver showed reduction, while three of carcinoma of the stomach and gallbladder showed a normal output.

Objections to this test are: 1. The small percentage recovered in normal cases; 2, the unknown factor of the varying amounts resorbed with the bile by the intestine in the "circulation of the bile"; 3, the difficulties of technic—fresh preparation, intravenous injection, collection of feces, etc.

My experience with this test is limited to two or three cases in which results similar to Rowntree's were obtained. The series of cases I have previously mentioned were examined according to this method before it was published, and a constantly repeated error in my preparation of the solution vitiated my results. It is to be hoped, however, that further investigation will prove that the test is as valuable in other hands as in those of the authors.

Other recently proposed signs of liver injury depend on increased permeability of the liver to methylene blue (Babaiantz); positive Abderhalden reaction (Breitmann); lessened polarization of light through a test mixture of glycogen and the patient's serum (Ghedini). This depends on the presence in the serum of a ferment from the liver which changes glycogen to glucose. In nineteen cases of liver disease, this ferment was found to be much diminished or absent. Although certain objections

¹The distilled water suggested by the authors should not be used, as sufficient hemolysis may be produced to cause disagreeable symptoms. See *Journal A. M. A.*, lxii, 992, 1914.

are apparent to some of these tests and all still lack confirmation, I shall refrain from discussion, as I have not had any personal experience with any of them.

SUMMARY.

Although no satisfactory single test for the functional capacity of the liver has yet been accepted, the phenoltetrachlorphthalein test of Rowntree promises the greatest value.

The levulose and galactose tests, though easy of application, are positive in too many nonliver cases to be considered reliable.

The amount of urea in the blood or urine or its percentage to the total noncoagulable protein is totally unreliable in cases of cirrhosis or passive congestion. Like the tests for fibrinogen and lipase content of the blood, however, it may be of value in such obscure toxic conditions as phosphorus poisoning or acute yellow atrophy, where the great mass of liver cells is simultaneously and deeply involved.

Tests for urobilinogen in the urine, increased permeability to methylene blue, positive Abderhalden reaction, and diminished glycolytic activity of the blood serum have also been described.

The careful employment of one or more of these tests in the study of any given case of liver disease will unquestionably reveal facts of value. Further clinical and experimental work in this direction will probably furnish a diagnostic technic, the success of which is comparable to that employed in diseases of the kidney.

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WEST MERMAID LANE, ST. MARTINS.

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CL.—What is your experience with belladonna or atropine in the treatment of alcoholism? (Closed.)

CLI.—How do you treat whooping cough? (Answers due not later than October 15th.)

CLII.—How do you treat bedsores? (Answers due not later than November 16th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best essay submitted in answer to Question CXIX was awarded to Dr. Melville A. Hays, of New York, whose article appeared on page 673.

PRIZE QUESTION NO. CXLIX.

THE TREATMENT OF THE OPIUM HABIT.

(Continued from page 675.)

Dr. Mahlon Ashford, of Fort Washington, Md., observes:

The successful treatment of the opium habit demands an accurate conception of the nature of the disease, combined with skillful utilization of this knowledge. The vice must be consistently recognized as a disease, not as a moral state; the victim is a sick man, not a miscreant to be despised or verbally flagellated with maxims of superior righteousness or virtue.

This habit is a psychopathic neurosis, in which there is a subnormal aberration of certain cerebral functions governing the will of the individual. Its continuance induces physical, mental, and moral deterioration with characteristic pathological results. Consideration of the etiology is important in attaining the philosophical viewpoint, and imperative in treatment of the individual. Few diseases compel greater attention to underlying causative factors, or to the sensibilities and susceptibilities of the patient. The opium taker does not persist from malignant enjoyment of wrongdoing, but

from lack of backbone effectually to combat a craving self recognized as ruinous to his every interest. How shall we treat such patients? It being impossible to inject deficient qualities, we must educate and strengthen such defective cells as the patient does possess. This demands unending patience, character-insight, study of the individual, and chiefly superior compelling moral character, which by its magnetic power will awaken the dormant faculties of the drug taker.

I begin by endeavoring with the utmost tact to secure the patient's confidence. This vantage, once gained, must never be forfeited. Confidence established, I make a thorough physical examination, including a Wassermann, a search for intestinal parasites, a uranalysis, and an estimation of red cells and hemoglobin. I supplement this with a careful history, noting especially antecedent luetic or tuberculous taint. I observe what interests and ties the patient holds most dear; for these, when cultivated, must become his sheet anchor. Awaiting a favorable moment for 'decisive' action, meanwhile I treat any physical malady revealed by this clinical study.

The propitious moment for proposing radical treatment succeeds some unusual event which has produced in the patient a period of illuminative introspection and remorse. I strive to produce full realization of his folly, and accentuate its pernicious effect upon himself and his loved ones. Calling on his noblest tendencies, I exert every persuasive faculty to secure his consent to submit himself fully to my instructions. This granted, I place him at once in a selected sanatorium there to remain two months. This institution meets certain prime requirements. Its situation must be healthful and attractive; grounds, buildings and apparatus adequate; management patient and tactful toward patients and in sympathy with attending physician. The entire house staff of nurses, attendants, and servants must be trustworthy to exclude clandestine drug traffic.

In cases of established habit, it is usually cruel and dangerous to cut off the drug abruptly. Customarily I ascertain the amount to which my patient is habituated, and his usual interval between indulgences. Thus informed, I institute systematic reduction in the amount given and progressive extension of the time between administrations; so that the patient not only accustoms himself to ever lessening opium, but also learns to forego the nerve stimulation for lengthening periods. Thus I strive to cast off his physical or nerve dependence upon opium, because this insistent demand of the nerve cells constitutes the strongest bond by which he remains enslaved. The reduction in dose is relatively greater at first, whereas the extension of the period of abstinence is at first slight, but progressively increases, and it is not until the patient has become so accustomed to the deprivation, that I order total discontinuance. Regardless of the patient's prior custom, I employ opium deodoratum in capsule as the mode of administration least suggestive of habit. When compelled, I use paregoric. In highly intractable cases, in which I suspect taste habit. I gradually dilute the opiate with bitters. The drug is first given by rule as prescribed, but the patient is soon encouraged to extend the time between

doses. I heartily praise voluntary manifestations of self control, and treat moments of failure of purpose kindly but with inflexible determination to conquer, often associating my evident decision with the patient's lack of it in such plural phrases as, "We said *we'd* do it, and *we* will," so that the patient is led to feel that the fight is not waged by himself alone, but with the aid of a determined ally. I definitively terminate the use of opium within one month, during the first half of which the greatest reduction of the drug is made.

I keep the patient in bed on restricted diet during the first week of treatment. Thereafter I encourage him to partake moderately of food which is wholesome and attractively served. I require him to engage in athletic exercise, games, reading, or other occupation agreeable to his age, sex, and temperament. I tell him that the practice of self control is requisite to increase his stock of that quality, and that every capitulation to his desires is a step backward. By exercising discretion in the reduction of opium, I avoid so far as possible the usual features of abdominal pain, diarrhea, sleeplessness, and nervous collapse. When they are encountered, I energetically combat them so that my patient will have no excuse for relapsing. For abdominal distress I first use Dewee's carminative; later, extract of *nux vomica*, 0.16, capsicum, 0.065, *asafetida*, 0.130, in a capsule every two hours. For diarrhea I give gambir and chalk mixture, of which a tablespoonful is taken every three hours. I also employ at times bismuth subgallate and ginger for this symptom. For insomnia and extreme nervousness, I employ primarily hydrotherapy and skilled massage, followed, in persistent cases, by sedatives or hypnotics. The patient is never informed what drug is so used, nor do I long continue the use of one drug or derivative. After one month's freedom from opium or any substitute, my patient is discharged.

Dr. V. B. Halbert, M.D., of Sylvania, Ohio, remarks:

The treatment of the opium habit viewed as a neurosis is, in the consideration of every patient, a distinct problem which he who runs may not read. The treatment resolves itself into the study of the patient, of his particular needs and tendencies, and into the management of his case under the following heads:

1. *Place for treatment.* The opium habitué can be treated in the home by the general practitioner, but he is more successfully managed in a suitable institution where complete isolation, absolute extended rest, and constant surveillance may be had. The patient's room should be on the first floor and preferably provided with a sleeping porch. Complete isolation may be necessary, only during the period of withdrawal of the drug.

Most cases requiring treatment should have absolute rest for at least six weeks, and relative rest for six weeks in addition. From constant surveillance there is no appeal. One attendant should not be allowed to leave his patient until he has called another to serve during his absence, however short.

2. *Withdrawal of the drug.* Withdrawal of the

drug should be gradual in order that the system may accommodate itself to the better condition not less harmoniously than it has to the perverted condition.

3. *Diet.* Inasmuch as the treatment is eliminative and reconstructive, it follows that the diet must correspond to the individual needs of the patient, beside being easily digestible and specially nutritious. If persistent diarrhea is present, a glass of boiled milk or rice boiled in milk serves well. If constipation exists, laxative foods are of course desirable. Reconstructive foods are best obtained from eggs, milk, cereals, fruits, and vegetables.

4. *Drugs.* In the use of drugs as in the diet, no general rule applies. The patient must be treated according to his particular needs. It is well to remember that his neurotic condition is aggravated by his physical discomforts, and also, usually, that large doses of medicines are required. If nausea persists, moderate but frequent doses of ipecac often relieve. Large doses of gelsemium, unless contraindicated, are useful if the patient refers pain and tenderness to the muscles. For relief of the troublesome general pruritus, calcium chloride internally, forty grains every twenty-four hours for three days, and externally, thymol, ten grains to the ounce of ointment or oil, have proved serviceable. Twenty grains of tannin nucleoproteid every four hours usually controls persistent diarrhea. Proper drugs intended to stimulate the sluggish eliminative organs are always in order. But in the weakness and extreme restlessness of opium neurosis, perhaps no one prescription seems more generally applicable than the following in form of an elixir, each ounce of which contains of potassium, sodium, and ammonium bromide, forty grains each; of zinc bromide, one grain; of extract of belladonna, one fourth grain; of extract of hyoscyamus, one eighth grain; of extract of kola nut, thirty grains. In some cases a teaspoonful of this elixir may be given while necessary every two or three hours, in, or followed by a glass of hot milk.

5. *Psychiatry.* The opium neurotic must gain from the very manner, from the methods, and the conversation of his physician and attendants, lessons in firmness, self control, and cheerfulness. If the patient has a wholesome harmless hobby, let him ride it. Occasionally, the physician will find a hypodermic injection of sterile water advantageous.

6. *Hydrotherapy and massage.* One would indeed feel at a loss if deprived of the beneficial effects obtained from hydrotherapy and massage in the treatment of the neurotic victim of the opium habit. The hot cleansing bath increases elimination by the skin and should be employed frequently. The cold pack stimulates and equalizes vasomotor control. The tepid shower preceded by a gentle general massage, acts as a sedative and should be resorted to as often as occasion requires. Hydrotherapy in its various indicated applications is to be preferred to drugs in combating the insomnia of opium patients.

In the last analysis of the treatment of the opium habit viewed as a neurosis, it will be found that the resourcefulness, patience, and firmness of the physician in charge greatly determine the result.

Therapeutic Notes.

The War and Drugs.—Among the disastrous effects of the conflict now raging throughout the greater part of Europe, one that strikes the medical profession in America hardest is the scarcity of certain drugs which have been derived largely, if not solely, from the several countries engaged in the war, or, as in the case of *nux vomica*, reach America through belligerent countries. The list of such drugs is considerable, but fortunately the larger number is made up of those of minor importance. In fact, the members of this larger group should probably find no place in scientific therapeutics of the present day. But among the small group of important drugs are numbered some of the utmost value. In the case of some of these, the strictest economy may suffice to make the small supplies, available from regions not too directly affected, adequate to our needs for some time to come. But their scarcity is reflected in the enormous increase in price, and for this and other reasons it will be necessary to seek substitutes wherever their use is possible. The following table will perhaps serve to suggest some of the possibilities along this line:

Nux vomica and *strychnine*; bitter tonic, nerve stimulant; *Ignatia*; dose: 0.03-0.2 gram, one half to three grains; it is also possible to extract strychnine from *Ignatia*, but its yield is too low to make this profitable under ordinary conditions.

Opium and derivatives; analgesic, hypnotic, antispasmodic, antidiarrheal. No substitute is possible which combines all of these properties, but analgesia might be secured by *acetanilid*, dose: 0.2 gram, three grains; the hypnotic action by *American cannabis*, which is identical with *Cannabis indica*, though somewhat less active; dose: one c. c., fifteen minims of the tincture, or by *humulus* or *lupulin*, dose: 0.5 gram, 7.5 grains; the antispasmodic action by *hyoscyamus* or *stramonium*, dose: 0.6 c. c., ten minims of the tincture of either drug; and the antidiarrheal action by the use of *tannates*.

Cannabis indica; hypnotic, narcotic; *American cannabis* is similar save in strength, being somewhat less active and given in larger doses.

Atropine, belladonna; antispasmodic, mydriatic, hypnotic; *Hyoscyamus*, dose: 0.6 c. c., ten minims of the tincture, which is now cultivated in America and which yields hyoscyne and hyoscyamine. *Hyoscyne* is an efficient hypnotic and may be used in doses of 0.5 mgm. (1/130 grain). *Hyoscyamine* is a powerful mydriatic and can be used in solutions of about the same strength as those of atropine. *Stramonium*, dose: 0.5 c. c., ten minims, of the tincture has actions similar in many respects to those of belladonna, particularly as an antispasmodic.

Physostigmine; stimulant of smooth muscle, particularly in the intestine and eye; *gelsemium*, dose: 0.5 c. c., ten minims, of the tincture, and *Piscidia erythrina*, dose: 1.25 gram, twenty grains, are both reputed to have a stimulant action on the intestinal musculature.

Ergot; ecboic, stimulates uterine contractions after delivery; *pituitary extract*, dose, usually about one c. c., fifteen minims, of the average liquid preparation by hypodermic injection. *Epinephrine*, also by hypodermic injection in doses of about 0.6 c. c., ten minims of a one to 1,000 solution.

None of the German proprietary synthetics can now be imported, though we understand that steps have been taken to do so, but as a large proportion of these newer remedies are still in the experimental stages, their absence should not be felt to the extent to which the lack of the drugs already mentioned must be felt. Nevertheless, some of the synthetics have found well merited places in our drug therapy. Of these the chief are the coal-tar derivatives of the

antipyretic and analgesic group. But the skillful use of *acetanilid* and *acetphenetidin*, both of which are official in the pharmacopeia and are made in the United States, should fill this gap. The newer salicylate preparations can well be replaced by a return to the use of *sodium salicylate*, the tendency to gastric disturbance being largely obviated by the simultaneous administration of an excess of sodium bicarbonate. Some of the cocaine substitutes have risen to considerable prominence of late, but it is quite an easy matter to revert to the use of *cocaine* itself, particularly since we have learned more about the means of preventing its toxic actions. Its sterilization, a bugbear of the past, can be effected quite simply without danger of causing its destruction. Among the simple bitters *gentian* is the most important one which has been excluded by the war, but its place may well be filled by *calamus* which is indigenous to this country. The tincture may be used in doses up to four c. c., one dram.

The only important drug which we have omitted from the preceding list deserves special mention in this place. *Digitalis*, the most valuable drug we have for direct action on the heart, has heretofore been derived almost exclusively from England and Germany. It is fallacious to believe that only such supplies are of the first class, and it has been repeatedly shown in recent years that the plant cultivated in America is of quite as good quality and high activity as that grown in Europe. It is true that its cultivation here is not very extensive, but it can be made so, for the first year plants are not inferior to older ones. Furthermore, it is known that *digitalis* of excellent quality grows wild in great profusion in the northwestern States, and the sole reason why these have not been made a source of our domestic supply has been that there was no incentive offered to make its collection profitable. Now, however, that the sources of foreign supply have been cut off, there seems little reason why the enterprising American pharmaceutical houses should not take steps to foster the collection of our own product. In addition to this, the place of *digitalis* may be taken more or less fully by *Apocynum cannabinum*, dose 0.3 c. c., five minims, of the fluid extract.

Along the more empirical lines of therapeutics it would be possible to mention a considerable number of drugs native to the United States which could more or less adequately replace those which have been kept from our shores by hostilities abroad, but the basis for the use of such remedies is too slight in most of the cases to warrant the space it would take for the presentation.

It must be understood that this discussion is only a fragmentary one, and the idea must not be entertained that the substitutes mentioned are generally adequate to fill the places of the more important drugs to any full measure. In any case it must devolve upon the physician to make certain of the action which he may wish to secure under given conditions, and to him the preceding paragraphs will serve merely as suggestions.

Therapeutic Applications of Emetine and Ipecacuanha.—L. E. Bertrand, in *Bulletin de l'académie de médecine* for April 14, 1914, refers to a case of dysentery, with stools containing both amebas and spirochetes, in which four subcutaneous injections

of one half grain (0.03 gram) of emetine hydrochloride on successive days caused not only the amebas, but also the spirochetes, to disappear from the alvine discharges. This tends to show that the parasitocidal properties of emetine are not entirely confined, as has been thought, to the dysenteric ameba. On the other hand, in three cases of non-tropical dysentery, with stools containing spirochetes but no amebas, treated with emetine by Tribondeau, a clinical recovery, with normal consistence of the stools, resulted in two or three days, though the spirochetes did not disappear from the discharges. This indicates that emetine may be of use in some way other than as a destroyer of pathogenic microorganisms and confirms the earlier observations of Bertrand with the entire drug ipecac in the chronic endemic enterocolitis of tropical countries. In this condition he has often found ipecac to cause an astonishingly prompt improvement in the consistence of the stools as well as a reduction in the number of bowel movements per diem. Likewise, in the common mucomembranous enterocolitis of the temperate zone, Tribondeau found the alkaloid emetine useful both in improving the bowel functions and in reducing the amount of mucus secreted in the intestine. That ipecac and emetine are not therapeutically equivalent, and more especially, that the action of the former does not depend wholly on the latter, is indicated by the known efficiency of deemetinized ipecac in tropical dysentery, pointed out by Harris and later by Maunaud.

In illustration of the hemostatic properties of emetine, the author refers to a case of abundant hematemesis in duodenal ulcer, reported to him by Palasne de Champeaux, in which the bleeding was promptly arrested by a single hypodermic injection of two thirds grain (0.04 gram) of emetine hydrochloride. In a case of hemothorax due to a penetrating wound of the chest, the drug appeared also to be of value. An injection of two thirds grain was given daily in the first six days of treatment, and recovery took place rapidly and untroubledly. Bertrand calls attention to the efficacy of minute doses of ipecac in hemoptysis and fibrinous pneumonia, and points out the consequent futility of trying to explain the hemostatic effect of emetine through circulatory depression, revulsion, or induction of nausea.

Treatment of Coryza in Syphilitic Infants.—Rudaux, in *Quinzaine thérapeutique* for October 25, 1913, is credited with advising that the following diluted hydrogen dioxide solution be instilled in the nostrils of infants suffering from this condition:

℞ Aquæ hydrogenii dioxidi, ... $\text{℥}\text{ii}$ (8 grams);
Aqua sterilisatæ, ... $\text{℥}\text{i}$ (30 grams).
M. Sig.: Four or five drops to be instilled into the nostrils three times daily.

Two hours after each dioxide instillation the following oily preparation should be similarly used:

℞ Resorcinolis, ... $\text{℥}\text{iv}$ (0.25 gram);
Petrolati liquidi sterilisati, ... $\text{℥}\text{i}$ (30 grams).
M. Sig.: A few drops to be instilled in the nostrils two hours after the hydrogen dioxide.

Where the nasal disturbance interferes with feeding, three or four drops of a one in 10,000 solution of epinephrine hydrochloride should be distilled into each side of the nose before the child is nursed.

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THE PELLAGRA QUESTION.

Pellagra, especially in the southern States, remains of paramount importance among the public health questions of this country. In spite of the work done, the dominant problem of this disease—etiology—remains in a very unsatisfactory state. The Italian doctrine of spoiled maize, unsupported by adequate evidence, has not met general acceptance; and students, especially in America, are far from agreement on the fundamental question as to the general nature of this disease, whether pellagra is an infection or a disease related in some essential manner to diet.

In *Public Health Reports* for September 11, 1914, Goldberger supplements his communication of June 26th, which expressed the opinion that pellagra is not an infection, but a disease essentially of dietary origin, thus classing it, as Funk does, among the so called deficiency diseases, or relegating it to its old place among the food poisonings. Goldberger's opinion is definite in one thing only—the essential etiological relation between pellagra and diet; the nature of this relation he leaves indefinite and undetermined. This is not new, but in America where apparently the infectious idea of pellagra is widely entertained, the adoption of such a view is a decided and important step. Such a course will possibly meet the approval of many thoughtful observers.

That a similar belief has not ere this received more candid and general expression is due, perhaps, not only to ingrained medical conservatism, but also to the demand, ever more imperative in modern medicine, for very definite and tangible evidence upon which to support one's convictions if they are to receive serious consideration.

The grounds, important as they are, upon which Goldberger has given expression to his beliefs, are unfortunately not of such a nature as to carry ultimate conviction to all. His evidence, like so much of the evidence for the maize theory, is largely of a negative character, and its worth is dependent upon its mass. Briefly, he has first presented facts already expressed in a general way by others, which show that pellagra does not develop among doctors, nurses, and employees who come into constant and intimate contact with the disease, even in institutions. To his mind these observations are "inexplicable on any theory of communicability," either by direct or indirect (insect) means. Second, Goldberger advances the negative results of a comprehensive series of inoculations, made some months ago by officers of the Public Health Service, which included "every kind of tissue, secretion, and excretion" from grave and fatal cases of pellagra, the inoculations being made "in every conceivable way into over a hundred rhesus monkeys." Third, and finally, epidemiological studies in institutions where the disease is endemic have shown that pellagra is strikingly limited to certain groups of inmates; and after most careful and painstaking investigation the only factor found common to such groups, and absent among all others, "relates exclusively to the dietary." The only obvious difference, Goldberger states, was a deficiency of animal protein food in the diet of groups among which pellagra developed, yet, he thinks, "the evidence clearly incriminates diet as the cause of the pellagra at these institutions."

The present generation of American medical men, both by training and by experience, are too thoroughly imbued with "infectious" thought and ideas ever readily to accept the conclusion that a disease like pellagra does not belong among the infections. Yet the fruitful investigations made of late years in other fields, upon beriberi for example, should not be forgotten. Wider fields in dietetics, metabolism, biochemistry, are opening to coming medical generations. Is it too much to hope that in such fields many of our problems may ultimately find solution?

In the meantime, in this country at least, workers in the important pellagra investigations will doubtless continue to pursue two widely divergent lines—one the search for some microorganism of etiological significance, the other an attempt to disentangle the complex threads of a nutritional maze. It is indeed

a matter of regret that as yet there exists no evidence, satisfactory and convincing to all, which would definitely determine at least the fundamental question as to the broad lines upon which pellagra investigations should now proceed.

THE PITUITARY GLAND IN EPILEPTICS.

What is now termed "epilepsy" has in recent years assumed the character of a summation of phenomena due to several causes rather than to a single etiological factor. Among these, lesions or malformations of the ductless glands have been held to exist by several investigators. Sajous, in 1907, urged that one of the predisposing causes of epilepsy was inhibited functional efficiency of the anterior lobe of the pituitary. Cushing, in 1912—five years later—also advanced the hypothesis that "certain cases of epilepsy are associated with insufficiency of the pituitary gland." J. F. Munson and A. L. Shaw (*Archives of Internal Medicine*, September 15, 1914), after noting that "while it is not new to have the glands of internal secretion indicated as of importance in the production of epilepsy, the designation of a particular one and the definite characterization of its role as one of insufficient activity, rather than of perverted activity, and the presentation of a quite definite clinical picture of the condition, make Cushing's [?] hypothesis worthy of consideration," contribute valuable morphological and histological data in support of this view. In necropsy material obtained at the Craig Colony, it had been found that the thyroid and pituitary glands were the only ones showing any marked change from the normal type. In the investigations of Munson and Shaw, which bore only upon the pituitary, the sella turcica was not as a rule found enlarged, but in a group of cases there was noted a marked difference between the size of the sella turcica and the gland, while the dura pouched down into the sella instead of assuming the usual flattened shape between the clinoid processes. In such cases the gland itself was flattened. Another striking feature was a variation in the blood content, many glands showing evidences of congestion, sometimes distributed irregularly. Tumors were found, but they had not seemed to provoke abnormal phenomena during life. No particular kind of cell seemed to predominate in the organ, excepting perhaps cyanophils.

By far the most interesting finding, however, was the presence of extremely irregular spiderlike masses of connective tissue in the middle of the anterior lobe. These were made up of dense hyaline tissue with no great amount of fibrillar structure, but showing blood spaces. They seemed to have no connection with the hilum, except in one instance.

The islands were not invariably found, however, and their significance is not clear. Munson and Shaw suggest that they may be residues from ingrowth of connective tissue during fetal life. They noted also a diffuse type of connective tissue change, the relationship of which to epilepsy is likewise obscure.

We have, both in these columns and elsewhere, emphasized the fact that the pituitary may become the seat of sclerotic areas in the course of infectious diseases, particularly those of childhood, and in the course of intoxications, especially alcoholism. Such lesions readily account for the hypopituitarism which underlies certain cases of epilepsy: they limit correspondingly the functional area of the organ. As to the morbid process itself, we have urged that the pituitary was concerned with the autoprotective functions of the body through its functional relations with the thyroparathyroid apparatus and the adrenals. Insufficient activity of the pituitary incident upon the presence of connective tissue islets, by inhibiting these protective functions, allows the accumulation of toxic wastes which are now increasingly being recognized as the inciters of the epileptic fit.

VULVOVAGINITIS IN CHILDREN.

This affection, which has hitherto not received the attention which its importance warrants, is coming to be recognized as a formidable malady. Epidemics occur not infrequently in children's hospitals, asylums, and other institutions, and it is undoubtedly prevalent among little schoolgirls almost everywhere. On account of its obstinacy it is very troublesome to manage, and Health Commissioner Goldwater of this city has made the statement that the questions involved in handling it are among the most difficult and puzzling with which public administrators have to deal, and that, so far as he is aware, the problem has not as yet been solved. While in a few instances the vaginal and labial discharges are due to some catarrhal state depending on the presence of thread worms or on the debilitated condition of scrofulous or tuberculous children, in the vast majority the condition is a gonococcic infection; so that for all practical purposes the vulvovaginitis may be considered a gonorrhea.

The special points of interest are the sources of infection, the treatment, and, above all, the matter of prevention. The most recent communication on this subject is a comprehensive paper by F. J. Taussig, of St. Louis, in the *American Journal of the Medical Sciences* for October, 1914, which is based on sixty-six cases observed during the past

eighteen months. He is convinced that the most frequent means of infection is from child to child, and that the most common manner of transmission is through the school lavatory. In epidemics in children's institutions the hand of the nurse and the bath may at times be responsible, but Taussig does not believe these are very important factors in sporadic cases; nor does he think that transmission is common through cloths, either in the form of clothing, towel, wash cloth, or bed linen, since cloth will absorb considerable secretion, and, as the gonococcus is particularly susceptible to drying, will in the course of ten or fifteen minutes ordinarily be dry enough not to be a serious source of infection.

In the treatment, Nathaniel Barnett (*Archives of Pediatrics*, September, 1913) advises the use of the Kelly endoscope. After the secretion has been removed with the applicator, Lugol's solution is applied to the cervix and vaginal walls as the endoscope is slowly withdrawn. These treatments are carried out three times a week, and, in addition, the mother is instructed in the method of giving daily vaginal douches of potassium permanganate solution, one to 10,000, by means of a soft rubber catheter, introduced as far as possible. Taussig employs two per cent. and even four per cent. silver nitrate solutions, the injections being made with the ordinary small rubber tipped urethral syringe. He has found no record of the use of such strong solutions by others, and believes that his favorable results and the absence of any untoward symptoms justify a further test of this treatment. Rest in bed is recommended in acute cases, and, like Barnett, Taussig employs hexamethylenamine internally. Fresh air, good food, and an iron tonic aid materially in effecting a cure.

In the matter of prophylaxis this author considers most important the adoption in the water closet of a U shaped seat, with low bowl, and other precautionary means to prevent the spread of infection through lavatories in schools, playgrounds, comfort stations, and tenements. He suggests various other preventive measures, which cannot be considered here, and in concluding remarks that it can certainly be said of gonorrheal vaginitis in children that one ounce of prevention is worth many pounds of cure.

THE FOREIGN MEDICAL PRESS AND THE WAR.

The few medical journals received from Germany early in September contained a good deal concerning the war, mostly in the form of official notices and comments on the significance of various passages in the laws bearing on mobilization and military service; their size has generally been diminished.

The technical contents have naturally been affected by the war, and most of the journals have had at least a few articles concerning military surgery and sanitation. All have contained the expected evidences of patriotism and unselfish helpfulness on the part of the medical profession. In *Deutsche medizinische Presse* for August 8th, for instance, is an appeal to those physicians of Berlin who have not been drafted into active service, to visit and treat free of charge the patients of their colleagues who have been called to the front, and all the physicians remaining in Berlin have been requested to register with the bureau of the Academy of Medicine, so that they may easily be reached in emergency cases. It will be seen that in Germany, as in England and France, and doubtless also in Russia, the physicians who remain at home show their patriotism quite as well as those who go to the front. The French medical journals have been received irregularly; the British journals have reached us as usual, but they, too, have been reduced in size; they devote much space to news of the military hospitals in England, but have little or no news from the front. The Russian journals least of all allot space to the war.

INADEQUACY OF THE RED CROSS IN EUROPE.

Mr. Ernest P. Bicknell, national director of the American Red Cross, is reported in the *Survey* for October 3, 1914, as deploring the inadequacy of the organization's work in the present conflict. In the days when an army of 100,000 was considered enormous, Red Cross work was practicable and efficient. "Now," says Mr. Bicknell, "7,000,000 or 8,000,000 men are facing each other along 1,000 miles of battle front. The terrible effectiveness of modern weapons was never given so great a chance to show itself. Over thousands of square miles countless thousands of men have been left wounded and helpless; never before have so many soldiers been reported missing. Berlin, Paris, and London are literally filling up with wounded and sick soldiers. The public and private hospitals have been filled. Public buildings are being used to house them and many private homes are now being thrown open, but only a small number can be brought into the big cities. Even transportation is inadequate. In the villages and the countryside throughout the immense fighting area lie thousands of men who have not seen either doctor or nurse; some of them crawl into houses, but no one knows how many are lying under haystacks, in the cattle sheds, or in ditches and along the roadside. To meet this unprecedented call no human prearrangements could have been adequate. The Red Cross societies in Europe are thoroughly efficient. They are organized primarily for war relief, but they simply cannot get doctors and nurses enough. These, together with medical and surgical supplies, are the greatest needs. There are enough nurses and doctors in the world, willing to go to the scene

of need; the problem is to get them there. The fighting nations cannot do it adequately and promptly enough; it is in a large measure up to the non-fighting countries. The American Red Cross, which has already sent 138 nurses and thirty doctors, could send every one of its 5,000 enrolled nurses and not exceed the need. Caring for the families at home of those who have gone to war is another problem. None of the Red Cross societies can attempt this."

Interesting in connection with these remarks is the reported statement by Sir Frederick Treves, that the American Red Cross hospital near Torquay is the best equipped war hospital in England.

HOW TO PROCEED AGAINST UNLICENSED PRACTITIONERS.

The State Board of Medical Examiners of the University of the State of New York give the following instructions as to the proper method of procedure when it is desired to drive out an unqualified practitioner:

1. Make sure that the practitioner is not registered in the county clerk's office; the law requires that all practitioners shall register their licenses with the county clerk.

2. Obtain evidence, sufficient as a basis for a complaint, that the practitioner is attempting to diagnose or to treat human disease, injuries, or physical conditions.

3. Send a written complaint to the district attorney along with a request that he prosecute the illegal practitioner under Section 174 of Article 8 of the Public Health Law.

4. If the district attorney refuses to investigate the complaint, notify the Governor, who has the authority to remove from office district attorneys who refuse to do their duty.

ANTITYPHOID INOCULATION IN THE BRITISH ARMY.

W. B. Leishman communicates to the *Lancet* for September 26, 1914, the "actual position" of the antityphoid inoculation propaganda in the British army. Apparently the matter is left to the high intelligence of each individual private soldier as to whether he will be inoculated or not. An ample

supply of vaccine is assured from the vaccine department of the Royal Army Medical College, with the assistance of the Lister Institute and Sir Almroth Wright. Colonel Leishman feels that voluntary response will be almost universal, even in the absence of compulsory powers.

Obituary.

LEMUEL BOLTON BANGS, M. D.,
of New York.

Doctor Bangs died Sunday, October 4th, after a short illness, at his home, 32 East Fifty-first Street, New York. He was born in 1842 and graduated at the College of Physicians and Surgeons in 1872, becoming surgeon to St. Luke's Hospital five years later. Subsequently he was appointed consulting surgeon to Bellevue, City, St. Vincent's, and the Methodist Episcopal Hospitals. He was professor of genito-urinary surgery at the Post-Graduate Medical School and Hospital and at University and Bellevue Hospital; in 1895 he was president of the American Association of Genitourinary Surgeons. Doctor Bangs was the editor of the *American Textbook of Genitourinary Diseases*, an authoritative writer on genito-urinary surgery, and a frequent and valued contributor to the *NEW YORK MEDICAL JOURNAL*, his last communication, on Some Phases of Prostatic Disease, appearing in our issue for June 15, 1912. Doctor Bangs leaves a widow, a son, and a daughter.



LEMUEL BOLTON BANGS, M.D.

News Items.

Changes of Address.—

Dr. Frederick C. Steinmetz, to 352 West Nineteenth Street, New York.
Dr. Charles James Mooney, to 3920 Broadway, New York.

Northern Berkshire Medical Association.—At the annual meeting of this association, held recently in North Adams, Mass., the following officers were elected: President, Dr. Lyman A. Jones; vice-president, Dr. R. D. Canedy; secretary, Dr. H. A. Bushnell; treasurer, Dr. F. H. Howard, of Williamstown.

State Board of Medical Examiners.—It is officially announced that hereafter the State Board of Medical Examiners may ask candidates questions on the duties of practitioners under the sanitary code established by the State Public Health Council, and also under Section 58 of the Labor Law concerning the reporting of industrial diseases.

American Ambulance Hospital in Paris.—Additional subscriptions to the fund for the maintenance of this hospital amounting to \$1,160 were received by the committee on Tuesday, October 6th. The fund now amounts to \$62,785.

To Enlarge the Woman's Hospital.—Plans have been filed for a \$100,000 addition to the Woman's Hospital on Cathedral Parkway, between Columbus and Amsterdam Avenues, New York. The new building will have a frontage of fifty-five feet on 109th Street, and will be six stories in height, with an operating room on the top floor. It will be known as the Thompson Pathological Building.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Tuesday, October 13th, Pediatric Society; Wednesday, October 14th, County Medical Society; Thursday, October 15th, Section in Ophthalmology of the College of Physicians, and the Northeast Branch of the County Medical Society; Friday, October 16th, Southeast Branch of the County Medical Society and Medical Club Reception.

Buffalo Academy of Medicine.—Announcement is made that the meeting place of the Buffalo Academy of Medicine for this season has been changed to Orpheus Hall, 432 Franklin Street, between Virginia and Allen Streets. Meetings will be held on Wednesday evenings in future, instead of Tuesday evenings, a change made necessary by the change in place of meeting. The first meeting of the season was held on Wednesday evening, October 7th. Dr. H. A. Smith is secretary of the organization.

Washington State Medical Society.—At the annual meeting of this association held in North Yakima on Wednesday and Thursday, September 23d and 24th, under the presidency of Dr. C. W. Sharpless, of Seattle, the following officers were elected: President-elect, Dr. J. Reynolds Brown, of Tacoma; first vice-president, Dr. H. E. Allen, of Seattle; second vice-president, Dr. C. F. Eikenberry, of Spokane. Dr. C. H. Thomson, of Seattle, was reelected secretary and treasurer. Dr. C. J. Lynch, of North Yakima, the retiring president, was given a vote of thanks for his services. Next year's meeting will be held in Seattle.

Association of Military Surgeons of the United States.—At the annual meeting of this organization, held in Cincinnati last week, the following officers were elected: President, Colonel Jefferson R. Kean, medical corps, United States Army; vice-president, Surgeon General Rupert Blue, United States Health Service; medical inspector, George A. Luny, United States Navy, and Lieutenant Colonel Henry A. Allers, New Jersey National Guard; secretary for life, Brigadier General Samuel C. Stanton, Illinois National Guard; treasurer, Major Herbert A. Arnold, Pennsylvania National Guard. The association decided to meet next year in Washington, D. C.

Indiana State Medical Association.—At the sixty-fifth annual meeting of this association, held in Lafayette recently under the presidency of Dr. John P. Salb, the following officers were elected: President, Dr. Frank Wynn, of Indianapolis; first vice-president, Dr. Edgar Cox, of Kokomo; second vice-president, Dr. L. W. Smith, of Wabash; third vice-president, Dr. W. J. Malloy, of Muncie; secretary, Dr. C. N. Combs, of Terre Haute (reelected); treasurer, Dr. D. W. Stevenson, of Richmond (reelected). Delegates to American Medical Association, Dr. C. H. Hood, of Huntington; Dr. Miles F. Porter, of Fort Wayne; alternates, Doctor White, of Danville, and Doctor Hayden, of Evansville.

Kentucky State Medical Association.—At the sixty-fourth annual meeting of this association, held in Newport on September 23d, 24th, and 25th, the following officers were elected: President-elect, Dr. J. W. Kincaid, of Catlettsburg; first vice-president, Dr. F. G. Larue, Smithland; second vice-president, Dr. C. L. Heath, of Lindsey; third vice-president, Dr. J. C. Mobley, of Elizabethtown; delegates to the American Medical Association, Dr. Milton Board, of Louisville, and Dr. A. T. McCormack, of Bowling Green.

New councilors were elected in the Seventh, Ninth, and Eleventh districts: Seventh district, Dr. A. W. Cain, of Somerset; Ninth district, Dr. A. S. Brady, of Greenup, and Eleventh district, Dr. J. S. Lock, of Barbourville. Dr. O. P. Nuckols, of Pineville, was elected orator in medicine, and Dr. J. G. Gaither, of Hopkinsville, orator in surgery. Next year's meeting will be held in Louisville.

A Chance for Genitourinary Work.—There is an unusual opportunity for an earnest, ambitious worker in genitourinary diseases, to serve as clinical assistant in a large genitourinary clinic, Tuesday, Thursday, and Saturday evenings, at eight o'clock. Application may be made to Dr. A. L. Wolbarst, 113 East Nineteenth Street, New York.

Disease Prevention Day in Indiana.—On Friday, October 2d, Disease Prevention Day was celebrated throughout the State of Indiana, following a proclamation issued several weeks ago by Governor Ralston. It is said that this is the first time that a health day has been observed in this country as a State function. Parades were held in nearly every city and town in the State, motion pictures were exhibited, and lectures on disease prevention were delivered by physicians. The idea of observing a Disease Prevention Day originated with the Indiana Society for the Prevention of Tuberculosis, and it is planned to make it an annual occasion.

Regional Tuberculosis Conference in Philadelphia.—Philadelphia is to have the First North Atlantic States Conference on Tuberculosis, embracing New York, New Jersey, Pennsylvania, Maryland, Delaware, Virginia, and the District of Columbia. This conference will be held under the direction of the National Association for the Study and Prevention of Tuberculosis on Friday, October 16th. The object of the conference is "the mobilization of those who are engaged in the war against tuberculosis for the coming fall and winter campaign which we are planning to wage against this disease. Similar sectional conferences will be held this fall in Bangor, Me.; Atlanta, Ga., and St. Louis, Mo. Among the principal subjects to be discussed are The Red Cross Seal Campaign, The Advantages of Local Hospitals for the Care of Consumptives, and Home Care of the Tuberculous. The directors of the Pennsylvania Society for the Prevention of Tuberculosis will act as the local committee on arrangements. There will be morning, afternoon, and evening sessions. Further details will appear later in the press and through the mails.

Personal.—Dr. J. G. Adami, of Montreal, has enlisted as a private in the battalion which is being raised at McGill University for service in the European war. Doctor Adami is professor of pathology at the university.

Dr. Wilhelm Gaertner, of Buffalo, has been appointed by Governor Glynn a member of the Public Health Council, to fill the vacancy caused by the resignation of Dr. Edward Clark, who has been appointed a State sanitary supervisor.

Dr. Allan J. McLaughlin, a surgeon in the United States Public Health Service, has resigned his commission in order to accept the position of State Commissioner of Health of Massachusetts.

Major General Leonard Wood, the former physician and army surgeon who served as chief of staff of the United States Army for several years, will be the guest of honor at a reception of the Medical Club of Philadelphia, to be held on Friday evening, October 16th.

Dr. John C. Wise, of Washington, D. C., who was with Dewey at the battle of Manila Bay, returned to America on Tuesday, October 6th. Doctor Wise served for several weeks in French war hospitals at Paris and Bordeaux.

Dr. Eleanor B. Wolf, of Johns Hopkins Hospital, Baltimore, will leave in a few days to become a medical missionary in Southern India. She will be accompanied by Miss Rebecca Hoffman, a graduate of the Johns Hopkins Training School for Nurses. They will be attached to the hospital of the Lutheran Church at Guntur.

Dr. Ebba A. Dederer entered upon her duties, October 1st, in the newly created position of woman physician to the Brooklyn Society for the Prevention of Cruelty to Children. It is said that this is the first time that a position of this kind has been occupied by a woman in New York State.

Dr. R. A. Van Voast, of Cincinnati, a member of the Medical Reserve Corps of the United States Army, has been accepted as a volunteer surgeon (noncombatant) in the French Army. Doctor Van Voast was assigned as brevet surgeon of one regiment and was stationed at Toulouse as the only surgeon with twelve hundred combatants. When last heard from, he was at Bordeaux.

Cholera.—A report from Vienna to the United States Public Health Service, dated September 26, 1914, stated that cholera had broken out in five different places in Hungary. One case in Budapest and one in Vienna were reported last week. An epidemic of cholera in Madras, India, was reported on August 19th, 33 cases, with 30 deaths, having been noted during the preceding week. The disease is also said to be epidemic in Batavia.

In the Philippine Islands, during the week ending August 8, 1914, 39 cases of cholera, with 31 deaths were reported in Manila. Of these, 9 cases, all fatal, occurred during preceding weeks, but were reported during the week ending August 8, 1914, on corrected diagnoses. The occurrence is not steady as to numbers. The closing day of the week showed 6 cases and 6 deaths. On the same day there were 23 cholera patients under treatment at the San Lazaro Hospital. No striking or unusual features have developed in this epidemic. Cholera carriers continue to be found in almost every group of contacts. In the provinces a few sporadic cases of cholera have occurred each week since the commencement of the present outbreak in Manila. Almost simultaneously cholera cases appeared in six provinces; some at places at least 200 miles from the nearest known case of cholera.

News of the Medical Schools.—The college of medicine of Syracuse University opened September 15th. Twenty-eight men and one woman registered in the first year class. In the departments of anatomy, physiology, physiological chemistry, and pathology no changes in teachers were made. Professor Bristol, of the department of bacteriology, resigned to go to North Dakota; Dr. Oliver Wendell Holmes Mitchell, from the department of medicine of the University of Missouri, will succeed him, and Mr. Ralph R. Simmons, A. M., also from the University of Missouri, will be his assistant. Dr. F. M. Meader, associate professor of preventive medicine, has accepted the position of director of the division of communicable diseases in the New York State Department of Health. He has, however, retained his position as head of this department in the college and there has been secured as his assistant Dr. Edward D. Clark, for the last three years connected with the health department of Buffalo. Dr. Howard L. Van Winkle, assistant in the Municipal Department of Public Health, has been made instructor and will conduct the work in laboratory diagnosis in the municipal laboratories. The new dispensary was opened late in June and is now in complete order.

The board of administrators of Tulane University of New Orleans, Louisiana, has elected as a member Dr. W. H. Seemann, bacteriologist of both the State and city boards of health, and dean of the School of Hygiene and Tropical Medicine. Doctor Seemann succeeds Dr. Creighton Wellman, who resigned in January last, since which time Dr. Isadore Dyer, dean of the School of Medicine, has been acting dean. Dr. Seemann will also fill the position of director of the laboratories of hygiene and public health. Dr. A. G. Friedrichs has resigned as dean of the School of Dentistry and his place has been filled by Dr. Wallace Wood. Other appointments to the faculty of the school are the following: Dr. A. L. Metz, professor of chemistry; Dr. A. G. Friedrichs, professor of oral hygiene; Dr. Isadore Dyer, professor of skin diseases; Dr. E. M. Dupaquier, professor of tropical medicine and acute infectious diseases; Dr. C. C. Bass, professor of experimental medicine and director of the laboratories of clinical medicine; George E. Beyer, professor of biology; Dr. J. D. Weis, professor of tropical medicine; Morton A. Aldrich, professor of industrial hygiene; Allan C. Eustis, assistant professor of dietetics and nutritional diseases; A. McShane, instructor in tropical medicine and hygiene; L. C. Scott, instructor in tropical medicine and hygiene, and demonstrator in the laboratories of tropical medicine and hygiene; H. D. King, instructor in tropical medicine and hygiene; J. C. Cole, instructor in the laboratory of tropical medicine; F. M. Johns, instructor in the laboratory of tropical medicine; E. M. Moss, instructor in school of hygiene; Elizabeth Bass, instructor in laboratory of tropical medicine; C. J. Bloom, instructor in hygiene; S. C. Jamison, instructor in laboratory of tropical medicine; P. L. Querens, instructor in tropical medicine and hygiene; R. E. Graham, instructor in tropical medicine and hygiene; H. M. Shilstone, instructor in hygiene; W. A. Love, instructor in dietetics and nutritional diseases.

Pith of Progressive Literature.

CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE.

August 1, 1914.

Physical and Biological Foundations of Treatment with Various Kinds of Rays.—H. E. Walther presents a paper, in which he states that the point of attack for the absorbed and chemically transformed energy of the rays appears, according to the most recent researches, to be the chromatin framework of the cell nucleus. He also says that attempts to control phagocytosis or the formation of opsonins by radioactive bodies or the x rays, have as yet produced no valuable results.

August 8, 1914.

Functional Importance of the Musculature of the Arteries.—W. R. Hess says that the functional importance of the musculature of the arteries is not to be descried in an active advancement of the current of the blood, for it lacks the mechanism suited for this purpose. It is rather a means of regulating the local flow.

August 15 and 22 1914.

Pathology of the Liver and Modern Functional Methods of Testing.—Otto Steiger summarizes his paper by saying that we have in the coincidence of alimentary galactosuria, alimentary levulosuria, and, when the liver is absolutely insufficient, pathological urobilinuria, positive camphor-glycuronic acid reaction, and diminished content of fibrinogen in the blood plasma, an excellent aid in the diagnosis of insufficiency of the liver.

August 29, 1914.

A Rare Disease of the Esophagus.—Ed. Woehlin reports a case in which the superficial covering of the mucous membrane of the esophagus was cast off *en masse* during vomiting. The vomit also contained some fresh blood. He names this disease *oesophagitis dissecans superficialis*.

PARIS MÉDICAL.

August 8, 1914.

Relation of Nystagmus to Absence of Binocular Vision.—Rémy, examining a strabismic patient with the diploscope, an instrument of his own invention for detecting the slightest degrees of squint, was surprised to observe that whereas, with both eyes open, the patient could be made to see clearly with each eye, when either eye was closed, vision by the other was interfered with. This disturbance proved to be due to a nystagmus which came on whenever one eye was closed. In an earlier case the author had already noticed that when the patient's convergent strabismus was cured, largely by the use of glasses, a previously existing nystagmus had also disappeared. Nystagmus of one eye upon closure of the other was also noted in two other cases. This peculiar condition the author explains as follows: When both eyes are closed, as in sleep, their axes diverge. When they reopen, the internal recti contract to render binocular vision possible. In patients with muscular weakness it seems not improbable that where the mutual support of the recti required to maintain binocular vision is disturbed through the closure of one eye, nystagmus may result in the other. From this it

would appear that the cause of one form of nystagmus is, in part at least, elucidated, and that rational treatment of this form will henceforth be possible.

A Practical Point in Local Anesthesia.—

A. Schwartz lays stress on the necessity of sterilizing independently the ingredients of Reclus's local anesthetic solution, if a satisfactory anesthesia is to be obtained. The formula for the solution is: Normal saline solution, 100 c. c.; 1.5 per cent. novocaine solution, fifty c. c.; one in 1,000 epinephrine solution, twenty-five drops. The novocaine and saline solution must be sterilized in the autoclave, in a different container from the epinephrine, which is to be mixed with the former only at the beginning of the operation. The two containers should be kept in a sterilized larger vessel, which is opened by an assistant when the operator is ready to make the mixture. Where the precaution referred to is neglected, complete absence of anesthesia will not infrequently be noted.

REVUE MÉDICALE DE LA SUISSE ROMANDE.

July, 1914.

Action of Mineral Waters.—De Senarclens discusses the various properties of mineral waters to which their therapeutic activity may be referred, viz., temperature, electric potential, ionization, colloid content, and radioactivity. The first three of these are probably of little therapeutic consequence. The known catalytic power of some waters is due to their content of substances, including metals, in a colloid state, and there is a tendency to attribute the effect of some waters in promoting tissue activity in general to this catalytic property. That the latter does not wholly account for the benefit clinically obtained, however, is clear when it is realized that some waters fail to reduce hydrogen dioxide and seem to be devoid of refractile colloid corpuscles. Radium emanation or niton, on the other hand, has been shown to arrest the growth of typhoid bacilli on agar and even in minute amounts to retard the fermentation of milk. It appears to lower the virulence of bacteria without killing them. The most important property of niton containing waters from the therapeutic standpoint, however, is that of producing sedation. Examples of this are the effects of Nérès waters on the nervous system, Plombière's waters on the intestinal tract, Luxeuil waters on gynecological affections, and Lavey waters in painful subacute rheumatism.

Management in Cases of Retroflexed Gravid Uterus.—O. J. Rapin states that this condition, if recognized early in pregnancy, can usually be readily overcome by reposition and the temporary use of a pessary, yet in many instances it is detected only at a later stage, when vesical disturbances or symptoms of incarceration of the uterus appear; when the retroflexed uterus is found fixed, reposition proves impracticable, pains appear, and abortion only too often follows. Expectant treatment in such cases of threatening abortion is rather unwise, for conditions after the completion of the abortion will be unfavorable for the successful use of a pessary, and operation may eventually become necessary. The use of drugs to arrest the pains and gain time, in the hope that the originally fixed uterus will become loosened, is attended with risk,

for occasionally the loosening fails to occur, and serious complications, sometimes remedied only by the induction of abortion, follow. Attempts at replacement of the uterus under anesthesia, even if successful, are unlikely to cure the condition permanently, and, according to Bumm, must be followed by rest in bed for two or three weeks—a loss of time which would lead many to prefer a radical cure by operation. Charles reported twenty deaths among forty-seven cases of induced abortion in retroflexion of the gravid uterus, but the authors had practically no mortality, either maternal or fetal. While some have objected to hysteropexy on the ground that it may later cause dystocia, Rapin observed uniformly normal labors in several cases. He reports a case of retroflexed gravid uterus in which incision, replacement, and fixation were followed by normal labor, permanent good position of the uterus, and a second normal pregnancy.

Surgical Treatment of Gonococcic Epididymitis.—C. G. Cumston shows the urgent need of surgical intervention, if the affection is to be rapidly and permanently cured. General anesthesia should be employed, as the sensitiveness of the inflamed tissues concerned cannot be successfully removed with local anesthetics. After careful preparation of the scrotal skin, an incision four to five cm. long should be made over the outer margin of the epididymis, the space between the testicle and epididymis—filled with pus—opened up with the grooved director, and drainage provided for. The drain may be removed in forty-eight hours, and the wound rapidly closes. In five days to a week the patient can generally be discharged. The urethral discharge reappears in the majority of instances, but yields quickly to suitable treatment and does not recur.

ROUSSKY VRATCH.

May 24, 1914.

Treatment of Tuberculosis.—M. S. Kamneff argues that the various methods of treating tuberculosis exert their effect by the production of an inflammatory reaction similar to that produced by tuberculin. Thus, it has been observed that a febrile reaction follows the administration of kumyss, creosote, cinnamate of sodium, and even exercise. This reaction is in its essential the same as that induced by injection of tuberculin, and if not excessive, leads to calcification of the tuberculous foci and consequent improvement of the patient.

Tubercle Bacilli in the Blood in the Early Stages of Tuberculosis and in Healthy Individuals.—I. N. Lopatin investigated the blood for the presence of tubercle bacilli in twenty-six persons. Of these five had pleurisy with effusion, eleven slight changes in the apex, and ten showed no clinical signs of tuberculosis. The author employed at first the antiformin method, but soon discarded it as unreliable. In most cases it was impossible to be sure whether the acidfast rods were tubercle bacilli or artifacts. He ascribes the discordant results obtained by various authors to this error in the technic. The method he finally adopted was that suggested by Bloch, modified by Schern and Dold. The blood was injected into the inguinal glands of young guineapigs, and normal saline into the glands

of the opposite side, as a control. If the blood contained tubercle bacilli the infected glands became enlarged and underwent softening. In the positive cases the glands were excised and submitted to a histological examination. Of fifteen cases of incipient tuberculosis, positive results were obtained in nine. Of these, three had pleurisy of the right and one of the left side. In only one case of pleurisy with effusion were the results negative. Of the ten nontuberculous individuals, positive results were obtained in two. The conclusion reached by the author is that tuberculosis bacilleemia is not at all rare.

May 31, 1914.

Appendicitis and Inguinal Hernia.—V. R. Braitzeff reports a case of acute appendicitis in an old inguinal hernia in a man aged fifty years. This case and similar ones recorded in the literature lead the author to the conclusion that the development of sudden pain and nonreduction of an inguinal hernia with patency of the intestinal tract is a strong indication of acute appendicitis. Reduction of the hernia in such cases is of course contraindicated.

Clinical Significance of the von Pirquet Reaction.—V. I. Glintshikoff undertook to determine whether there is a relation between the von Pirquet reaction and the course of the disease, and whether intercurrent infections, such as pneumonia, typhoid, etc., modify the reaction. His study of 148 cases showed that in tuberculosis the intensity of the reaction is in inverse relation to the severity of the disease. As the disease progresses the reaction becomes weaker, often disappearing in the last stages. The reaction therefore assumes a prognostic value, and may be employed as an indicator of the progress of the infection. In intercurrent infections, the reaction becomes either weak or absent during the acute stage, showing the unfavorable effect of an acute infection on the tuberculous organism. With the improvement from the intercurrent infection, the tuberculin reaction tends to reappear.

Tuberculous Bacteriemia in Pulmonary Tuberculosis.—V. N. Vinogradoff investigated the blood of fifty tuberculous patients, employing both direct examination and animal inoculation, and discovered tubercle bacilli in two per cent. He concludes that the presence of tubercle bacilli in the blood is of infrequent occurrence, and only a temporary condition.

BRITISH MEDICAL JOURNAL.

September 19, 1914.

Cardiac Fibrillation in Chloroform Anesthesia.—J. A. MacWilliam says that laboratory studies on animals have proved that sudden stoppage of the heart in light chloroform anesthesia is due to the sudden inception of a state of fibrillation in the ventricles. This rarely occurs after the continuous and prolonged administration of the drug. In intermittent administration, on the other hand, fibrillation took place in nine of sixteen animals. The hypodermic administration of such drugs as omnopon and chloral hydrate may assist in the production of anesthesia, but they do not afford any protection against the occurrence of fibrillation. In fact, they seem at times to make the heart more liable to this occurrence, and at least they tend to prolong the

stage of light anesthesia which is associated with the greatest danger of the development of fibrillation. This fibrillation may occur at either of two phases in the administration of the chloroform; at the very beginning of the anesthesia, or at a very advanced stage of the toxic action of the drug when the heart has become much enfeebled and dilated. It is striking that the fibrillation should affect the ventricles and not the auricles, which are usually found to be beating normally. If the anesthetic has been withdrawn for a short time and the anesthesia has been reduced to a light grade, the readministration may often lead to fibrillation in animals. The vagus plays an important role, for diminution in its tone or control is frequently followed by sudden onset of fibrillation. There is no evidence for the belief that an increased vagus tone is capable of causing permanent cardiac arrest under chloroform. While these observations are based upon laboratory studies on the lower animals, MacWilliam says: The essential features of fibrillation and the general conditions favoring and determining its occurrence are so strikingly constant in all the warm blooded animals examined that there is no warrant for assuming an exception in man, but, on the contrary, a strong presumption in favor of a broad similarity in the essential nature of its behavior in man and in mammals and birds.—A Goodman Levy also contributes a paper on this same question in which he expresses views essentially like those of MacWilliam. He carries the view farther in its bearing upon sudden chloroform death in man and cites the fact that no less than eighty-seven per cent. of ninety-eight deaths of human beings under chloroform narcosis occurred during a stage of light anesthesia. Levy gives the experimental basis of the theory of death by ventricular fibrillation in chloroform administration in the following words: In animals lightly anesthetized with chloroform the heart responds to sufficiently powerful stimulating influences by exhibiting a series of ventricular extrasystoles, which may on occasion, and on occasion only, culminate in ventricular fibrillation and death. Full clinical anesthesia depresses the ventricles, and they therefore become immune to fibrillation. The requisite stimulation may be supplied through accelerator nervous influences, originating in subconscious emotions, or as a reflex from powerful sensory excitations. The stimulation may otherwise be a passive stimulation, such as when the vagi are cut, or when the depressing influence of the chloroform is removed, or, in other words, when the chloroform is taken off. Again, it may occur when chloroform is suddenly reapplied after taking it off, and this is probably partly a sensory reflex, partly a direct stimulation of the cardiac muscle—an instance of the early excitatory action of chloroform. Both of the authors hold that death by an overdose is a very rare occurrence, and one for which there is no excuse, for the premonitory signs in this type of death are striking. Safety in the administration of chloroform rests upon the administration continuously of a sufficient amount to maintain full anesthesia.

Observations on Blood Pressure.—G. Spencer Melvin and J. R. Murray conducted parallel observations on the systolic and diastolic pressure as taken by the auscultatory method and by the Er-

langer or Pachon sphygmomanometer. The subjects comprised a series of fifty-nine healthy young adults, called the normal series, and one of a number of patients representing many different pathological conditions of the circulation. By animal experiments they were able to show that the beginning of the fourth phase in the auscultatory method of reading was the correct index of the true diastolic pressure. Their findings on man showed that the oscillatory methods often failed to give the correct index of the diastolic pressure as determined by auscultation, there being as much as twelve or more mm. difference. The oscillatory method gave the higher readings. The systolic pressure was found to be 111.8 mm. of mercury as an average for the normal cases, the diastolic 65.7, and the pulse pressure forty-six. Diastolic pressures ranged in the normal series from fifty to eighty-two mm. and in the pathological series from fifty to 150. The ranges of pulse pressure in the normal were from twenty-two to seventy-three, and in the pathological from twenty-six to 163. No relation was found to exist between the pulse pressure and the rate of the beat. In the young adults it was found that the sound of the fourth phase could be heard over a considerable range of pressure, amounting to an average of thirty-eight mm. in fourteen of the normal cases.

Experimental Work on Enzymes.—E. S. Edie has shown that pepsin is capable of uniting with protein in an alkaline medium, and *vice versa*, trypsin can unite in an acid medium. Neither, however, is capable of exerting its digestive powers under these conditions. This is taken to prove that the side chain which serves to unite the enzyme to the protein is the same in the two ferments, while the side chain of each which brings about the specific digestive action differs. Another fact which is brought out by his work is that the side chains for the specific digestive actions of trypsin are more thermostable than those of pepsin, and that the side chains of each for the union with different protein molecules, differ in stability toward heat.

LANCET.

September 19, 1914.

Sterilization of Water Supplies.—G. Sims Woodhead determined that the presence in water of sufficient free chlorine, fifteen minutes after the addition of chloride of lime, to give a blue color on the subsequent addition of potassium iodide and starch, was adequate for the complete destruction of all contaminating organisms of the typhoid coli group. Upon this basis he has elaborated a simple and rapid means for the certain and effective purification of water supplies for drinking purposes. The method is described in detail and consists in the rapid extemporaneous determination of the amount of chloride of lime which is required to be added to the water in question to give the iodine reaction with starch. This can be done in a few minutes and a supply of the water prepared for use in little more than an hour with the certainty that it is free from dangerous bacterial contamination. The quantity of free hypochlorous acid required is so small that it is harmless to those drinking the water, and it does not affect its taste or palatability.

Juxtaepiphyseal Strain of the Lower End of the Humerus.—Edward W. H. Shenton says that the frequency of this accident in children is not sufficiently recognized, and that the resulting limitation of motion at the elbow joint may be a serious handicap in later life. The condition is the direct result of trauma and may vary from a complete fracture at the epiphyseal line to a slight dorsal displacement of the lower epiphysis. The author has found a ready means of determining the presence of this deformity. An x ray photograph must be taken through the lower end of the humerus in such a way that the two articular surfaces present a circular outline. If, then, a line is drawn along the anterior border of the shadow of the shaft of the humerus this will pass through the centre of the circle or behind it in the normal bone. If the centre of the circle of the articular surfaces lies behind this line, it is positive evidence of the presence of a juxtaepiphyseal strain of the lower end of the humerus and the condition should be corrected.

Gas Formation by Coliform Organisms.—I. Walker Hall and F. Nicholls have sought to perfect a method whereby the formation of gas in culture media by organisms of this class might be determined more rapidly than by the ordinary technic. For this purpose they found that a medium containing two per cent. of silk peptone and five per cent. of lactose was the best. In addition they have modified the old style of tube for the collection of gas by having the lower end of the inverted tube made bell shaped and of such a size that it nearly fills the diameter of the test tube. In this manner all of the gas formed passes into the gas tube and is there collected for subsequent analysis if this is desired. By these two modifications the authors were able to determine gas formation in four hours as compared with the usual twelve hours required by the older methods. They also found that when constant doses of *Bacillus coli* were added to equal quantities of silk peptone media containing various sugars, the time at which the gas formation was first evident was proportionate to the complexity of the sugar, there being a gradual increase in the time from the monosaccharides to the polysaccharides and the various glucosides and alcohols.

Paratyphoid Inoculations.—W. Broughton-Alcock has attempted to produce some degree of immunity against the several strains of paratyphoid organisms by inoculation. He found that no one strain was capable of producing immunity against the others, with a single exception, in which he found that a strain isolated from one of his patients seemed to produce certain immune bodies which reacted with several other strains of organisms. His method of inoculation consisted in the administration to the patient of a small dose of killed organisms on two successive occasions. Then, after an interval of a few days, living cultures of the organism used were prepared in saline or inactive human serum and were attenuated by heat at 37° C. for an hour and contact in the ice chest for twelve hours. The organisms were then centrifugated out and made up with saline, and sensitized by contact with the serum of the patient who had already received the two doses of killed organisms. He was then given

several doses of these living, attenuated, sensitized bacilli. Broughton-Alcock's results lead him to believe that this method offers a means for the prophylactic immunization of exposed persons in the face of an epidemic of paratyphoid infection. The local reactions were sometimes considerable, but the general reactions were always slight.

BOSTON MEDICAL AND SURGICAL JOURNAL.

September 24, 1914.

Drugs Used in General and Mental Hospitals.

—Donald Gregg says that during January, 1914, 877 orders were written for treatment in the Psychopathic Hospital. Of these eighty-six per cent. were for baths, packs, and elimination, only fourteen were for stimulants, depressants, and other medication. Orders for depressants, including morphine, bromides, veronal, etc., totalled only thirty-three, or 3.05 per cent., or about one order a day for the ninety-five cases in the hospital; 343 of the orders were for baths. He goes on to say: General hospitals have many lessons to learn from mental hospitals, especially in the management of delirium. Not the least is that depressants, stimulants, and restraint lessen, and baths, packs, and elimination greatly increase a patient's chance for recovery. Problems of medication lie in refinement of the use of drugs for purposes of elimination, in decreasing autointoxication, and in rectifying pathological action of the internal secretions.

Analysis of Recoveries at the Psychopathic Hospital, Boston, 1912-1913.—E. E. Southard says the component of nursing cannot be omitted from these recoveries, brief as was the time of the hospital stay of the majority of cases. This is proved by the incidence of disorder of heat regulation in at least thirty-seven per cent. of the cases. The special value of nursing, and particularly of hydrotherapy, stands out from the results of the treatment of alcoholic psychoses, which though they form only about one ninth of the problem of first care, represent almost nine tenths of the early therapeutic results. The recoveries in so called "recoverable" forms of insanity take too long to be represented in any numbers in this first hundred of recoveries, and it may be suspected that the average hospital stay of three or four weeks is not sufficient for recoveries in groups like manic depressive insanity. The effect of psychotherapy is not rapid. The percentage of syphilis in the recovered cases is exactly that of the total intake of the hospital, so that this factor cannot be said to influence treatment unfavorably. Some index of the activities of the aftercare service is afforded by the fact that nearly half of the patients either resorted voluntarily, or were brought to the outpatient department at one or more periods subsequent to the discharge. The need is apparent of nurses who build their psychopathic training on a sound basis of general hospital work.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

September 26, 1914.

The Surgery of the Knee Joint, by E. M. Corner.—This paper was abstracted in our issue for July 4th, page 43.

Studies in Intestinal Obstruction, by J. W. Draper.—This paper was abstracted in our issue for June 27th, page 1311.

Further Studies of the Thompson-McFadden Pellagra Commission, by J. F. Siler, P. E. Garrison, and W. J. MacNeal.—This paper was abstracted in our issue for July 4th, page 46.

Attempts to Transmit Pellagra to Monkeys, by C. H. Lavinder, E. Francis, R. M. Grimm, and W. F. Lorenz.—This paper was abstracted in our issue for July 4th, page 46.

The Treatment of Pellagra, by C. Voegtlin.—This paper was abstracted in our issue for July 4th, page 46.

The Specific Action of Salicylates in Acute Articular Rheumatism, by J. L. Miller.—This paper was abstracted in our issue for July 4th, page 46.

Chondrectomy, or Operative Treatment of Bronchial Asthma.—E. W. Andrews states that it is the aim of the operator to detach from their sternal connections the second, third, fourth, and fifth ribs, and to make them permanently mobile by cutting out their cartilages. Tuffier included the first rib in the procedure, but this has been found to be unnecessary. The true type for operation is the barrel shaped, rigid chest, with little or no expansion measured by the tape; in these cases much hope of relief is offered by chondrectomy. In good cases vital capacity will be increased fifty per cent., or even more.

Rovsing's Operation for Congenital Cystic Kidney.—F. B. Lund is inclined to think that Rovsing's suggestion of a thorough, systematic puncturing of all the cysts, until the kidney is brought down to near normal size, is a distinct advantage in these cases. When both kidneys are involved, it is advisable, he believes, to operate on only one kidney at a time.

Immunity in Tuberculosis.—G. B. Webb and G. B. Gilbert conclude: 1. Guineapigs can probably not be immunized with virulent human tubercle bacilli from cultures of which ten bacilli can cause infection. 2. The minimum lethal dose of different virulent cultures appears to vary. 3. The minimum lethal dose for *Macacus rhesus* is possibly a little larger than that for a guineapig. 4. It is necessary to be guided by the virulence of human tubercle bacilli, as tested in the guineapig, before the application to children. 5. After four years, two children, each inoculated up to five times the lethal dose for a guineapig, are still negative to the von Pirquet reaction. 6. In monkeys the decrease of lymphocytes, as indicated in differential blood counts, would appear to be more reliable in indicating tubercle infection than the tuberculin tests. 7. Less than ten virulent human tubercle bacilli can infect a child.

Intestinal Stasis.—Max Einhorn presents views on this topic which are at variance with those of Lane. He mentions first that visceroptosis, giving rise to intestinal angulations and the formation of partial stenoses, with delayed prochoresis, originated with Glénard. The second point, that of intestinal stasis leading to the absorption of poisons within the intestine, or autointoxication, is a theory which was advanced long ago, principally by French clinicians—Bouchard, Combe, and others. This theory has been made by Lane and his disciples the foundation for their plan of treatment. He does

not think our organism so poor an engine as depicted by adherents of the "stasis" theory. If the body is resourceful in adequately fighting enemies it has never before encountered, pneumonia, typhoid fever, etc., it is surely well fitted to debar the entrance of harmful digestive products through the intestinal wall. Unless there is a real mechanical obstruction or some organic lesion interfering with the intestinal current, a temporary delay or stasis of the contents may not mean much. At times this delayed prochoresis may serve to make absorption more complete, and is encountered in instances of insufficient nutrition. Habitual constipation, which is only another name for stasis, does not cause autointoxication; occasionally a patient may have no bowel movement for several days and yet present no abnormal symptoms whatever. The symptoms frequently associated with chronic constipation may be ascribed to nervous disturbances, not to autointoxication. Encouragement and nerve sedatives will often do more good than drastic measures. Einhorn agrees with Lane as to the value of an appropriate abdominal supporting bandage in mild cases. Ileocolostomy or colectomy, he says, is justifiable in cases of cancer or stricture of the bowel, but not in functional disturbances. Albu has shown that, while it is possible to exist without a colon, an individual deprived of this organ is subject to great dangers, and easily succumbs to intestinal diseases with which an ordinary person can cope without difficulty. In addition, there are the dangers of the operation, and ultimately the uncertainty of a cure after exclusion or removal of the colon.

MEDICAL RECORD.

September 26, 1914.

Chronic Intestinal Stasis, by A. C. Jordan.—An abstract of this paper will be published in our issue containing the report of the meeting of the Medical Association of the Greater City of New York, April 20th.

Salvarsan in Syphilis.—A. J. Crowell and J. P. Munroe state that, though paresis is a form of cerebral syphilis, therapeutically salvarsan has not had the same results in ordinary cerebral syphilis. Some contend that therapeutic tests draw a decisive line, and that parietic cases would not yield at all to treatment. Paresis and tabes have been most resistant to ordinary treatment; in the hope of overcoming this resistance the authors have experimented. In the application of the Swift and Ellis method, they have not confined their work to paresis, but are trying the method in all cases showing disease of the central nervous system. They give brief reports of three out of a number of cases which have shown improved conditions in the spinal fluid. The general symptoms have also shown marked improvement, some of them disappearing entirely. It is as yet too early to predict what the ultimate results will be, nor do the authors assert that this should be recognized as a firmly established mode of treatment.

Comparative Wassermann, Cobra, and Globulin Tests in Syphilis.—W. J. Stone, in comparative tests in 105 individuals, "suspicious" reactions being excluded, says: 1. In thirty normals and controls, the Wassermann and cobra tests were negative. In

six of these, globulin test was negative in spinal fluid. In ninety other normals and controls, cobra test was negative. 2. In twenty-two patients with secondary syphilis, Wassermann and cobra tests were positive. In five of these, globulin test was also positive in spinal fluid, while in seven, globulin test was positive in blood serum. 3. In seven patients with active and latent tertiary syphilis, cobra blood test was positive and globulin tests in blood serum and spinal fluid were positive. 4. In twenty-four late tertiary and clinically cured cases, both Wassermann and cobra tests were negative. 5. In one patient with cerebral lues, Wassermann and cobra tests were negative, while globulin test was positive in blood serum and spinal fluid. 6. In seven patients with syphilis, cobra test was positive and Wassermann test negative, while in fourteen cases, Wassermann test was positive and cobra test negative. Two of the latter were cases of early secondaries, five and six weeks after infection, in which the diagnosis was not in doubt.

Backache and Posterior Parametritis.—Adolph Jacoby says that backache is one of the commonest complaints met with in ambulatory gynecological patients. In fifty-five out of sixty-four patients, or eighty-six per cent., parametritis was found. Parametritis is a pelvic cellulitis, and that form of it which involves the uterosacral ligaments, and usually the peritoneal folds called Douglas's folds, has been designated by Schultze posterior parametritis. The loss of elasticity in the posterior fornix, lack of mobility of the cervix, the palpation of thickened uterosacral ligaments through the vagina and rectum, and pain on stretching the ligaments, make the diagnosis comparatively easy. Perimetric adhesions must be differentiated; the two conditions often being present together. In the acute form, rest in bed is essential. The bowels are kept free, preferably with saline cathartics; an ice bag or ice coil is placed on the abdomen, and tepid or cool vaginal douches of one per cent. lysol or one to 5,000 mercuric chloride are given two or three times a day. If the exudate goes on to pus formation, an incision must be made wherever the abscess points, and the cavity drained. When the process has become subacute, the object is to cause absorption of the exudate, and this is accomplished by painting the cervix and fornix with tincture of iodine, after which from half an ounce to an ounce of glycerin or boroglycerin is poured into the vagina, which is then lightly packed with gauze. Hot compresses may be applied to the abdomen, and hot bichloride or lysol douches are employed twice a day by the patient. In the chronic form, gentle but firm massage of the posterior fornix (which is more effective after the use of a hot douche) is made at every examination, in order to stretch the uterosacral ligaments. Any erosions present are treated, and the use of glycerin or boroglycerin, with vaginal packings, continued.

LANCET-CLINIC.

September 26, 1914.

Surgical Treatment of Infantile Paralysis.—Young includes in the more important operative procedures: 1. Tenotomy; 2, osteotomy; 3, tendon transplantation; 4, nerve anastomosis. When performing tenotomy, overcorrection should never be secured, as it may produce deformity in the opposite

direction. Where there is shortening, the method of open section and splitting should be applied to the tendon. Before operating on the tendons, the muscles should be electrically tested. The two great advantages of successful tenotomies are improvement in the position obtained for the deformed limb and the best possible position for its growth and development. Osteotomy is seldom required, but in some cases of knock knee or in deformities about the neck of the femur, it is of great value when performed in conjunction with other methods. The greatest advances in the correction of deformities have been made through the transplantation of tendons. The deformity must be corrected before transplanting the tendon so that there is not too great a tension on the transplanted tendon. The channel through which the tendon passes must be sufficiently large to allow of free play of the tendon; it should pass in the subcutaneous tissue or in a natural sheath of another tendon and the lower half of the tendon must run in the same direction as the tendon to be transplanted. The transplanted tendon must be attached with a certain amount of tension, equal to the normal tension of the muscle; a certain length of time must elapse before bringing into play the use of the attached muscle, from three to six months, to allow of perfect union. Tendons should be attached to the periosteum. Silk is the suture material of choice and it must be specially prepared. It is to be boiled in bichloride solution for an hour and immediately before being used should be immersed in hot paraffin. The latter protects the tissues from the antiseptic, while the antiseptic preserves the silk from infection when coming in contact with the fluids of the tissues. Nerve anastomosis requires exact anatomical knowledge and the nerve should be exposed and manipulated as little as possible. The questions of greatest importance are: What time has elapsed since the occurrence of the palsy? and, What are the electrical reactions of the muscles? When the reaction of degeneration exists the operation is contraindicated. Each case of infantile paralysis is a study in itself. In some, on account of the extent of the paralysis, the possibility of an anastomosis is precluded; in others, anastomosis may be supplemented by tendon grafting, and, at times, the anastomosis will be found more advantageous than the tendon grafting.

Nature's Method in the Cure of Tuberculosis.—George states that in view of the marvelous prophylactic accomplishments of Edward Jenner through the discovery of vaccination, and later by that of antitoxin, bacteriologists, in their varied researches, have directed their reasoning respecting the prevention and cure of tuberculosis to adhere to the line of immunity. They have been led to believe that the immunizing agency is an inherent property peculiar to the tubercle bacillus itself. Their reasoning has given rise to a host of vaccines and serums, none of which seems to have produced more than minimum success. Nature's method is curative and not artificial; it is mechanical and not biochemical. A plastic material solidified and impervious encapsulates the tubercle bacilli and they die of inanition. Phagocytosis and ana-

phylaxis are not necessary. Bacteriological research has shown that tubercle bacilli have become parasitic in nature and shield themselves from chemotherapy by taking on a coating of animal wax, and chemical analysis of freshly expectorated tubercle bacilli confirms the fact that they are often enclosed in an envelope of wax which they gradually lose by prolonged laboratory propagation. When we consider the amount of tubercle bacilli expectorated by a patient in the advanced stages of the disease, we can conceive the demand there must be for wax in that organism. Clinically these cases show a dry and brittle condition of the nails and an absence of cerumen in the ears. Reasoning from this standpoint, the therapeutic indications in addition to that of dietetics demand wax in readily assimilable form. For this purpose beeswax is heated to near or above the boiling point, and as it cools codliver oil is incorporated and pressed into capsules containing ten grains of wax. These are taken every hour or two and in addition honey in the comb is given at meals. The treatment is harmless and seems to meet the physiological demands of phthisical human nature.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES

September, 1914.

Anemia and Gastrointestinal Diseases.—Adolf Schmidt states that Grawitz, following Hunter's suggestion, attached much weight to enterotoxic products. Unfortunately, he was unable to confirm his theory. Among Schmidt's patients suffering from idiopathic pernicious anemia, were sixteen, a third of all observed, who showed more or less marked signs of intestinal disorders, mostly periodical diarrhea or diarrhea alternating with constipation. When the feces were ground up with water to a fluid consistence, small flakes of mucus could often be seen, while larger particles were constantly missing. Chemical tests showed that this condition was caused by the presence of a large quantity of nucleoproteid, which under normal conditions appears only in small amount. Starch granules colored blue with iodine, and numerous needles of fatty acid and soaps were easily defined by the microscope. At times the fermentation test was positive.

The Relation of Glycosuria to Pituitary Disease.—J. M. Anders and H. L. Jameson collect the cases of pituitary disease recorded since the publication of the paper by Borchardt, a period of five years, terminating December 31, 1913, either to confirm or refute certain views advanced, notably that by Kollaritz that glycosuria does not occur in tumors of the hypophysis without associated acromegaly. It was hoped that the data might aid in clearing up the relation of hypothyroidism and hyperthyroidism to acromegaly on the one hand and glycosuria on the other. Their collective investigations yielded a total of 246 cases. In 183 there were twenty-eight instances of glycosuria; in nine glycosuria was intermittent. There are two hypotheses as to the conditions in question: 1. The relationship between hyperthyroidism and pituitary glycosuria, with or without acromegaly, is a remote one; 2, pituitary glycosuria without acromegaly not uncommonly occurs

(in ten of their series against sixteen in which acromegaly was also associated), contrary to the opinion of certain writers.

The Value of Tests for Renal Function in Early and Advanced Bright's Disease.—R. Fitz shows that such tests are important for diagnosis, prognosis, and treatment. The lactose, salt, water, potassium iodide, and nitrogen tests are of special value in the early diagnosis of nephritis. In advanced nephritis the functional condition is so complex that tests to estimate total function are more useful than those designed to study the function of different parts of the kidney. The phthalein excretion is the most satisfactory single test. The non-protein nitrogen of the blood offers additional information in regard to faulty powers of excretion on the part of the kidney; yet cases occur in which both blood nitrogen and phthalein are normal, and chloride retention is an important factor in the disease. Finally, acidosis has been shown to exist in uremia. Since no one test is perfect in determining total renal function, cases must be studied from several points of view. A rational dietetic treatment can be given in individual cases based on the conditions disclosed by the study of the kidney's selective excretory capacity.

The Value of Colonic Inflation in the Diagnosis of Chronic Appendicitis.—E. H. Goodman and C. W. Lüders conclude: 1. Inflation of the colon is an equivocal means of diagnosing chronic appendicitis. Some cases have negative tests and some have positive; there seems to be no constancy in the results obtained. 2. In acute appendicitis the method should not be employed. It is rarely necessary as a diagnostic aid, as the results are uncertain and the risk of injuring the intestine is too great. 3. The method should not be considered useless, however, for at times the diagnosis has been materially strengthened by its employment, and operation has later shown the wisdom of our faith in the result obtained. Still, inflation of the colon should be regarded merely as an aid in the diagnosis; history and physical examination being far more valuable. 4. No positive reactions have been observed in normal individuals. 5. The test is in no sense pathognomonic of chronic appendicitis.

ANNALS OF OTOTOLOGY, RHINOLOGY, AND LARYNGOLOGY.

March, 1914.

Acute Thyroiditis as Complication of Acute Tonsillitis.—C. F. Theisen cites seven cases; in all, excepting a pneumonia, inflammation of the thyroid gland occurred with or directly after an attack of tonsillitis. Beebe is cited as stating that these patients often have attacks of tonsillitis preceding enlargement of the thyroid gland. Any acute inflammation of the throat, therefore, should be avoided, as well defined goitres sometimes follow. The condition is most frequently found in girls and young women. Acute simple thyroiditis is extremely rare, and primary acute inflammation of the gland is almost never seen. Inflammation of a previously healthy gland must not be mistaken for strumitis acuta, which is more frequently seen, nor for acute hyperemia of the gland, sometimes seen during the menstrual period and infectious diseases. Dysphagia and dyspnea are nearly always present

and are symptoms which cause the most discomfort. Dysphagia is particularly marked when enlargement of the left lobe takes place. The author thinks that the existing inflammatory condition of the throat shares in producing these symptoms.

Intracranial Complications of Labyrinthitis.—A. Braun and I. Friesner state that suppurative disease in the labyrinth is one of the most common sources of otitic intracranial infections, particularly of those that affect structures in the posterior fossa of the skull. The complications that may occur are, 1, extracranial abscess; 2, intradural abscess (sacculus empyema); 3, subdural abscess; 4, cerebellar abscess; 5, a circumscribed, diffuse, serous, or purulent meningitis; 6, thrombosis of one of the dural sinuses, most commonly the lateral. Owing to the predominance of chronic over acute suppurative labyrinthitis, intracranial complications are more frequently found associated with the chronic type. Intracranial extension usually follows a diffuse suppurative process, seldom a serous or circumscribed labyrinthitis. Fever and headache practically never occur in uncomplicated cases. A persistent and localized headache is suggestive of intracranial involvement, as labyrinthine suppuration, itself, causes no pain. A peculiar beating tinnitus in the affected ear is often complained of in disease of the posterior fossa; this condition is particularly striking when the hearing has been totally destroyed. A positive lumbar puncture is of value, but a negative one does not necessarily exclude intracranial disease. If perforation take place through the superior semicircular canal, the symptoms will be those of disease in the middle fossa.

Bronchoscopic Treatment of Spasmodic Asthma.—G. F. Keiper successfully treated a case of spasmodic asthma by injection into the trachea of one gram of a two per cent. solution of cocaine in a one to 2,000 solution of epinephrine. The preparation was deposited at the first bifurcation, to facilitate distribution to both lungs, by means of a long tracheal syringe introduced through the bronchoscope. Relief was almost immediate. In twelve days symptoms again became pronounced and the treatment was repeated. The patient was relieved of any further attacks.

Cancer of the Larynx and Radium Therapy.—J. C. Beck noticed in the application of radium to cancer of the larynx that the tumor growth changed more than in similar cases when radium was not used. Destructive changes, proved by the microscope, were observed in the cancerous growth. Pain was usually absent. The action of radium was not the same in all cases; it showed an inhibitory tendency in some; in others, it had no influence. The effect on the salivary glands was marked. A prolonged use of the salt produced symptoms simulating cachexia, but differing in some respects. The author believes that if applied early and in sufficient quantity in cases of cancer of the larynx, results will be as beneficial as in more superficial lesions.

INTERSTATE MEDICAL JOURNAL.

August, 1914.

Sacroiliac Displacement.—J. K. Young says that many pathological processes are constantly founded with this condition. It is incumbent upon the physician to differentiate it from various allied

affections. The simplest abnormality of the sacroiliac ligament is the strain; but if the strain continues, there results a sudden or gradual displacement or giving way of the ligamentous attachments, associated with pronounced instability of the joint, in proportion to the amount and nature of the bony displacement. What is commonly designated as a "stitch" in the side finds its true explanation in a rupture of some of the fibres of the sacroiliac ligaments, which permits of an abnormal degree of movement, with partial luxation of the articulation; and slight luxations are liable to affect the other joint structures in the pelvic girdle. In the more pronounced cases there is found complete dislocation, impossible of voluntary replacement. The most important of the clinical varieties are the traumatic and the static. The traumatic may be caused by direct violence or be the result of muscular action. The static variety, most largely composed of uterine and neurotic cases, is mechanical in character, although one is often at a loss to know if the intrapelvic process has caused the orthopedic condition. The symptomatology includes pain, limitation of motion, abnormal motility, and changes in attitude. Treatment includes: 1. Reduction. When reduction cannot be effected spontaneously, place the patient on his face and produce forward extension with traction on the limb, or place the patient between two chairs, eighteen inches apart, and make downward pressure over the site of the joint. In marked cases with severe deformity reduction by forcible means, under an anesthetic, may be necessary. 2. Employment of apparatus. The simplest form is a broad belt made of a surcingle and two buckles. The author's apparatus is a combination of an abdominal support of special construction and a well cushioned pad, so as to make the requisite pressure on the sacrum, which pressure is regulated by two hard tempered semicircular springs. 3. Aftertreatment. This includes massage, exercises, vibration, electricity, etc., to the weakened ligaments and fibrous structures to prevent a recurrence of the dislocation.

Ductless Gland Irregularities in Backward Children.—E. B. McCready believes that in the great majority of backward children, it is impossible to lay the blame upon any single gland; also it is a question in his mind whether most cases of so called malnutrition in school children are not cases of general glandular insufficiency. With a pluriglandular condition to treat, the indication is for polyopotherapy, and he is in the habit of using tablets made up especially for him, in which a somewhat different formula is employed for girls and boys; differing in that the one for the girls contains ovarian and mammary extracts, in the place of testicular. Both formulæ contain small doses of pituitary, thymus, thyroid, and suprarenal glands. With this treatment there are administered, when possible, appropriate hygienic and educational measures, and the usual result is improvement in nutrition, increase in height, increase of blood pressure, decrease of pulse rate, and improved mentality. The author then goes on to take up, separately, hypothyroidism, hyperthyroidism, thymus, pituitary, and pineal gland disease.

Clinical Importance of the Diastolic Test.—F. A. Faught states that the studies of Warfield and others have shown the accuracy of this method, which can be relied upon to give a correct reading under practically all circumstances, irrespective of the age of the patient, the character of the vessel, or the size of the arm to which the cuff is attached. Personally, he is convinced that we fail to obtain the best from our sphygmomanometer if we omit the diastolic observation, and that in many conditions, of the two blood pressure tests, the diastolic, which can be just as accurately made, is often more valuable than the systolic.

OPHTHALMIC RECORD.

August, 1914.

New Operation for Conical Cornea.—Flavel B. Tiffany reports an excellent result obtained by trephining at the limbus, removing a button of cornea and sclera, and then making a small peripheral iridotomy. He says that if this does not suffice, he would advise the removal of a small facet at the opposite point in the limbus without an additional iridotomy, and if the case proves to be pronounced, progressive, and obstinate, he would not hesitate to advise removing other facets at the limbus, all in line with the recti muscles.

SOUTHERN MEDICAL JOURNAL.

September, 1914.

Arterial Hypertension and Hypotension in Medicine and Surgery.—H. H. Roberts says arterial tension is only a symptom, not a disease; yet it is one of the greatest importance, for by it we are enabled, in many conditions, not only to make the diagnosis positive, but the prognosis also. Again, our treatment may often be governed almost exclusively by the variation in tension. For some time but little attention was given to the diastolic tension, but we now know that of the two, systolic and diastolic, the diastolic is the more important. To estimate correctly the tension in an individual the measurement should be taken several times and under the most favorable circumstances. When there is some doubt as to whether the hypertension observed is functional or organic, the patient should be put to bed and all food restricted for from eighteen to twenty hours. If, after this fast, little change is found in the tension, the condition is organic, while if the tension is reduced to normal, it is functional. With a continued systolic pressure of over 200 mm., we are justified in suspecting some form of nephritis. If the systolic tension is high and the diastolic low, we may suspect an aortic regurgitation. If, on repeated examinations, we find a continued low tension in an individual without any other clinical symptoms, we are justified in suspecting a beginning tuberculosis. In pneumonia, as long as the tension is kept above the pulse rate, there is favorable indication that the patient will recover; but if the tension is going down and the pulse going up, there is necessity for immediate action if his life is to be saved. If there is hemorrhage, even of a slow nature, the diminished tension will indicate it; as soon as the hemorrhage is arrested, the tension will rise rapidly. In typhoid

cases with perforation and peritonitis there is an early rise in the tension, which will fall later, when toxemia develops. In anesthesia for surgical operations the blood tension will give warning long before there are any symptoms of danger in either the pulse or respiration; and the anesthetist places himself in a position to be criticized if he neglects the precaution of taking the blood pressure both before the operation and at regular intervals during it.

Verrucose Dermatitis.—H. H. Hazen states that forms of eczema, or possibly more properly speaking, of chronic dermatitis, in which there occurs a large number of papillary outgrowths, have long been recognized by experienced dermatologists; though practically no attention is paid to them in textbooks on skin diseases. Five cases are described in detail. In the diagnosis the condition is to be especially differentiated from tuberculosis verrucosa cutis, blastomycosis, and bromide eruptions. In the treatment, salves and ointments are absolutely useless, except to prevent extension of the disease and allay itching. Probably the best treatment is thorough curettage, under a general anesthetic, followed by cauterization with the actual cautery or the acid nitrate of mercury.

Cæsarean Section in Eclampsia.—H. R. Shands's experience has convinced him that the correct treatment for puerperal eclampsia when the cervix is not dilated or readily dilatable, and in an uninfected woman, is Cæsarean section with local anesthesia (by means of novocaine and adrenaline). In case the vagina is contaminated, vaginal section should be looked upon with more favor than the abdominal; though local anesthesia would scarcely be indicated on account of the difficulty of the delivery. In abdominal section local anesthesia is especially indicated, and it is greatly assisted by the patient's stuporous condition. In eclampsia the use of any general anesthetic is, of course, attended with some real dangers.

Proceedings of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

*Stated Meeting, Held at the Academy of Medicine,
March 3, 1914.*

The President, Dr. S. E. JELLIFFE, in the Chair.

(Continued from page 593.)

Is the Jew Disproportionately Insane?—Dr. A. A. BRILL and Dr. M. J. KARPAS stated that ever since modern psychiatry came into existence, it had been understood that the Jew contributed more to insanity than any other race. As far as they could ascertain, however, very few investigations had been made along this line, yet when they consulted the works of such eminent observers as Kraepelin, Krafft-Ebing, Weygandt, Arndt, and others they found that they all agreed that the Jewish race was disproportionately afflicted with insanity. The opinions expressed by these and many other authors, however, were not fully shared by other investigators. Thus, Sioli had stated that all nervous and mental diseases familiar to physicians occurred

among all nations of the earth, but they are unable as yet to draw any definite conclusions concerning frequency and most manifold appearances. Sichel carried this disagreement still farther, basing his opinion on the record of the Frankfurt Hospital, which showed about the same relative percentage of mental diseases among Jewish and non-Jewish admissions. He also found that the Jews contributed a very small percentage to the alcoholic psychoses. From the figures available in literature, one could readily see that the sweeping statement made by so many observers that the Jew was disproportionately afflicted with insanity, had never been confirmed by careful statistical data. All that one could say from the material at hand was that the Jewish, like any other race, contributed a higher quota to certain forms of mental diseases. In the Manhattan State Hospital for the four consecutive years, October 1, 1908, to September 30, 1912, the total number of admissions was 5,710 (2,803 men and 2,907 women), of whom there were 1,203 Jews (588 men and 615 women). The Jews thus constituted twenty-one per cent. of the total. From a careful study of the diagnostic grouping of the Jewish patients, one could readily see that the predominating psychoses among them were of the functional type. Thus, the highest percentage was found in the manic depressive group, and second in order was the undifferentiated depressions, the greatest majority of which belonged to the manic depressive class, and third in order was the dementia præcox group. The relatively high percentage of the imbecility and constitutional inferiority groups might be explained by the fact that these diagnoses were too often only made when a foreign Jew was examined by a physician who was unfamiliar with his language and racial characteristics. The relatively high percentage of the infective exhaustive groups in men may be partially attributed to the poor hygienic conditions at home and in sweat shops. It was interesting to note that the general paresis group showed a comparatively high percentage. This condition was also found by Hirschl, Pilcz, Benedikt, Beadle, and others whose material came from large cities. The Russians, however, found a very low percentage of general paresis among Jews. In Russia the orthodox Jews were in the majority, and owing to their rigid religious tenets and early marriages, they led a pure sexual life. The senile and epileptic insanities and psychoses accompanying organic brain diseases showed a relatively low figure, and the alcoholic psychoses represented only 2.5 per cent. of the male admissions. This concurred with the results found by all investigators on the subject.

The prevailing belief that the Jews contributed more to insanity than any other race had never been substantiated by detailed statistical data. With the exception of a few investigators, notably Sichel, Kirby, and Pilcz, no real effort was ever made to settle this question. Their own findings, based on four years' statistics from the two biggest boroughs of the largest Jewish city in the world, showed that the Jew was not disproportionately insane. They agreed, however, with those writers who held that the Jewish race contributed a rather

high percentage to the so called functional forms of insanity. In that respect, however, the Jew did not differ from other races, as there seemed to be a certain selectiveness, even in abnormal reactions, which showed itself in definite forms of insanity. Why the Jew should show a preference for those particular psychoses would form the thesis for future investigation.

Dr. GEORGE H. KIRBY had for several years past endeavored to collect careful statistics at Ward's Island regarding the different racial types coming into the hospital. Similar data were now being gathered under the supervision of the State Hospital Commission in all the State hospitals. Studies in comparative race psychopathology had always seemed to him important, not only because of their purely psychiatric value, but also because of their practical bearing on some sociological and economic problems. It was important to know that the Italians were bringing in more epilepsy than any other race; that the Irish supplied an enormously disproportionate number of alcoholic psychoses, and that the recently arrived Jews furnished a high percentage of dementia præcox, manic depressive insanity, and feeble-mindedness. While the studies so far made showed that these psychopathic tendencies existed in varying degree among the different alien groups, it was much more difficult to determine if insanity in general was more prevalent in one race of mankind than another. Doctor Brill and Doctor Karpas, contrary to certain general impressions, had concluded that insanity was not disproportionately frequent among Jews as a race, but that in fact, just the opposite was true. Doctor Kirby wished to mention one factor involved in this study which he thought threw some doubt on the conclusions reached. To determine the incidence of insanity, one should not compare an essentially immigrant population (such as the Jews in New York) with the native born population. An immigrant population might be variously constituted. It usually contained a disproportionate number of young adults, and the two sexes might exist in unusual proportions. The Italian population of New York had a big majority of young unmarried men, while the Irish immigration had brought more women than men to this country. On the other hand, the native born population contained from one sixth to one fifth of children, and had a much larger proportion of middle aged and old people than did an immigrant population. The age periods were, therefore, very important in determining the incidence of insanity in any group of people. One reason why dementia præcox and manic depressive insanity were relatively more frequent among Jews admitted to the hospitals than the native born, was because there were relatively more young adults in the Jew population. As the average age of the immigrant population increased, there would be more cases of paresis, and, later still, more cases of arteriosclerosis and senile dementia to record among the Jews.

To his mind, more reliable comparisons were those contained in the figures from the Russian sociological study. They had there a native Russian population compared to a native Jew population, and the figures were practically equal, the

Jews showing only a slightly higher percentage than the Russians. If, however, the multitude of cases of dementia præcox and manic depressive insanity among the Jews in this country had remained in Russia to be included, the percentage would have probably been even higher for the Jews.

In regard to feeble-mindedness, a great deal of the data available indicated that it was proportionately higher among Hebrews than other races. Among all the cases of imbecility admitted to the Manhattan State Hospital during the past four years, fifty per cent. were Jews, whereas this race constituted only twenty-one per cent. of the total admissions. Some studies made in the New York city schools showed a high percentage of Hebrew pupils in the classes for defectives. With ten per cent. of the children of native parentage, there were forty per cent. of Hebrew parentage; more Hebrew children, in fact, than there were Italian, German, Irish, and negro children combined. At Ellis Island the number of defective Hebrews excluded had been remarked upon; the figures showed that nearly thirty-three per cent. of all the immigrants certified as mentally defective were Hebrews, whereas this race furnished only fourteen per cent. of the total arrivals.

Dr. SMITH ELY JELLIFFE said the general attitude toward any statistical problem was extremely difficult to grasp. Statisticians who followed work of this kind as a profession seemed to feel that the average question could be satisfactorily and definitely solved by figures, and were apt to ignore certain facts tending to show that such figures, taken by themselves, were of rather superficial importance. Doctor Kirby had emphasized the fact that from the bare recitation of a series of figures they were not warranted in drawing any definite conclusions as to the broader aspects of this problem. Sociological and economic questions, the transplantation of families, educational factors—all these had to be taken into consideration in trying to solve this problem of the comparative prevalence of insanity among the Jews or other race.

Dr. MORRIS J. KARPAS stated that New York formed an invaluable source of information for the study of race psychopathology, particularly in Jews. He felt that the large number of so called mental defectives among Hebrews excluded at Ellis Island was not at all conclusive, inasmuch as the medical examiners there were not familiar with the language and racial characteristics of the class of immigrants they were dealing with. One must bear in mind that feeble-mindedness, excluding the well defined cases of idiocy and imbecility, was purely relative, and before one could diagnose mental retardation, it was necessary to take into consideration the individual in relation to his heredity, environment, and intellectual training.

Doctor BRILL said that when one came to investigate the statistics to prove that the Jews did contribute more to insanity than any other race, one would find that the deductions were based largely on hearsay, while the conclusions drawn from the number of insane Jews in Manhattan and Bronx were based on actual figures. They had confined themselves to the question of disproportionate in-

sanity among Jews, and had not taken up the various psychoses, as such; feeble-mindedness without insanity, was not considered at all, as that class of cases would be investigated and reported at some future date. It was practically impossible, of course, in a study of this kind, to select the cases from the general population at various ages, or to learn how recent or remote their arrival in this city had been. While such a selection might have had some influence upon the results, it would probably have been comparatively trifling, and the percentages would have remained practically unchanged.

Dr. MAURICE FISHBERG (by invitation) said that great care must be taken in interpreting the statistics of insanity—in fact, more discretion was necessary than in interpreting dreams. Ninety-five per cent. of Jews were city dwellers against only thirty-three per cent. of non-Jews. Urban dwellers had a higher incidence of insanity, and must commit their mental defectives to institutions, whereas in rural populations the rates of insanity were lower and the milder patients with mental alienation were permitted to roam about. The Jews were engaged in financial and commercial pursuits in much larger numbers than the Christians, and this had an influence in the direction of increasing the number of insane among them. It was, however, impossible to determine the exact proportion of insane Jews in New York, because they had no reliable data as to the actual number of Jews, all the so called estimates being merely guesswork.

As to the statement that forty per cent. of the pupils in the ungraded classes in the schools of this city were of Jewish descent, this did not prove that there was more feeble-mindedness among them than among others. Jewish parents were more apt to send their children to school, while other immigrants often used every possible effort to evade the compulsory education law. While studying these problems, one must be extremely careful in the compilation of statistics. While preparing a monograph on the ethnic characteristics of the Jews, he had carefully scanned the literature, which was more extensive than the readers of the paper seemed to be aware, but he could arrive at no positive conclusions. In the official statistics of Austria-Hungary, Germany, and some other European countries there were data about conditions extending over long periods of years, yet it seemed that the question whether insanity among the Jews was more frequent than among others, and whether there was such a thing as a *psychosis judaica*, or whether certain forms of mental alienation were more apt to occur among them than among non-Jews, had not yet been settled. It all depended on the frequency of the factors in the etiology of insanity, such as alcoholism, syphilis, precarious occupations, such as banking, mercantile pursuits, etc. That there were no race factors at work was evident from many peculiarities, and this was best illustrated by the frequency of suicide among them. Half a century ago a Jewish suicide was extremely rare, while at present there were more Jews who voluntarily ended their life in Germany and also in New York than others. Ethnic traits did not change within one or two generations.

The statistics from Russia quoted by the reader

of the paper were of no value, because census statistics had never been taken seriously in that country, and, in addition, the Jews there kept their insane at home, excepting in very severe cases, and hence they were not counted in the asylum population. Mere figures were of no value; statistics were always comparative.

Presentation of Memorial of Dr. E. C. Spitzka.

—Dr. N. E. BRILL presented the following resolution, which was unanimously adopted:

Resolved: That the New York Neurological Society has learned with great sorrow of the death of its member and former president, Dr. Edward Charles Spitzka,

That it desires to place on record the expression of its appreciation of the very great value of the services rendered by him to the New York Neurological Society and to medical science, especially to neuroanatomy and to psychiatry.

And, therefore, it orders that a minute of this resolution be inscribed on its records, that a copy of it be sent to the medical press, and that a copy, suitably engrossed, be sent to the family of the deceased.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Anesthetics. Their Uses and Administration. By DUDLEY WILMOT BUXTON, M.D., B.S., Member of the Royal College of Physicians; Sometime President of the Society of Anesthetists; Member of University College; Administrator of Anesthetics and Lecturer in University College Hospital; Consulting Anesthetist to the National Hospital for the Paralyzed and Epileptic, Queen Square, and Senior Anesthetist and Lecturer on Anesthetics in the Royal Dental Hospital of London. Fifth Edition. Philadelphia: P. Blakiston's Son & Co., 1914. Pp. xiv+477. (Price, \$3.00.)

Many advances and new departures have been made in anesthesia in the years that have elapsed since the previous—fourth—edition of this book was issued. Thus the procedures involved in giving nitrous oxide and oxygen in major surgery, and in administering ether by intravascular infusion, intratracheal and pharyngeal insufflation, and colonic absorption, as well as the newer methods of regional and spinal analgesia and the use of alkaloids such as morphine and scopolamine in anesthesia, have all come up for discussion in the present fifth edition. On the other hand, descriptions of obsolete apparatus, as well as discussions of now abandoned theories have been deleted. Numerous new photographs and woodcuts have been introduced, and eight full page plates added, some depicting the positions of the patient and anesthetist in certain procedures, and others the course of the principal sensory nerves and arm veins, to facilitate the carrying out of regional analgesia and intravenous infusion. As in previous editions, the aim has been to provide the reader with a rational and accurate system of anesthesia, based rather on the pharmacological action of the drugs used than on rule of thumb, simple, but not infrequently dangerous arbitrary rules. Judicious selection of agents and methods has proved a safety factor of the first order in modern anesthetic procedure, and upon the indications for these various agents and methods Buxton lays considerable stress in the present volume. Recession from the English view as to the superiority of chloroform over ether for routine use is shown in the author's recommendation of the latter. The book contains information on the many various methods and apparatus devised for the administration of the

different general anesthetics or mixtures of them, and may be recommended as one of the most complete and authoritative works on this subject now available.

The Art of Compounding. A Textbook for Students and A Reference Book for Pharmacists at the Prescription Counter. By WILBUR L. SCOVILLE, Ph. G., formerly Professor of Theory and Practice of Pharmacy in the Massachusetts College of Pharmacy; Member of the Eighth Committee of Revision of the United States Pharmacopœia and of the Second and Third Committees of Revision of the National Formulary. Fourth Edition, Revised and Enlarged, with 76 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1914. Pp. xii-390. (Price, \$3.00.)

This is a most interesting and instructive work. It is obviously intended for the pharmacist and those who are preparing for examinations in pharmacy, but there can be little doubt that its study is at least as important as that of pharmacology. Certain prejudices or difficulties stand in the way to prevent it from taking its proper place in the curriculum. The medical student or physician who does not read such books for practical instruction may well leave college with the scantiest knowledge of what is meant by the art of pharmacy. In this field the physician needs a guide. How very true is the author's remark, "Many a life has been saved by the watchfulness of pharmacists and the reputation of the physician preserved as well." Necessarily, as the various branches of pharmacy are described, there is some comment made on the peculiarities of professional style and method, but there is very little that the physician should overlook. The chapters on incompatibility, the prescription, mixtures, and the training of the five senses, are admirably done and ought to be popular with the medical profession. Mr. Scoville succeeds in giving in a concise form the rules which mark the compounding of drugs. The mechanics even of the art should be studied. To say that such a book renders a service to physicians is much more than a platitude. To read it is urgently desiderated.

On Dreams. By Prof. Dr. SIGM. FREUD. Only Authorized English Translation by M. D. EDER, from the Second German Edition. With an Introduction by W. LESLIE MACKENZIE, M. A., M. D., LL. D., Medical Member of the Local Government Board for Scotland; Late Ferguson Scholar in Philosophy; Late Examiner in Mental Philosophy, University of Aberdeen. New York: Rebman Company, 1914. Pp. xxxii-110. (Price, \$1.00.)

Whether Freud is right or wrong in his theories, the modern physician can hardly afford not to know something of his method of psychoanalysis, especially as applied to dreams. We must not forget that Freud is the first philosopher to evolve a consistent theory of dreams, which have been relegated to old wives for interpretation since the days of Pharaoh. This work is an elementary treatise on the subject and is occupied mainly with a discussion of one of Freud's own dreams; it will be found of absorbing interest, even to those who are not in sympathy with the system. There is an admirably written introduction by Dr. W. Leslie Mackenzie. We cannot say as much for the translation by Dr. M. D. Eder, which abounds in errors in English, such as the use of *transpire* for *occur*, the use of verbs in the plural where the singular is required, etc. It gives the Freudian technic and phraseology, however, which must be thoroughly understood before the student can go further into the matter.

Österreichisches Bäderbuch. Offizielles Handbuch der Bäder, Kurorte und Heilanstalten Österreichs. Ueber Veranlassung und mit Unterstützung des k. k. Ministeriums des Innern sowie unter Beteiligung des Zentralverbandes der Balneologen Österreichs und unter Mitarbeit. Von Prof. Dr. NORBERT KREBS (Wien); k. k. Sektionsgeologen Dr. RICHARD SCHUBERT (Wien), etc. Auf Grund des amtlich eingeholten Materiales. Verfasst und herausgegeben von kais. Rat Dr. Karl Diem. Mit 2 Karten. Berlin und Wien: Urban & Schwarzenberg, 1914. (Through Rebman Company, New York.) Pp. viii-816. (Price, unbound, Marks 40.)

There is a wealth of information, hygienic, statistical, geographical, and climatological, in this monumental volume. We cannot pretend to have read it all, but there is a kind

of fascination in turning over its pages and tables of physical phenomena. The strength of its interest is to be found in the attempt to show how the forces of nature may help us in the treatment of disease, and our appreciation of such a work lies in the fact that all these springs, baths, seas, and their various elements are studied with a care and system unknown in our country. It seems a pity that such an employment of scientific energy has not occurred to our physicians and naturalists. In this branch of knowledge we have been outpaced by all other countries, including Great Britain, for we cannot recall that we have ever come across so complete a guide to our own springs and watering places. The matter in this book is beautifully arranged, and it is possible to find in a few minutes what one wants to know of some particular spa. It is a Baedeker in excelsis, with a deep scientific background.

Die Immunitätswissenschaft. Eine kurz gefasste Uebersicht über die biologische Therapie und Diagnostik für Aerzte und Studierende. Von Professor Dr. HANS MUCH, Oberarzt am Eppendorfer Krankenhaus. Zweite völlig umgearbeitete Auflage. Mit Tafeln und 7 Abbildungen im Text. Würzburg: Curt Kabitzsch, 1914. Pp. x-286. (Price 9 marks.)

In this second edition the author has added much to the material in the original volume, especially in regard to the newer laboratory methods of diagnosis. The chapter on the antibodies and their diagnostic application is particularly complete and valuable. So also is the one dealing with the individual diseases and their relation to the study of immunity. Although the taking of the opsonic index has more or less generally fallen into disrepute, Doctor Much considers it to be of decided value as it not infrequently makes a diagnosis possible where bacteriological and other serological methods have failed. This book can be recommended, both on account of the clearness of presentation and the excellent description of technic.

Anleitung zur Diagnose und Therapie der Kehlkopf, Nasen und Ohrenkrankheiten. Vorlesungen gehalten in Fortbildungskursen für praktische Aerzte. Von Dr. RICHARD KAYSER, in Breslau. Achte, verbesserte Auflage. Mit 136 Abbildungen. Berlin: Verlag von S. Karger, 1914. Pp. 218.

The appearance of the eighth edition indicates the popular reception of the publication in book form of Doctor Kayser's lectures to physicians on the diagnosis and treatment of diseases of the throat, nose, and ear. The new edition continues to fill the object expressed in the title page of the original publication and contains due consideration of all important events pertaining to the advance of this special branch of medicine. It is not presented by the author as a textbook on the subject. The illustrations, while not of the best, are sufficiently well executed to be of considerable help in elucidating certain points of the text. A helpful index is appended.

Interclinical Notes.

The war continues, according to late advices, "without material loss on either side;" unless you are going to count some 500,000 lives snuffed out and the domestic consequences.

* * *

Our distinguished colleague, Sir Conan Doyle, pays his respects to "the armor plate gang" as a cause of war. He might have included the powder making gang, the arms making gang, and other gangs whose activities should become without delay government monopolies.

* * *

The *Nurse* for September is a most interesting and instructive number, beautifully illustrated. We noted in particular the extraordinary photographs of a young baby in an article on the care of the eyes of the newborn by Dr. F. Park Lewis, of Buffalo; an infant professionally trained as sitter could have done no better. The direct, practical articles by the nurses themselves are admirable.

* * *

The Call to Arms in Europe, by Major John Bigelow, and War, by Olive Schreiner, are two prominent articles

in the October *Century*. Arnold Bennett, young George Bronson-Howard, and Hilaire Belloc are among the distinguished literary contributors, and Arthur Rackham has an exquisite picture, *Lights Through the Mist*. Other features are Madeleine Z. Doty's week in prison and a delightful study of Barrie, the writer, by John D. Williams.

* * *

Out of the Miocene, by John Charles Beecham, a story in two issues of the *Popular*, for the August month end and early September, shows that this magazine's early experiments in prehistorical tales have created a taste for this kind of literature. It is well imagined and is worth reading by physicians who like to study the infancy of the race not too greatly disguised by fiction.

* * *

Hurri Singh's Cobra, by Lady Sylvia Dalton, in the *Wide World* for September, shows what a tremendous factor in Indian life snakebite is. One would think that after a king cobra had destroyed two mail carriers, as is here narrated, the government might become interested, but it was left to the youthful hero of the story to kill the animal, which measured nine feet, six inches in length. Possibly some modification of mithridatism might be useful in rendering the inhabitants of India immune to cobra poison.

* * *

An extraordinary story in the *Wide World* for September is *The Ship of Death*, told by Robert C. Walker. The entire crew of one ship and several would be rescuers from a British second class cruiser were asphyxiated by the carbonic acid generated in the hold from the contact of hydrochloric acid, flowing from broken carboys, with Carrara marble, both marble and acid forming the cargo. What a ghostly mystery this would have made a little earlier in the world's history, before chemistry was much understood.

* * *

Our talented colleague, Dr. Rupert Hughes, who as we have remarked before, abandoned the path of medical science to write fascinating stories, has a serial in the September *Red Book*, of life in New York, entitled *Empty Pockets*; the title will strike direct to the heart of the average New Yorker. Arthur B. Reeve has one of his ultrascientific detective stories. Other distinguished authors represented in this number are Justin Huntly McCarthy, Ellis Parker Butler, John Barton Oxford, Elinor Glyn, James Oliver Curwood, Cyrus Townsend Brady, and several more.

* * *

A most interesting feature of the *Popular Science Monthly* for September is the reprinting of a series of articles on war and peace formerly contributed by Andrew Carnegie, the late William James, Chancellor David Starr Jordan, and Prof. J. McKeen Cattell. The last named was, alas! much too hopeful in his article on Science and International Good Will. Other communications in this issue of special interest to physicians are *The Cellular Basis of Heredity and Development*, by Professor Edwin Grant Conklin, and *The Decreasing Population of France*, by Professor James W. Garner.

* * *

One beach of gold and another of garnets are among the things Frederick R. Bechdolt asks us to believe in, in *The Red Beach*, which opens the *Popular* for September 1st. Joseph C. Lincoln, Bozeman Bulger, Ralph D. Paine, Richard Washburn Child, and Roy Norton are writers in this issue, and perchance there are other distinguished authors working under *noms de guerre*.

* * *

Women's Stories now appears monthly, in an enlarged form. If any woman has concluded that the stories of this magazine are wishy washy, or expurgated in any way in deference to a supposed exclusiveness of taste regarding the proper topics for a story, she is in error. Neither obstetrics nor its causes seem to be taboo in any popular magazine of this comparatively free and easy era of fiction. Dan Cupid's M.D., however, by Arnold Hofmann, the title of which naturally caught our eye in the issue for October, might be read fearlessly by the most careful of grandmothers. Maud, the heroine, is one of those Southern girls who has come North to pay off the mortgage on the old plantation. She marries a tall, well built young man, with clear, brown eyes, and a strong mouth and chin.

What more could a grandmother desire? As to the strong young man's occupation, its disclosure will, we are sure, be a terrible shock to many young lady readers of the tale

Meetings of Local Medical Societies.

MONDAY, October 5th.—Clinical Society of New York Throat, Nose, and Lung Hospital; German Medical Society of the City of New York; Utica Medical Library Association (annual meeting); Niagara Falls Academy of Medicine; Brooklyn Hospital Club; Hornell Medical and Surgical Association; Clinical Society of the New York Polyclinic Medical School and Hospital.

TUESDAY, October 6th.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Amsterdam City Medical Society; Lockport Academy of Medicine; Society of Alumni of Lebanon Hospital, New York; Syracuse Academy of Medicine; Buffalo Academy of Medicine (Section in Surgery); Ogdensburg Medical Association; Oswego Academy of Medicine; Medical Association of Troy and Vicinity; Clinical Society of the West Side German Dispensary and School of Clinical Medicine; Broome County Medical Society (annual meeting); Medical Society of the County of Yates; Medical Society of the County of Ulster; Medical Society of the County of Orleans (annual meeting); Medical Society of the County of Orange; Medical Society of the County of Cattaraugus.

WEDNESDAY, October 7th.—New York Urological Society; Brooklyn Society for Neurology; Society of Alumni of Bellevue Hospital; Harlem Medical Association, New York; Bronx Medical Association; Elmira Academy of Medicine; Schenectady Academy of Medicine; Medical Society of the County of Genesee (annual meeting).

THURSDAY, October 8th.—New York Academy of Medicine (Section in Pediatrics); Gloversville and Johnstown Medical Association; Physicians' Club of Middletown; West Side Clinical Society, New York; Brooklyn Pathological Society; Blackwell Medical Society of Rochester; Jenkins Medical Association, Yonkers; Society of Sanitary and Moral Prophylaxis, New York; Buffalo Ophthalmological Club; Jamestown Medical Society; Society of Physicians of Village of Canandaigua; Medical Society of the County of Allegheny.

FRIDAY, October 9th.—New York Academy of Medicine (Section in Otolaryngology); Society of Ex-Interns of the German Hospital in Brooklyn; Flatbush Medical Society, Brooklyn; Eastern Medical Society of the City of New York; Society of Alumni of St. Luke's Hospital.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending September 30, 1914:

Austin, H. W., Senior Surgeon. Directed to proceed to Jackson, Michigan, or to detail a junior officer for the duty, for the purpose of rendering a certificate in the case of an alien under treatment for trachoma. **Billings, W. C.**, Surgeon. Granted four days' leave of absence from September 26, 1914, under paragraph 193, Service Regulations. **Bryan, W. M.**, Passed Assistant Surgeon. Detailed, at the request of the Kanawha Medical Society, to attend the meeting of that society at Charleston, W. Va., October 6, 1914, and deliver an address on Rural Sanitation. **Cofer, L. E.**, Assistant Surgeon General. Directed to proceed to Philadelphia, Pa., to deliver an address to the Business Men's Association on Monday morning, September 28, 1914, on Maritime Sanitation and Particularly Measures for Ro-

dent Extermination. **Guiteras, G. M.**, Surgeon. Leave of absence for fifteen days to be taken when convenient, amended to read "three days' leave of absence from September 3, 1914." **Hamilton, H. J.**, Acting Assistant Surgeon. Granted three days' leave of absence from September 12, 1914. **Hunter, Andrew**, Biochemist. Directed to proceed to Washington, D. C., for conference relative to investigations of pellagra. **Jones, W. M.**, Assistant Surgeon. Relieved from duty on the Revenue Cutter *McCulloch* and directed to rejoin station at the marine hospital, San Francisco, Cal. **Keating, T. F.**, Assistant Surgeon. Directed to proceed to Corning and Des Moines, Iowa, to deliver addresses on Rural Sanitation. **Knight, C. P.**, Passed Assistant Surgeon. Granted one month's leave of absence from October 1, 1914. **Magruder, G. M.**, Surgeon. Leave of absence for fifteen days from August 23, 1914, amended to read "eleven days' leave of absence from August 27, 1914." **McKeon, F. B.**, Passed Assistant Surgeon. Granted twenty-three days' leave of absence from September 30, 1914. **McMullen, John**, Surgeon. Directed to proceed to Buchanan, Dickenson, and such other counties in southwestern Virginia as may be necessary to determine the best location for the establishment of an additional trachoma hospital. **Molloy, D. M.**, Technical Assistant. Granted five days' leave of absence en route to station at Mobile, Ala. **Neill, M. H.**, Assistant Surgeon. Detailed to attend the meeting of the Association of Military Surgeons at Cincinnati, Ohio, September 29, 1914; leave of absence for one month from October 1, 1914, amended to read "one month's leave of absence from October 11, 1914." **Oakley, J. H.**, Surgeon. Granted fourteen days' leave of absence from October 7, 1914. **Scott, E. W.**, Assistant Surgeon. Granted twenty-one days' leave of absence from October 17, 1914. **Spratt, R. D.**, Passed Assistant Surgeon. Granted one month's leave of absence from October 7, 1914. **Sweet, E. A.**, Passed Assistant Surgeon. Relieved from duty at the Mobile (Ala.) Quarantine Station and directed to proceed to Washington, D. C., and report to the director of the hygienic laboratory for temporary duty; at the request of the Commission on Industrial Relations, after conference with the bureau, he will make a sanitary survey of certain industries in South Carolina, Georgia, and Alabama. **Taylor, H. A.**, Technical Assistant. Granted five days' leave of absence en route to station at Mobile, Ala. **Trask, J. W.**, Assistant Surgeon General. Directed to stop at Albany, N. Y., for consultation with the State health department while carrying out bureau orders of September 14, 1914.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending October 3, 1914:

Bauer, L. H., First Lieutenant, Medical Corps. Relieved from further duty with Second Division, Texas City, Texas, and from further duty at Fort Ethan Allen, Vermont, and will take the January 5th transport for the Philippine Islands. **Beery, Harry R.**, Captain, Medical Corps. Granted one month's leave of absence. **Seaman, L. L.**, First Lieutenant, Medical Reserve Corps. Has resigned his commission in the Medical Reserve Corps. **Southwick, H. H.**, First Lieutenant, Medical Reserve Corps. Has resigned his commission in the Medical Reserve Corps. **Taylor, S. M.**, First Lieutenant, Medical Reserve Corps. Has resigned his commission in the Medical Reserve Corps.

United States Navy Intelligence:

Official list of changes and duties of officers serving in the Medical Corps of the United States Navy for the week ending October 3, 1914:

Asserson, F. A., Surgeon, Medical Corps. Detached from the *Minnesota* and ordered to the Atlantic Reserve Fleet. **Cross, W. W.**, Assistant Surgeon, Medical Reserve Corps. Ordered to the Naval Medical School, Washington, D. C. **Hoyt, R. E.**, Surgeon, Medical Corps. Detached from the *Wisconsin* and ordered to the *Minnesota*. **Lanning, R. H.**, Passed Assistant Surgeon, Medical Corps. Detached from the American Legation Guard, Peking, China, and ordered to the *Saratoga*. **McLean, A. D.**, Surgeon, Medical Corps. Detached from the dispensary, Washington, D. C., and

ordered to the *Solace*. **Munson, F. M.**, Passed Assistant Surgeon, Medical Corps. Ordered to Naval Hospital, Washington, D. C., for treatment. **Sullivan, N. R.**, Assistant Surgeon, Medical Corps. Ordered to the *Villalobos*. **Taylor, S. N.**, Assistant Surgeon, Medical Reserve Corps. Ordered to the Naval Medical School, Washington, D. C.

Births, Marriages, and Deaths.

Married.

Allen—Jolliffe.—In San Francisco, Cal., on Thursday, September 24th, Dr. Herbert William Allen and Miss Gertrude Jolliffe. **Barrett—Sullivan.**—In New York, on Saturday, September 26th, Dr. Paul S. Barrett, of Forest Hills, N. Y., and Miss Ethel M. Sullivan. **Collins—Carey.**—In Chicago, Ill., on Wednesday, September 30th, Dr. Francis A. Collins and Miss Laura Carey. **Howorth—McDaniels.**—In Wilkesbarre, Pa., on Wednesday, September 23d, Dr. John Howorth and Miss Florence Loretta McDaniels. **Kempf—Clarke.**—In Longwood, Mass., on Monday, September 28th, Dr. Edward J. Kempf and Dr. Helen Dorothy Clarke. **Lewis—McLellan.**—In Brunswick, Me., on Wednesday, September 23d, Dr. Philip Prescott Lewis, of Gorham, and Miss Mary Larrabee McLellan. **Mackenzie—Byrne.**—In Boston, Mass., on Thursday, September 24th, Dr. Roland C. Mackenzie and Miss Elizabeth Grace Byrne. **Rose—Connery.**—In Chicago, Ill., on Monday, September 21st, Dr. Charles M. Rose, of Galesburg, Ill., and Miss Marguerite Connery. **Schuler—Sampsel.**—In Sioux City, Iowa, on Friday, September 25th, Dr. Clarence A. Schuler and Miss Frances Willard Sampsel. **Steffen—Hessel.**—In Antigo, Wis., on Wednesday, September 23d, Dr. Lyman Allen Steffen and Miss Erma Edith Hessel.

Died.

Corson.—In Philadelphia, on Saturday, September 26th, Dr. Linwood S. Corson, aged forty-one years. **Currier.**—In Fort Scott, Kansas, on Saturday, September 19th, Dr. Alonzo E. Currier, aged eighty-three years. **Froehlich.**—In Stuttgart, Ark., on Friday, September 25th, Dr. Rudolf Froehlich, aged thirty-seven years. **Harvey.**—In Bristol, Vermont, on Saturday, September 26th, Dr. Charles E. Harvey, aged fifty-one years. **Luckey.**—In Seymour, Ind., on Wednesday, September 23d, Dr. Horatio R. Luckey, aged thirty-two years. **Marks.**—In Milwaukee, Wis., on Tuesday, September 29th, Dr. Solon Marks, aged eighty-seven years. **Mason.**—In San Francisco, Cal., on Saturday, September 19th, Dr. Wilton M. Mason, of Lodi, aged forty-nine years. **Mooney.**—In Gloucester, Mass., on Sunday, September 27th, Dr. Philip Mooney, aged fifty years. **Morris.**—In Fulton, Ky., on Friday, September 25th, Dr. Nathaniel G. Morris, aged sixty-five years. **Neil.**—In New York, on Monday, September 28th, Dr. James Neil, aged eighty-six years. **Newmayer.**—In Philadelphia, on Monday, September 28th, Dr. Harry Newmayer, aged twenty-four years. **Reed.**—In Ebensburg, Pa., on Tuesday, September 29th, Dr. Frederick B. Reed, of Osceola, aged sixty-eight years. **Rutherford.**—In Windsor, Ontario, on Wednesday, September 23d, Dr. John R. Rutherford, of Aurora, aged seventy-four years. **Sargent.**—In Webster, Mass., on Saturday, September 26th, Dr. Charles S. Sargent, aged fifty-eight years. **Smith.**—In Albany, N. Y., on Sunday, September 27th, Dr. Charles H. Smith, aged eighty-four years. **Taylor.**—In Holley, N. Y., on Wednesday, September 23d, Dr. John H. Taylor, aged seventy years. **Toole.**—In Glenwood, Ga., on Monday, September 21st, Dr. James A. Toole, aged seventy-four years. **Van Dyke.**—In Himrod, N. Y., on Tuesday, September 29th, Dr. Charles M. Van Dyke, aged fifty-seven years. **Vredenburg.**—In Danville, Ill., on Wednesday, September 23d, Dr. Samuel Hamilton Vredenburg, aged ninety-four years. **Westfall.**—In Prairie City, Ill., on Monday, September 21st, Dr. Alonzo M. Westfall, aged seventy years. **White.**—In Cambridge, Mass., on Sunday, September 27th, Dr. Robert White, aged ninety-two years. **Wolfe.**—In Paterson, N. J., on Saturday, September 26th, Dr. Aaron R. Wolfe, aged fifty-five years.

New York Medical Journal

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WHOLE No. 1872.

Original Communications.

IMPLANTATION OF THE GENERATIVE GLANDS AND ITS THERAPEUTIC POSSIBILITIES.*

Successful Autoimplantation of a Testis from a Subject Dead Twenty-four Hours. Other Successful Implantations of Testes and Ovaries from Dead Subjects. Experimental Implantations in Various Conditions, and Cross Implantations of Testes and Ovaries Taken from Dead Subjects.

BY G. FRANK LYDSTON, M. D.,
Chicago,

Formerly Professor of Genitourinary Diseases and Syphilology,
Medical Department, State University of Illinois.

Since long before the days of oophorectomy craze—the darkest blot upon the history of the surgery of the last quarter of the nineteenth century—the attention of the profession has been more or less insistently directed to the possible relation of various derangements of the sex glands to certain morbid phenomena of a general or special character, notably affecting the nervous system. The interest aroused finally led to the widespread adoption of the Battey operation, which once was so disastrously fashionable as a remedy for “neuroses” in women.

The period at which I myself first began to suspect that in many cases we were on the wrong track, is fairly well fixed in my mind by two personal cases that occurred during the then prevalent epidemic of ovarian mutilation into which the masters of surgery had led us. These cases were respectively one that now probably would be termed dementia præcox, in a girl of twenty years, and another of “hysteroepilepsy” in a girl of eighteen. In the former I set about removal of the ovaries to relieve the “reflex irritation” which, according to the then fallacious popular theory, presumptively underlay the nerve and brain symptoms, and was astonished to find “atrophied”—or more probably, undeveloped—ovaries and uterus. In the other case, operation was refused and, several years later, I had the opportunity of making an autopsy, the young woman having died peacefully without surgical interference. “Atrophied”—undeveloped—ovaries and an undersized uterus again were found. Both subjects had menstruated, although tardily and irregularly from the beginning, but finally menstruation had entirely ceased.

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Even at that early period of my professional career, these cases suggested the possibility that an aberration of function of the ovary, rather than reflex irritation from diseased ovarian structure, had an etiologic relation to some of the manifold nervous phenomena in women, for which bushels of ovaries were being sacrificed. In the light of recent researches in the field of internal secretions, it would seem that possibly the profession builded wiser than it knew in attributing to ovarian disease a host of nervous disorders in women.

It was a great misfortune that we then had no knowledge of the internal secretions, and no blood researches to show us that the trouble often lay, so to speak, not in too much ovary, but in what was, in effect, too little, the internal sex gland secretion being either insufficient in quantity or perverted in quality, from disease or congenital structural defect.

It is remarkable that the nervous and other phenomena following castration in females who previously were normal in respect to the nervous system, did not make matters clearer to the profession, but possibly our attention was distracted and our reasoning powers were inhibited by the grave discussions with which we were regaled on the wisdom of “leaving the ovarian nerves intact” when we removed the ovaries. Even this point in technic was regarded as important, chiefly because of the consideration of the influence of the ovarian tissue and the ovarian nerve upon menstruation, this function being regarded as the main factor in the preservation of a normal nervous system after extensive pelvic mutilations.

Since the inception of the pelvic mutilation fad, the profession has had the opportunity of observing the nervous effects of the Ramm-White operation of castration for enlarged prostate—now reposing so peacefully in the surgical dead lumber room by the side of the long defunct epidemic oophorectomy mania which, unhappily, still perverts the minds of a few of the surgically obscure and, what is worse, inspires the malpractice of certain commercially depraved members of the profession.

It is noteworthy that Brown-Séquard’s self experimentation with the extract of the testes of lambs really signified more than either he himself or the profession comprehended. Had we grasped the great principle involved, the much ridiculed “elixir of life” probably would have been more of an epoch maker than a joke. Believing that a most important principle was involved in Brown-Séquard’s self experimentation, I have for many years been especially interested in the problem of the normal

equilibrium between sexual activity and age, and that between general bodily vigor and sex gland structural and functional integrity. The most fascinating, although, perhaps, the least practical phase of the problem, has been the question of the interrelation of senility and sex gland activity.

The association of remarkable sex vigor with notable longevity is a matter of common observation, even among laymen, but which is the *propter* and which the *post*? Do we age because the sex glands deteriorate or do they deteriorate because we age? As shown by his report of his experiments upon himself with the juices of sex glands of the lower animals, Brown-Séquard evidently had certain ideas of his own upon the subject. Is there merely a normal, very delicate equilibrium between age and sex gland activity, the maintenance of which determines whether or not the individual will live and preserve the vital functions, notably the sex powers, in active condition to the normal extreme age average? Finally, while assuming as skeptical an attitude as we please toward the possibility of the discovery of the "elixir of life," may we not—granting the acceptance of the "equilibrium" theory just suggested—logically search for a method of restoring or preserving that equilibrium, thus prolonging life to its rare, normal conclusion of extreme old age? May we not even hope to go beyond the limit of what we now regard as "extreme"? Obviously, the collateral problems suggested are very numerous.

At first sight the logical answer seems to be that sex gland activity is entirely dependent upon age and general nutrition, becoming impaired *pari passu* with advancing age, to be finally extinguished by the degenerescence of senility. In the light of our present knowledge of the internal secretions, however, are we not justified in suspecting that rejuvenation of the supply of internal sex gland secretion may have a marked effect in retarding age, the disturbance of equilibrium being in favor of the individual supplied with the gland elements necessary to the formation of young internal secretion? Admitting the cogency of this theory, who could foretell how far longevity might be prolonged by successive supplies of young internal secretion? We, of course, must admit that anatomical and physiological machinery is predestined to wear out, and whatever one may think of the future prospects of spiritual man, we must recognize his mortal limitations. If ever we discover the fountain of youth, we are likely to find that its waters will be doled out to us very sparingly.

Following the widely heralded alleged discovery of the "elixir of life" by Brown-Séquard, came a host of imitators. These were of two classes: First, ethical workers in therapeutic fields; second, quacks who pretended to employ animal extracts. Among the latter was a distinguished American neurologist, since dead, who prostituted to commercialism a once enviable reputation. His testine and cerebrine will be recalled by many of the older members of the profession. Samples submitted to me direct by the neurologist aforesaid proved to be merely solutions of glonoin.

Since the publication of Brown-Séquard's experiments, and more particularly since the discovery of

the internal secretions, the profession has been deluged with animal extracts of many kinds, manifold pretensions, and varying degrees of harmfulness and therapeutic efficiency. Naturally, much attention has been paid to sex gland extracts. These I will give scant courtesy. In my opinion, most of them, up to date, have been wrong in principle, toxic in action, and absolutely valueless, save as sordidly commercial propositions. Recently, however, some really scientific preparations have appeared and in some instances apparently have given brilliant results.

One of the unfortunate features of organotherapy is the toxicity of animal extracts in general; this with due deference to the brilliant results achieved by some of them. It is logical to assume, also, that the therapeutic potency of the best of them is not to be compared to that of the hormones produced *in vivo* and normally discharged into the circulation. Some of the various extracts of internal secretory glands probably bear the same relation to the internal secretions that old fashioned beef tea does to wholesome beef. The nutritive properties of the beef do not appear in the beef tea, but the toxic elements do. As to whether emulsions of fresh material will prove more satisfactory than "extracts" have done remains to be shown. The author is optimistic in this regard.

Since the attention of the profession has been so pertinently directed to the internal secretions, I have given considerable thought to the probable relation of sex gland secretory aberrations, first, to nutrition in general; second, to brain and nerve integrity; third, to sex power and activity; fourth, to senile pathology and physiology. The impression that the well being of all animals hinged upon the integrity of the sex organs, and especially of the testis and ovary, prevailed in very ancient times. The mechanism by which the sexual apparatus operates was enveloped in mystery until we began to comprehend that the procreative function of the sex glands was not their only biological mission. The phenomena which for centuries were known to take place after suppression of the secretion of the sexual glands by castration, and by the physiological change incidental to the climacteric, were formerly supposed to be due to "reflex nervous action." It was noted that the sexes were much alike in this respect, and it has long been suspected that the male has a climacteric, analogous to that of the opposite sex, which occurs later in life than in the female, and is attended by varying peculiarities of nerve action. As this is likely to occur in the male long before fertility ceases—if, indeed, we accept such a climacteric at all, as I am inclined to do—the only rational explanation, in the light of modern research, seems to be a diminution or change, or both, in the internal secretion of the sexual glands, with, of course, due appreciation of arterial changes, which themselves may be merely secondary. Still more logically will this theory explain the nerve phenomena of the menopause.

In the latter part of the eighteenth century, Bordini (1) asserted that the nervous and other morbid phenomena which followed removal of the sex organs, and in diseased conditions affecting them, were due to either a deficiency or superfluity of the

procreative glandular secretions. Bordieu, however, had no conception of internal secretions. Johannes Müller (2) recognized certain "ductless" glands. He even designated the placenta as a ductless gland. These glands, he believed, modified the blood which circulated through them, and thereby gave what he called a "plastic influence" to the generative circulation.

The testicle long has been known to have a double function, but until recently none knew that both functions were secretory. That it acts as a duct gland has been accepted as long as its physiology has been known. In 1849, Berthold (3), of Göttingen, transplanted the testes of cocks to their abdominal cavities and showed that the masculine sex qualities were preserved, through, he averred, an effect upon the blood. Thus, without precise scientific knowledge, and with no accuracy of nomenclature, Berthold first proved the existence and significance of what we now recognize as an internal secretion. Many years later, Forel (4) asserted that "the implantation of a sex gland in any part of the body is sufficient to arrest the production of the special peculiarities of the eunuch," and he might have added, also, of the amazon.

Since Berthold's day, and especially of recent years, considerable experimental work has been done in sex gland implantation, some of which had in view merely transplantation *per se* and some the matter of internal secretion in mind. A number of the contributions are worthy of special mention. Herlitzka (5), in 1899, reported successful experimental transplantations of testes of frogs into the peritoneal cavity of the same individual. Later, Meyns (6) successfully transplanted portions of frogs' testes into the dorsal lymph vessels. Hammond and Sutton (7) reported a case of testicle transplantation. A testicle was removed from a subject who had just died of traumatic hemorrhage, due to a rupture of the liver, and placed in sterile salt solution in cold storage. A sarcomatous testicle was removed from a patient, twenty-nine and a half hours later, and the testis from the dead body systematically anastomosed upon the cord stump. Healing was perfect. One month later, only a small nodule remained on the end of the cord. Some time later this was observed to have enlarged a little, whether or not from return of the sarcoma has, I believe, not yet appeared. The object of the transplantation was a purely psychic effect, and no observations regarding sex hormone therapy were made. This case obviously was a severe test of implantation on account of the possible, or even probable, malignant involvement of the cord. Be it remarked that a testis removed from a body immediately after death is the equivalent of one taken from the living subject.

Foa (8), after extensive experiments on animals, concluded that testicle grafts fail, merely because of the impracticability of reestablishing, by any technic then known, blood and nerve supply. Guthrie (9), however, found that a testicle removed from a fowl and planted in the shoulder of the same bird, was growing, had considerably enlarged, and had acquired a liberal blood supply after four months. He also concludes from his experiments that "ovarian tissue" from fowls engrafted into

fowls may develop and preserve its functional powers to a high degree." Cevolotto (10) found that, after forty-five days, small pieces of testicle tissue implanted under the skin of rabbits showed changes which proved that the highly differentiated cells of such tissues tend to retrograde to ordinary connective tissue cells. He notes an increase of Sertoli cells as an evidence of degenerescence of the gland tissue proper. In this far, Cevolotto is pessimistic regarding the success of sex gland transplantation.

Lode (11), following Berthold, believed he had proved by experiment that testes of fowls transplanted beneath the skin retain their vitality and functional activity, continuing to secrete semen. He also concludes that, in fowls at least, a special secretory nerve supply for the testes does not exist. Foges (12), from his experiments on fowls, concluded that, while the semen producing power of transplanted testes was preserved, their influence on the secondary sex characteristics was not. This latter observation does not accord with the results of certain recent experiments on fowls by the author, although, as to the end results, it is too early to arrive at definite conclusions.

Ribbert (13) holds that he has shown by animal experimentation the feasibility of transplantation of various living tissues, the terminal results not being uniform for different tissues, and resorption finally taking place in all tissues save the epithelial structures of the skin and conjunctiva.

The gross results of caponizing fowls are familiar, even to the laity. In a series of recent experiments on fowls, I made some interesting observations of the effects of glands from nonrelated birds, implanted in the capon. The nutritive stimulant effect was remarkable.

Guthrie (14) reports an experiment in which removal of the ovaries resulted in the development of secondary male characteristics, the subject when grown being spurred, plumaged like the male, pugnacious to cocks, and treading hens as would a cock. I have owned a number of supposedly normal hens—never experimented upon—which were spurred, given to crowing, pugnacious to strange cocks, and who would assume charge of the flock of hens and tread them systematically, as soon as the cock was removed from the run. Despite their "inversion" symptoms, these hens were good layers and their progeny was normal. Dr. A. E. Brown, of Waukegan, Ill., had in his possession at one time, a hen bred by me which he reported as having had the characteristics mentioned. Such hens are familiar to most breeders of domestic fowl.

Apropos of plumage as a criterion of secondary sex characteristics in fowls, I take the opportunity of observing that it is not so important as might be supposed. The hencock, or "hennie," is familiar to all game fowl fanciers. The plumage of the male is practically the same as that of the female. These fowls are vicious fighters, some strains are heavy weights, and all are excellent layers and breeders. The hencock often crops out either as a sport or a throwback (atavism). An observation of my own may be of interest. For ten years I had bred a certain strain of brilliant colored, rich plumaged, black red game bantams. The originator

of the strain had bred them for twenty-five years. Neither of us ever had made an outcross, but carefully preserved the type by inbreeding and line breeding. Desiring to increase the vigor of the stock by a change of environment, I placed some of these bantams—a full brother and several sisters—in the hands of Mr. Walter Adams, a very careful breeder, of Hubbard Woods, Ill. In the second year thereafter, four fine specimens of hencock appeared in the progeny. These I succeeded in perpetuating fairly well by careful selection—a difficult task because the female hennie could not be distinguished from her “regulation” sisters.

Claude Bernard (15), in 1855, called attention to the glycosuric function of the liver as dependent on a special internal secretory action under control of the nervous system. Brown-Séquard (16), in 1869, first expressed the idea that all glands, whether with or without ducts, supplied to the blood a substance a deficiency of which produced pathological disturbances. It was not, however, till the publication of his celebrated experiments on himself that attention was given to the question of internal secretions. In 1889, at the age of seventy-two years, he injected himself with testicular extract from the lower animals. According to his reports, he experienced a marked improvement in mental activity, physical strength, and bowel action, and an increased appetite.

Poehl (17) states that “injections of spermine have been given to enfeebled old men who had lost appetite and sleep, and produced improvement lasting for months. From the instances given, I have selected that of an old lady of ninety-five years, afflicted with severe sclerosis of the arteries, with no appetite, a bad digestion, and constipation. This patient had complained for several years of sacral pains, and, moreover, was nearly quite deaf and suffered from periodical attacks of malarial fever. The injections of spermine, given for a period of fifteen months, restored the old lady to such an extent that she recovered her power of hearing and felt the sacral pains only slightly and after a long walk. Her general condition was highly satisfactory.”

Brown-Séquard's self experimentation is generally recognized as the pioneer work in organotherapy. The suggestion of the old humoral pathology, fathered by Bichat, and of the once derided alleged vagaries of Hahnemann, which lingers about the physiology and pathology of the internal secretions and vaccinoserotherapy, is striking, and should appeal to the modesty of modern science. It shows how close the great thinkers of past generations came to the solution of problems which a better knowledge of chemistry, biology, and bacteriology would have made clear.

Bayliss and Starling (18) proposed the name *hormone*, meaning to awake or excite, for the substances contained in those internal secretions that affect the functions of other organs. It appears that continuous doses of some hormones are necessary to maintain physiological activity *à par*. Presumptive evidence of this is shown by the physiological hypertrophy of the remaining gland when one of a pair is removed or destroyed. In the case of duct glands, this, of course, bears upon the ordi-

nary secretory function, as well as upon that of internal secretion.

That the internal secretions are therapeutically powerful is shown by the brilliant results obtained from the administration of thyroid extract and implanted thyroid fragments in cretinism and allied conditions due to pathological disturbances or removal of the thyroid, and by the more recent observations on pituitrin and other extracts. That the preservation of a very small portion of thyroid tissue in thyroidectomy will prevent serious afterresults has been abundantly proved. This latter observation is also true, although perhaps in less measure, of the ovary and testis. Paschoud (19) also has published some remarkable results from thyroid grafting.

According to Biedl (20), the hormones do not provoke the formation of antibodies. It would appear, then, that any increased resistance to infections that may result from them when used therapeutically would, of necessity, be indirectly produced through such stimulating or tonic effect as they might have upon the organism in general. The question of whether resistance to infection can be dissociated from the formation of antibodies is, of course, not under consideration here.

Schiefferdecker's hypothesis of the physiological action of the specific internal secretions is very interesting, in that he advances a direct nervous intervention as a substitute for the old theory of reflex action. He says (21): “Internal secretion determines the effect which the products of metabolism, excreted by the nerve cells during the simple processes of nutrition, will exercise upon other nerve cells or upon the cells of the end organs, such activity being called ‘trophic.’ It also determines the effect which the products of metabolism excreted in the course of specific activity will produce, and this effect is known as ‘irritation’ or ‘stimulus.’” I will not argue the point of whether “irritation” and physiological “stimulus” are the same. The distinction seems too obvious.

The wonders of even the generative sex gland function are almost incomprehensible to all but the scientist, who has come to accept them as a matter of course. At birth the ovaries contain something like seventy thousand ovules, only 360 of which mature and discharge during a normal menstrual life of about thirty years. The real meaning of this is staggering. The intrinsic capacity of development into a new being under favorable conditions may be assumed to be theoretically possessed by each and every one of these ovules, and we surely must grant creative potentialities to the 360 ovules which mature and are discharged from the ovary. Every one of these mature ovules, fertilized and transplanted to a favorable soil, would develop into a new being. And the fertilized ovum seems indifferent to its feeding ground, whether peritoneum, Fallopian tube, or endometrium. The embryo could come to maturity on each of them, were the purely mechanical conditions favorable. Living blood—if it is not alien—with the complex biochemical products that it contains, alone is necessary. The local source of the blood matters but little.

The kinetic energy of the spermatozoon is remarkable, and the movements thereby rendered possible

are very active. It can traverse its own length in one second, an inch in seven and a half minutes, and the distance from the ostium vaginae to the cervix in about three and a half hours. The zoosperm is indifferent to somatic death until long after its occurrence. Living sperm cells are found in the vagina eight days after coitus, and have been found in the Fallopian tubes three and a half weeks afterward. Three days after the execution of a murderer, living spermatozoa were found in the testes. In the female bat they live for months, and in the queen bee for three years. They have been kept alive for three days in a culture oven.

The marvelous nutritional and formative potentialities of the generative secretional products of the sex glands are proved by the results of the combination of the spermatozoid and the ovule. The combination of a cell measuring only $1/500$ inch in length with another cell measuring $1/125$ of an inch in diameter produces a germ which requires only a proper environment for its development into a new being. Comprehension of this wonderful biological fact alone should be sufficient to enable us to appreciate the possibilities of sex gland secretion in therapeutics.

Both the spermatozoid and the ovule seemingly must depend inevitably upon the internal secretory function of the glands which produced them for the remarkable results following their combination. The internal secretory function of the testis and ovary possibly may in no wise be dependent upon the generative glandular mechanism, but it is hardly conceivable that either spermatozoa or ovules of normal constitution can be formed independently of the local and general nutritional stimulus produced by the hormone.

What is it that imparts the formative energy to spermatozoid and ovule if it is not the internal secretion acting through the medium of the blood, or directly upon the procreative glandular tissue—or both? The union of sperm cell and ovule merely serves to make dynamic the potential cell energy of each. The combination surely develops a powerful nutritional stimulus. It is by no means improbable that the quality of progeny depends on the quantity and quality of the internal secretion, both before conception in both sexes and after conception in the female. Why may we not hope to improve heredity, or even determine sex, by the employment of internal secretion through the medium of sex gland implantation or other methods of administration? What may we not accomplish therapeutically with the vital energy of glandular organs which produce such powerful biological elements as the ovule and spermatozoon and in such large quantity throughout life, if only we can make that energy do our bidding, as seemingly we can?

While the double secretory function of the generative glands has for some years been conceded, the existence of specially differentiated histological secretory elements in these important glands has not been so generally accepted. Certain investigators, notably Nussbaum (22), have held that the generative elements of the glands produce the hormone. Others, again, have contended that there is a double set of secretory elements, one of which elaborates the internal secretion and the other the

generative secretion proper. The problem appears much simpler in the case of the ovary than in that of the testis.

Prénant (23), Born (24), and Fraenkel (25) showed that the corpus luteum is epithelial in structure and possesses an internal secretory function that is independent of the generative function of the gland. Bouin (26) held that he had demonstrated that the testis contained, not only the obviously important seminiferous tubules, but also other morphologically differentiated elements of great biological importance from a secretory viewpoint. Nussbaum (27), after a series of experiments on frogs, concludes that the influence of the testes on sexual desire and function is biochemical and acts, not only with the glands normally attached, but also when the testes are isolated by cutting off their nerve attachments.

Lepinasse (28), before the genitourinary section of the American Medical Association in June, 1913, reported a case of impotency cured by "slices" of testis, one mm. in thickness, taken from a living subject and immediately transferred to the scrotum and rectus muscle of a subject who had been castrated. On the fourth day desire and power of erection returned, and had persisted for two years when the patient was last seen. The same author reports a second case of impotency treated by implantation in the scrotal sac of a portion of testis from a living body (29). Lepinasse's interesting experiments in the already familiar field of transplantation of fragments of sex glands from the living to the living, bore no reference to the broad general subject of hormone therapy—save as regards virility—or of transplantation of sex glands from dead subjects. He notes, however, the probable preservation of the interstitial internal secreting tissue as the explanation of his results.*

Loisel (30) showed by experiment that the testes and ovaries of both warm and cold blooded animals contained toxic substances which produced serious symptoms and even death, when injected into frogs and rabbits. This, however, merely proves the existence of toxic materials in extracts made from the generative glands, and, so far as it goes, in general explains the frequent disappointments and occasional harm of using therapeutically extracts from these tissues. In the author's opinion, Loisel's observations have no bearing on the action of the physiological internal secretions of a successfully implanted sex gland.

That the mere passage of the spermatozoa is not necessary to secondary sex characteristics has been amply proved by experimental, accidental, and pathological mechanical sterilization, i. e., sterilization which does not destroy the spermatozoa-producing function of the testis, but merely prevents their exit from the gland. Obviously, however, and without questioning the fact that there is a double secretory function of the testis, this alone does not prove that the spermatogenic secretory tissue proper is not wholly or partially responsible for secondary sex characteristics, for spermatogenic secre-

*The implantation of slices of testis practically is a repetition of Leo Loeb's culture of tissues within the living body, reported in *Johns Hopkins Hospital Bulletin*, 1898, and *Proceedings of the Society of Experimental Biology and Medicine*, viii, 1911, and *Anatomical Record*, viii, 1912.

tion and resorption still continue after mechanical sterilization. Still less does it prove, when taken alone, that the internal secretion is not elaborated and eliminated with the semen by the tubuli seminiferi, or that the tubuli are not necessary to perfect sex development. Neither does absence or nonformation of spermatozooids mean that the remaining elements of the semen are physiologically worthless. It has been shown that a very small amount of testicular or ovarian tissue is sufficient to preserve the secondary sex characteristics. This also does not prove the relative unimportance in this regard of the true generative tissue.

In brief, histological secretory differentiation having positively been demonstrated—and disregarding the spermatozooids—we still cannot by it alone exclude the secretory function of the true generative gland tissue from what I will term the sex cycle. The histological structure on which internal testicular secretion depends was termed by Leydig,³ "between cells." Four years later, Kölliker described them. In 1903 they were termed by Bouin and Ancel (32), in an exhaustive treatise, *glande interstitielle du testicule*. These cells are situated in the interstitial tissue between the tubuli seminiferi and are of mesodermic origin. Hanes (33) says that the Sertoli and spermatogenic cells play no part in the internal secretion, the Sertoli cells supplying fat to the sperm cells, the internal secretion, in all probability being supplied by the cells of Leydig.

The physiological characteristics of these cells, and experimental work on animals by various investigators, suggest the possibility that, even where the spermatic tubules are "strangled out" of implanted testicular structure by subsequent destruction and replacement of generative glandular tissue by true connective tissue, the internal secretory function of the implanted gland tissue—and hence such therapeutic efficacy as it may possess—possibly may continue indefinitely.

My experiments show that the cells of Leydig actually proliferate, so that the remnants of successfully implanted glands contain relatively more interstitial cells than does the normal gland.

The facts that, first, the semen is not perfectly elaborated and the spermatozoa consequently are not perfectly formed until the seminal elements are acted upon by the epididymis; second, that destruction or removal of the epididymis does not affect the secondary sex characteristics, and, third, that secondary sex characteristics manifest themselves before either spermatozoa are formed or ova matured, in a measure prove that the latter are not dependent upon the generative elements, but upon some special property of the glandular tissue of the sex glands. Moll (34) says: "If it be assumed that the testicles can secrete substances upon the influence of which the development of the secondary sexual characters depends, it is obvious that these substances have nothing to do with the spermatozoa, inasmuch as the testicles exert the influence under consideration at an age at which the formation of spermatozoa has not yet begun. The substances that act in this way must be of a different kind."

Marshall and Hammond (35), in experiments on sheep, conclude that castration checks horn growth (a secondary sex characteristic). Unilateral castration inhibits, but does not check horn growth. Removal of the testes without removal of the epididymes checks horn growth. The authors accept the hormone theory of development of secondary sex characteristics. They believe, however, that the role of the epididymis in hormone production is of little or no importance. This is not in harmony with the observations of veterinarians, who have held that preservation of the secondary sex characteristics after castration is due to failure to include the epididymes in the exsection. Cryptorchidism is, of course, another and a satisfactory explanation in some cases of inexpert castration. I have seen a supposed gelding repeatedly cover mares. This animal was said to have retained his sexual power because he was "castrated late."

It has been shown that the x ray destroys the spermatozoa producing function of the testis without affecting the secondary sex characteristics. The further observation that the x ray primarily destroys the spermatic glandular tissue, but does not affect the interstitial tissue, is held to show conclusively that the latter is the source of the all important internal secretion. A few tubuli escape the action of the ray, and regeneration of the testis has been shown to occur. The question arises, however, as to whether inhibition of the production of the delicate spermatic cells—spermatozooids—necessarily means that the generative gland tissue proper really is destroyed. Does not the so called "regeneration" mean a restoration of function? I do not believe that a regeneration of killed tubuli seminiferi is possible. We may profitably note what occurs in the orchitis of parotiditis, and reflect on how easily the gland is destroyed. It also should be noted, however, that when one testis is atrophied by parotiditic infection and the remaining organ subsequently is lost, the secondary sex characteristics are preserved. This I have observed in one case. It is quite as pertinent to the subject in hand as are the results of x ray experiments and accidents. Prolonged and repeated exposure to the ray will, of course, destroy the entire structure of the gland and produce effects similar to complete castration.

Summarizing all that is known regarding the internal secretory tissue of the testis, Biedl (36) says: "We are led to the inevitable conclusion that the hormone which gives to the organism its male characteristics is elaborated in the cells of Leydig, in the interstitial tissue. Despite their mesodermal origin, these cells are able actively to produce certain specific substances and to transfer these substances to the blood stream. Such being the case, we are justified in describing them as an 'interstitial gland.'"

As already hinted, I am not quite sure that Biedl's conclusion is "inevitable." It is by no means impossible that the procreative elements of the testis themselves have a double secreting action, the internal secretion being elaborated by the true secretory glandular tissue, and mainly taken up and distributed by the bloodvessels of the organ, the

excess escaping with the spermatozoa.¹ Consistently with this hypothesis, the internal secretion probably is constant, while the spermatozoa producing function is easily inhibited or destroyed, and the spermatozoa doubtless are more or less intermittently produced, varying with sex stimuli and demand. In brief, I am not inclined to the belief that the destruction of the spermatozoa producing function necessarily means destruction of the true generative gland tissue.

Biedl further says: "It is highly probable that, by the agency of its secretory products, this gland is responsible for the development of the male sexual gland from the differential genital tract. That it has a determining influence on the normal development and maturity of the generative portion of the sexual gland, the formation of the secondary genital organs, and the existence and persistence of those morphological and biological characteristics which are the property of the male sex, is undoubted."

The immediately foregoing positive assertion of Biedl's being accepted as in the main true, how can we reject as improbable the view that a successful testicular implantation should, other things being equal, increase virility—either by the direct action of its internal secretion upon the generative gland tissue, or (a) by entering the blood, improving general nutrition, and (b) returning to and acting as a stimulant, tonic, and nutrient reconstructive upon the generative gland cells? If the internal secretory tissue is the self elaborated "meat" upon which the generative tissue proper of the testis "feeds," aged and weakened glands should profit even by an increased supply alone; this, granting that an oversupply is impracticable—as probably it is. In connection herewith, it is noteworthy that advancing age and castration alike tend to the production of obesity. It should be noted also that obesity, even in relatively young subjects, is likely to be attended by comparative inactivity of sexuality.²

From the viewpoint of its internal secretory function, the ovary is very similar to the testicle. The correlation of the physiological function of the Graafian follicles and of the corpus luteum has long been well known. The function of the stromal gland cells, however, has attracted attention only in recent years, Regaud and Policard (37) being the first to suggest that these glandular cells might be secretory. Bouin (38), in 1902, described these cells as *glandes interstitielles de l'ovaire*.

¹In reference to this point, Waldstein and Ekler's experiments (Der Nachweis resorbirten Spermas im weiblichen Organismus; abstract in *Deutsche medizinische Wochenschrift*, October 9, 1913) are very interesting. They found that within two and one half to sixteen hours after coitus, the blood of the human female contained a ferment which peptonized the albumin of testicular extract. Comparing this with Fauser's observations in dementia praecox, we are justified in suspecting that the internal secretion of the testis is in part eliminated by the semen. The marked improvement so often noted in the nutrition of sterilized—not castrated—males, and resulting from continence, thus may be scientifically explained. It is possible, however, that there is a change in the ovarian hormone itself, under the stimulus of coitus. The sense of well being experienced after normal coitus by both sexes probably is due to a large dose of hormone entering the circulation on the one hand from the testis and on the other from the ovary.

²Aspropus of the nutritive stimulant action, one of my own experiments is interesting. Implantation of testes from a year old cock upon a nonrelated capon of the same age resulted in an improvement in carriage, increased glossiness of plumage, a better appearance of the face, comb, and wattles, increased liveliness, and a disposition to combativeness, with a slight development of sex activity, which last phenomenon was of short duration.

Biedl (39) says, "that the secondary female sex characteristics, especially those of the genital tract, are dependent upon the interstitial cells of the ovary is at present not proved." He further directs attention to the fact that the x ray destroys the Graafian follicles alone. The interstitial tissue is not only preserved, but it hypertrophies.

While the observations thus far made upon the ovary and its secretions are not as conclusive as in the case of the male gland, Biedl states, "that the tissue which performs the function of external secretion is also the site of production of the ovarian nonsexual hormone, which exercises an alterative influence upon a large number of tissues and functions, is suggested by analogy with the male sexual gland."

This is distinctly contradictory to Biedl's attitude regarding the testis, and his reasoning by analogy seems obscure. In any event, differences of opinion as to the precise histophysiological source of the internal secretion of either the ovary or the testis have little bearing upon the experimental or therapeutic value of implantation of the sex gland tissues in their totality.

The real, probable, or possible results of implantation of the ovary depend—so far as the properties of the gland *per se* are concerned—upon, first, the existence, effects, and continued production of an internal secretion; second, the existence, effects, and continued production of the ordinary generative sexual secretion; third, successful implantation of a normal gland, in whole or in part, with its structure entire; fourth, permanent growth of the implanted gland.³

Granting that the Graafian follicle, the corpus luteum, and the ovarian interstitial tissue are equally important, or that only one of these tissues really is important from the internal secretory standpoint, the procedures and results should be the same, unless it is held that a complexity of origin impairs the effects of the gland secretion, which obviously it cannot. The first work of any importance in ovarian transplantation from the living was done by Robert T. Morris, of New York.

From Leo Loeb's pioneer experiments in cultivating tissues *in vivo* and *in vitro*, some years prior to Carrel's recent remarkable experiments, I had suspected that more or less successful grafting of the human testis from one living subject to another was possible. Aside from the recorded experiments on animals, this was suggested to my mind by observation of the effects of division of the spermatic cord, exclusive of the vas deferens, in a large number of varicocele operations, and experimental severance of the cord, including the vas, in numerous hernia operations on old men in a certain public institution. In these cases I closed the hernial opening over the "tucked up" proximal end of the cord, and sutured the distal end of the cord across the ring. In respect to division of the cord, the procedure was similar to the operation for hernia later suggested by Blood-

³Stich, *Deutsche medizinische Wochenschrift*, September 25, 1913, in a résumé of the present status of organ transplantation, sums up the subject of ovarian transplantation by stating that it occasionally succeeds in animals which are blood kin. Stich altogether ignores testicular transplantation, apparently as a subject on which no data are available.

good. I early found in operating for varicocele that, unless infection occurred, complete division of the cord was not followed by atrophy of the testis, even when the operation involved complete extrusion of the gland via the operation incision. Apparently the circulation of the cord could not be restored at the point of junction of the ends of the divided portion, before the testis died of innutrition, if the salvation of the gland depended upon the spermatic artery and the artery of the vas.

The vascular supply of the tunica vaginalis alone apparently being of no magnitude, the notion obtruded itself upon me that possibly comparatively little blood was really necessary to the life of the testis, and, further, that the juices of the surrounding tissues might be sufficient to preserve the life of the organ or at least a portion of it. Reasoning by analogy, the implantations of ovarian tissue subsequently performed by various operators, in which gland tissue from the living was replanted in the living, seemed quite conclusive evidence of the possibility of successful testicle grafts under similar conditions.

With the publication of Carrel's remarkable experiments, and having in mind not only numerous experiments with tissue from the living published in the literature and recent developments in the study of internal secretions, but certain preconceived ideas of my own, I became convinced that implantation upon living subjects of sex glands from the dead body was both practicable and likely to be therapeutically successful. I felt also that if successful, the procedure possibly might open up avenues of medical and surgical therapy which would be somewhat staggering, even to those of us who are not easy to astonish.

During the past year or more, I have been endeavoring to secure opportunities for experimentation with material from the dead body in sex gland implantation in both sexes. That the difficulties attending my efforts were great, should be obvious to any one who knows the prevailing sentiment in America against using the dead for scientific purposes—especially the recently dead. These difficulties were greatly enhanced by the fact that it seemed desirable to secure glands from special subjects, of a certain age, dead of violence, in fresh condition, and as certainly free from syphilis as it was practicable to determine. The Wassermann test might, or might not be practicable. Having secured the proper cadaveric material for experimentation, it still remained to secure a living subject who would permit the experiment.

With the double object of experimental sex gland implantation and of testing the procedure in the treatment of dementia præcox, I attempted to secure a favorable subject afflicted with this disease, and endeavored to enlist the cooperation of several medical friends whose opportunities for securing material were better than mine, but without success. The double problem of securing human sex glands under proper conditions and of having a complaisant subject ready and waiting for the experiment seemed insoluble, until I thought of the plan of combining surgeon and subject and resolved

to perform the experiment upon my own person.⁴

January 16, 1914, there were placed at my disposal two appropriate male subjects from which to select the material necessary for gland implantation. One of these showed a lesion on the penis, probably of a nonsyphilitic, suppurative character—seemingly a periurethral abscess—and was consequently rejected. The other, a suicide by gunshot, and a relatively inferior but apparently healthy subject, eighteen years of age, was selected. The subject had been dead seventeen hours, having lain at the undertaker's under the ordinary conditions and temperature since shortly after death. The weather at the time was very mild. In my haste to secure the necessary material, the appliances necessary for the Wassermann test were forgotten, hence I was compelled to rely upon such history of the subject as was obtainable and a careful examination of the body, especially of the genitals, including incision and macroscopic examination of the lymphatics. The danger of syphilis obviously could not be entirely eliminated, but was not sufficient to weigh heavily in the balance of opportunity to secure the long sought material.

Both testes were removed as aseptically as practicable, the instruments and gloves being sterile, and iodine being freely employed in lieu of the customary scrubbing. The testes immediately were placed in a jar of sterile normal salt solution.

CASE I. *Autoimplantation of the testis; subject fifty-six years of age.* Seven hours after securing the necessary material, and twenty-four hours after the death of the subject from which it was removed, I implanted in my right scrotal sac one of the experimental testes. The operation was performed in my office, with the assistance of my former associate, Dr. Carl Michel, whose loyalty and intelligent cooperation throughout my experiments cannot be too highly commended. The conditions, so far as sepsis was concerned, obviously were not those of an up to date operating room, with the usual corps of nurses, but were as satisfactory as was possible under the circumstances.

Technic: Local anesthesia was employed—a ten per cent. solution of novocaine in one per cent. urea and quinine hydrochloride. Of this I injected about a dram and a half. The anesthesia was satisfactory so far as the skin was concerned, but by no means so as regards the deeper tissues, merely because I took especial care not to puncture the veins of the cord and also to avoid infiltration of the tissues about the cord at the site selected for the implantation.

I made an incision two inches in length, in the mid-scrotal region, about an inch external to the right of the scrotal raphe, and dissected down to the cord. The awkward position necessary to the work and the distance of the field from the operator's eye were such that I inadvertently cut into the tunica vaginalis. The escape of vaginal fluid and the appearance of the testicle at the bottom of the wound gave the first intimation of the accident. I requested Doctor Michel to close with a pursestring

⁴Lespinasse, in his paper herein quoted, speaks of being surprised by the ease with which material is obtained from living subjects. The author has not noted similar "ease" in securing testes. Incidentally, it is well to remember certain legal responsibilities involved in taking material from the living, even when freely tendered, save in very exceptional instances. As Lespinasse's first case of transplantation of slices of testicle was done in January, 1911, and he has just published his first case for the second time, with a single additional case (*Chicago Medical Record*, July, 1914), it is safe to infer that material is not so abundant as he thought at first. In passing, I note with some curiosity that in his more recent paper, he has not mentioned the first two cases of sex gland implantation reported in my present paper, although they were reported some months since in the *Bulletin* of the Chicago Medical Society, and thereafter were extensively quoted. In scientific work it is desirable in all fairness to make references as complete as possible. In connection herewith it is worthy of comment that of the fifteen references given by Lespinasse in his reprint, seven are inaccurate.

suture of very fine catgut the opening in the tunica vaginalis, and proceeded with the operation.

I next made beneath the deep fascia a pocket about two inches in depth, at the bottom of which was the cord. Into this pocket, directly upon the cord, I implanted the testis, already prepared by removal of the epididymis and decortication to the extent of about half its surface. The fascia was closed with a pursestring suture of fine catgut, following which, bismuth subiodide and the usual gauze dressing were applied and a suspensory was adjusted.

Postoperative course: Probably because of undue movement, the exigencies of my practice at the time making it impracticable for me to rest physically, there was a little superficial hemorrhage, forming a small clot immediately beneath the skin incision. Saprophytic infection occurred, with considerable edema of the penis and scrotum, extending well up toward the inguinal ring. On the fourth day I opened the superficial portion of the wound, drained, and aseptitized it. There was not then nor subsequently any pus infection during the progress of healing. There was a little over 1° F. rise in temperature, lasting four or five days.

There was considerable pain, following undue motion, on the eighth day after the operation, and a small quantity of seminiferous tubules protruded from the wound, the pursestring fascial suture evidently having given way. Although there was no rise in temperature and, as already stated, no pus infection, I now concluded that the experiment was a failure, and decided to remove what apparently was a somewhat dangerous foreign body. I therefore requested Doctor Michel to remove the implanted gland, and as there was a little resistance when traction was made on the protruding gland tissue at the bottom of the skin (i. e., the extrafascial wound), he attempted to remove it entire by forcible traction. The resistance to traction and the pain attending this procedure demonstrated pretty conclusively that it would have been wiser to let the gland remain.

The gland splitting longitudinally, only half of it, and, strange to say, the more solid portion, covered by the tunica albuginea, came away. This, on examination, showed well formed and abundant vascular adhesions, which apparently conclusively showed that the implantation was a success. I therefore resolved to leave the decorticated remaining half of the gland *in situ*. At the time of the implantation the semidecorticated gland was so soft and so readily became extruded, that it was with difficulty retained in the implantation cavity while the pursestring suture was being inserted and tied. Had I remembered this circumstance, the mere fact that a moderate amount of traction, or even slight pressure, was not sufficient to dislodge the implanted tissue from its bed and extrude it, would have suggested the wisdom of allowing the gland to remain.

After the removal of the portion of gland there was some increase in the local inflammatory symptoms, due to simple trauma. This, however, subsided within forty-eight hours. Immediately following the removal of the gland tissue, there was a moderate discharge of a mucosaneous looking secretion, which continued in gradually diminishing quantity for five weeks, at which time the sinus was completely healed. The tardiness of healing in a noninfected wound is worthy of note, suggesting the characteristics of fistulae of glands in other regions, notably the parotid.

Numerous microscopic examinations by Doctor Michel of the fluid from the fistula showed blood corpuscles, leucocytes, and immature spermatozooids, such as normally are found in the testis prior to their complete elaboration in the epididymis. There was no evidence of pus infection, the fluid being free from pus cocci.

After the extraction of the portion of the gland, there was no further appearance of seminiferous tubuli in the wound, neither was there any debris nor broken down gland tissue in the secretion from the "fistula." After the inflammation in the surrounding tissues had completely subsided, a distinctly circumscribed, ovoid, insensitive body adherent to the spermatic cord could be distinctly felt. This mass measured approximately 4.5 cm. by 3 cm. by 2 cm., and was evidently composed of the remaining portion of the testicular gland structure, with a certain amount of new connective tissue investment.

Throughout the progress of healing there was considerable neuralgia of the traumatized cord and testis and mod-

erate pain and sensitiveness in the opposite testis. Later the pain gradually disappeared.

The result has been inspected and verified by a number of my professional friends.

The size of the mass has gradually decreased. June 1, 1914, it was a smooth, fairly movable, ovoid, insensitive, circumscribed, typically glandular body, about the size of a small almond, still loosely attached to the spermatic cord. At present writing, August 1, 1914, the mass is nearly round, about the size of a hazel nut and, strange to say, slightly sensitive. It has not diminished much if any in size for several weeks, although I have expected still further shrinkage. I have noted that it varies considerably in size at different times. This is very suggestive of actual function.⁵

(To be continued.)

HETEROPLASTIC GRAFTING OF TESTICLE.

BY ROBERT TUTTLE MORRIS, M. D.,
New York.

A letter received from my friend Dr. G. Frank Lydston stating that he is publishing a communication relating to the subject of the grafting of testicle, prompts me to cite a similar case and to send some letters bearing thereon.

CASE. W. A. S., aged forty-nine years, was referred to me by Dr. W. J. M., of Rochester, Minnesota. Ten years previously, as a result of being thrown by a bucking horse upon the pommel of a Mexican saddle, both of the patient's testicles had been crushed and had been subsequently removed by operation. Shortly afterward, all characteristic masculine cenesthesia was lost and the patient, a large strong man, became extremely nervous with periods of great depression, shedding tears at slight provocation. As a man of education and intelligence he comprehended the entire situation and knew the reason for his psychic condition, although he said that it was at times unbearable.

On consultation with the patient I recalled to him our experience with ovarian grafting. After I had published the description of ovarian grafting in 1895 and had introduced the idea, a large number of authors soon furnished data of their own bearing upon the subject. There was a general conclusion along lines which biologists might have anticipated, to the effect that the tissues of one individual are antagonistic to the tissues of another individual. Therefore, heteroplastic grafts of any sort are commonly absorbed promptly by the host. The degree of antagonism between individuals varies greatly, and occasionally we may find two people (or other animals) which receive each other's tissues with good grace, if a bit of levity may be pardoned.

The patient, W. A. S., was willing to take the chances of obtaining benefit from a grafted testicle, and entered the Post-Graduate Hospital, February 4, 1914. The first patient who offered opportunity for furnishing the graft had undescended testicle and hernia; he agreed to allow me to use a part of his testicle for grafting purposes. This patient, a young man twenty-six years of age, responded so strongly, however, to the von Pirquet test for tuberculosis that I preferred not to make use of his tissues. The next case was one of a man fifty-six years of age with a very large hernia, who made no response to the von Pirquet test for tuberculosis nor to the Wassermann test for syphilis and who gave a record of good general health.

A wedge of tissue was taken from the testicle of this patient and placed in normal saline solution until W. A. S. could be anesthetized and prepared. The segment of testicle was cut into four slices with a sharp razor, these slices averaging about three mm. in thickness, and in length approximately that of the testicle from which they had been removed. One of these segments was engrafted in the right scrotum of W. A. S., another one was placed beneath the fascial sheath of the right rectus abdominis; and the third segment placed beneath the sheath of the left rectus

⁵That the mass is now largely composed of hormone producing tissue the author is firmly convinced.

abdominis. A Wier's celluloid testicle was placed in the left side of the scrotum of W. A. S. for the purpose of giving to the sympathetic nerves the impression of natural mass in that vicinity. The wounds healed by primary union, and in forty-eight hours from the time when the grafting was done, W. A. S. stated that he was distinctly conscious of the effect of the internal secretion which he was absorbing from the grafts. In fact, at that time occurred the first distention of the corpora cavernosa and corpus spongiosum that had occurred for ten years.

The subsequent history of this case is included in the subjoined letters from W. A. S.

March 16, 1914.

I am delighted with the result of the operation, so far. It has changed my entire being. I had become so melancholy and despondent that I hated and scorned my good wife and even my fine big boy, sixteen years old. Mrs. S. knew that I was not myself and was very patient with me. She told me today that I was getting back to my former self, and she was so happy that she could sit down and cry all day for joy. As yet I have not attempted to exercise the special function, for fear of some bad results. My health is apparently absolutely perfect.

July 2, 1914.

I thank you very kindly for the inquiry about my health and would say in reply that I am feeling better than I ever did in my life. Have gained some fourteen pounds and consider my physical condition as near perfect as I could want. I am practising throwing a piece of pig iron weighing 100 pounds, first with my right arm, then with my left, and over my head backward with both hands, boxing, and punching the bag. Have put out a good sized garden which I spaded up myself and am out at daylight hoeing and working. Life is one blissful day. Have had some night emissions and passed some secretions. Have received a world of good from the operation. Am so well satisfied with life that I have not attempted to exercise the function, but I think that I could have considerable success, if I did. Did I understand you to say something about another operation on the dorsal vein?

July 21, 1914.

I had an opportunity to exercise the function resulting from the operation which you so kindly performed upon me this spring; it still improved my health and the sexual congress was quite normal indeed. Your operation is absolutely a great success. Semen passed in quite normal quantity with a wonderful relief to my whole system. The length of time was somewhat shortened and I find the penis not quite as long, probably due to some of the veins and arteries being tied up. You have done a great thing and I am everlastingly indebted to you.

616 MADISON AVENUE.

GUNSHOT WOUNDS OF THE SPINE.*

BY CHARLES GREENE CUMSTON, M.D.,

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After every war calculations of the percentage of the wounds of each region of the body are made, and for those involving the spine and cord we find the following: In the war of secession these amounted to 0.25 per cent.; in the Franco-Prussian war, 0.36 per cent.; in the Turco-Grecian war, 0.39 per cent., while in the Spanish-American war they amounted to 0.55 per cent. In this percentage the cervical region was involved in thirty per cent. of the cases.

Many causes make the nature and gravity of these wounds vary, such as the position of the subject, who may be hit from behind, in front, or from the side, in which case the ball will produce lesions of the spine more particularly. The projectile may

attain the subject in the anteroposterior direction, but this mostly in suicide cases by way of the mouth, or in the precordial region, so that, in the latter case, the projectile will have injured other important organs before reaching the spine, and consequently symptomatology of the former will dominate the scene, while the spinal lesion will be overlooked.

The distance at which the arm is fired and the various objects placed between the arm and the victim, will also result in various forms of trauma. It is clear that the greater the distance that the projectile has to travel, the less the chances of penetration of the spine, likewise the gravity of the resulting lesions. On the other hand, if before striking the subject, the projectile has passed through a resisting body, its force will be diminished. The important causes of variation are the momentum and calibre of the missile, because the greater the calibre, the more extensive will be the spinal lesions. This is particularly true of arms of war, where the ball is either small or the injury is produced by the bursting of a shell. The momentum of the missile at the time it reaches the subject is also of importance as far as the extent and depth of the injury are concerned, but the most important knowledge for the surgeon is that of the lesions resulting from gunshot wounds and their evolution.

Assuming that the reader is familiar with the topographical anatomy of the spine and the cord, this subject will not be referred to. According to the depth to which the projectile penetrates, the nature of the lesion will be variable, and three divisions may be logically made of the wounds under consideration, viz.: 1. Wounds not penetrating the vertebral canal; 2, wounds penetrating the vertebral canal without directly involving its contents; and, 3, wounds penetrating the canal and directly involving the membranes and the cord.

Wounds not penetrating the vertebral canal. Here the lesion may only involve the soft parts covering the spine, such as the skin, fat, aponeurosis, and the muscles. On the other hand the projectile produces a lesion of the spine, but without penetration, such as fracture of one or several spinous apophyses, or if the fracture is horizontal, an articular apophysis may become detached. The nerve roots at their exit of the spine can very well be injured, giving rise to nervous phenomena of a motor or sensory nature, but very limited in extent.

If the projectile penetrates the neck, thorax, or abdomen, it may reach the spine and become lodged in the spongy tissue. In gunshot wounds involving the cervical region of the spine, injury of the vertebral artery is frequent and the result usually fatal.

Projectiles penetrating the vertebral canal without directly involving the cord. The foregoing lesions are found here, but the ball has gone further and entered the vertebral canal. This may take place in two ways. Exceptionally there is no lesion of the spine, the ball having passed through a foramen of conjunction or between two vertebral blades. Occasionally the projectile is caught between the latter. But commonly, the projectile produces a fracture of a portion of a vertebra, which varies in nature according to the point involved. Thus, one may observe on the vertebral

*Compiled from lecture notes on the surgery of war.

plates, which are true flat bones, lines of vertical fractures more or less notched or in the form of radiating fissures. It may even happen that the neighboring vertebral plates are indirectly involved, showing lines of fracture produced by displacement of the neighboring plate directly involved. Instead of a single plate being fractured, both belonging to the same vertebra may be fractured, so that the vertebra is divided into two portions, an anterior and a posterior.

Instead of a clean fracture of a portion of a vertebra, there sometimes occurs an almost complete destruction, resulting in numerous splinters of bone, which may remain adherent to the vertebra by means of their periosteal or ligamentous attachments, or, on the other hand, they may become free and be driven into the lumen of the vertebral canal by the projectile. In some cases the ball, after fracturing the posterior arc, crosses the canal without injuring the membranes of the cord, and becomes lodged in the body of the vertebra, with or without fracture. In all these traumas, the cord and its membranes are not directly torn by the projectile, but in reality medullary lesions are practically unavoidable.

In these cases there is often compression of the cord, either from hematorrhachis, detached bone splinters, or by the ball itself which, by becoming lodged in some portion of the vertebra, projects into the lumen of the canal. There are even instances in which the projectile has found its way into the canal without injury to the cord, but in this case its diameter must be less than six mm. Although there appears no external evidence of any lesion to the cord in the cases under consideration, nevertheless it always undergoes a certain amount of contusion, but autopsy has shown that an internal hemorrhage has taken place although there was nothing visible on the surface of the meninges.

Penetration of the vertebral canal with direct involvement of the meninges and cord. In the vast majority of cases the projectile involves the cord and membranes or the detached bone splinters produce lesions of the contents of the vertebral canal, the amount of damage varying from a simple efflorescence to complete section. When there is merely an efflorescence, the meninges alone are injured and the resulting contusion of the cord only gives rise to temporary motor or sensory phenomena, according to the portion which is involved.

More frequently, however, there is partial section of the cord, rarely complete section. This occurred far more frequently from the old types of projectiles, which were larger and had less momentum. But, if as is the case with modern arms, the projectile has a great momentum and is small in calibre, the lesion of the cord is a perforation, the result of the passage of the ball. The resulting perforation, in the form of a canal, may very well be much smaller than the calibre of the ball and this is what takes place when it becomes shattered on a vertebra and only one of its pieces reaches the cord. It may even happen that the projectile becomes lodged in the substance of the cord without causing complete perforation. If the calibre of the ball is large, total section of the cord results, the borders of the section being irregular and contused, while there may

be a space between the two ends of section, this being occupied by the projectile which has become arrested by the opposing portion of the vertebra on which it has become implanted. In other cases, the meninges, on account of their elasticity, produce a considerable retraction of the ends of the cut cord.

Having gone through the dorsal cord, the ball may escape from the vertebral canal after having produced more or less damage of the vertebral body or its posterior arc, all this depending upon the way it enters. When there is complete section of the cord, the meninges may remain uninjured over a certain area, so that at this level some nerve fibres remain intact. The track followed by the projectile, instead of being horizontal, may have a more or less oblique direction approaching that of the cord, the natural result being a more extensive lesion. This was observed by Otis in a case where the ball entered the vertebral canal at the eighth dorsal and destroyed the cord as far as the first cervical.

The first class of gunshot wounds of the spine considered in this paper possess little interest as far as their evolution is concerned, as it is that of ordinary bullet wounds. The lesions occurring in the second class are more interesting because, although there is no direct injury to the cord or meninges, the vertebral canal is entered. Let me say, however, that although no direct injury to the cord appears to exist, there is always a certain amount of commotion or *secondary compression*. Consequently one meets with the same evolution which has been noted experimentally in animals when the cord is compressed by foreign bodies. Now, in these circumstances it has been found that the axis cylinders undergo disaggregation and finally arrive at liquefaction. The compression may involve the entire circumference of the cord or simply a portion of it. One should also take into consideration in this respect, the edema resulting from blood stasis and from contact with the foreign body.

Hartwell, Schmauss and others have studied contusion of the cord experimentally and, according to the intensity, they found disaggregation of the axis cylinders, but this was generally less intense than in cases of compression. The supporting tissues may participate in the lesion and the same may be said of the vessels which rupture, with the result that the extravasated blood becomes an element of compression for the nerve tubules.

Now, if we pass to the lesions occurring in the third class of cases where the vertebral canal has been penetrated and the cord directly injured, the phenomena observed are of the greatest interest to the surgeon. With Kocher and others, I shall adopt the old classification of these lesions into partial and total lesions of the cord. When the vertebral canal has been penetrated by a projectile, the resulting fracture is not serious in itself, there usually being a portion of the vertebra involved, so that the evolution of the fracture *per se* would clearly be that of any gunshot trauma of a bone. But what complicates the situation is that the cord receives the *contre-coup* or is irritated by the compression due to the ball, bone splinters, or extravasated blood. Therefore, from the viewpoint of the cord, the phenomena observed may be comprised in the

evolution of cord traumatism of the preceding class. Now, here the spine is directly injured, and beside the solution of continuity there are neighboring areas injured by the passage of the ball, so that one must take into consideration two kinds of nerve lesions, namely, partial lesions in which the continuity of the axis cylinders has not been interrupted, and total lesions in which the fibrillæ forming the axis cylinder have been sectioned.

I will now consider the evolution of these two types of lesion. The nondestructive lesions of the axis cylinders will naturally present a variable evolution according to whether or not the factor producing them is temporary or permanent. In the former case repair may take place after the causative factor has been removed and functional or even anatomical repair will take place. When permanent, not only can repair not take place, but the lesion becomes destructive, resulting in secondary degeneration. When there are partial lesions of the cord the nondestructive and destructive which coexist are unequally distributed. If the case is one of simple contusion by the foreign body, the axis cylinders are only exceptionally destroyed, and as soon as the trauma has ceased its action, both functional and anatomical repair begins. The same applies to hematorrhachis, whether this occurs without or within the dura mater, and little by little the motor and sensory disturbances disappear. But if the absorption of blood is incomplete or if, on account of a foreign body lower down, the process of absorption has a less extensive field on account of the impossibility of downward extension of the hematorrhachis, compression will naturally continue. An irritation edema due to the foreign body becomes added, and destructive lesions soon appear upon the scene. If, as is less common in this type of trauma, a central hematomyelia is produced, the neighboring axis cylinders are in turn compressed, and on account of nonabsorption of the blood, or from a proliferation of the supporting structures, one may find, in place of an hematic focus, a patch of sclerosis or even a cyst giving rise to a true traumatic syringomyelia. Then one may have, instead of blood which may extend in surface, a more limited compression due to the projectile itself or to fragments of bone, and the longer the foreign body exercises compression, the greater will be the chance of the lesions, at first nondestructive, of becoming destructive.

When along with lesions primarily nondestructive, the axis cylinders are cut across, one will have, along with the functional repair of the former, a commencement of anatomical repair of the latter. But the newly formed fibrillæ become arrested in face of the cicatricial tissue, forming irregular plexuses whose ends return to the central gray substance on each side of the traumatic focus. This also applies to the sensory and motor fibres, the direction only is inverse and, nevertheless, it is absolutely essential that their cells of origin shall be very near the point of section in order that there may be a tendency to repair. In other words, it is an insignificant commencement of anatomical regeneration, but which is far from being parallel with functional repair, for in this case a supplementary aid from the neighboring fibres or the

homologous fibres of the opposite side comes into play. Thus can be readily explained the sometimes incomprehensible improvement in the sensory and motor disturbances.

But beside a partial lesion of the cord, it has been pointed out that there may be a total section of all the elements composing it. Between the two cut ends a red, soft mass is found, composed of blood, leucocytes, and medullary debris. Some American surgeons have held that a cure in these cases has been obtained by myelorrhaphy, but Ramo y Cajal,¹ and Marinesco have demonstrated, by a careful and minute histological study of the traumatic area, undertaken at different periods, that repair does not take place. These observers only encountered neurofibrillæ having a very irregular course and composed of amyelinic fibres, and hardly any of them passed through the cicatrix. Therefore, histologically, there is no medullary regeneration, so that the case recorded by Stewart and Hart remains still unexplained. It is accepted that a partial lesion of the cord will end in an anatomical and functional repair if only nondestructive lesions exist, while it can be only partial if the nondestructive lesions are accompanied by destructive lesions, provided, however, that the causative factor of the latter is rapidly removed. When only destructive lesions are present, repair can never take place.

Such an evolution of cord lesions would frequently take place were it not that a serious complication often supervenes. I refer to primary and secondary infection. The former is not common, for although the ball may very well produce it, it unquestionably is far more frequently due to bits of foreign material introduced with the projectile. On the other hand, secondary infection is very frequent and is more common when the wound is large and there is a loss of cerebrospinal fluid.

A localized meningomyelitis occurs, which delays the repair of the lesions, but often the process becomes generalized, resulting in early death. That a local or general infection of the cerebrospinal axis does not of necessity take place when there is a fistula, has been demonstrated by several instances with which I am familiar, but in spite of these fortunate results, it is none the less true that a fistula favors infection. The infection may develop a long time after the receipt of the injury, having for starting point a focus of osteitis, and this should be rapidly drained in order to prevent the infection from becoming generalized.

Another complication which interferes with the repair of the lesions is myelitis, which may be either ascending or descending according to the nerve bundles involved. According to its intensity, more or less severe pain and cramps will be complained of, likewise trophic disturbances will develop. Death occurs sometimes at the end of several months.

Having now considered the lesions produced by gunshot wounds and their variable evolution, it is important to be able to make a precise anatomical diagnosis, which undoubtedly will be rendered difficult from the great complexity of the medullary functions. Therefore, it is clear that the diagnosis

¹*Histologie du système nerveux de l'homme et des vertébrés*, i, Paris, 1909.

will of necessity be frequently incomplete. Let us first consider by what symptoms total or partial lesions of the cord can be diagnosed. In all wounds of the vertebral region by firearms, the same general symptoms will be met with, symptoms which are especially due to the trauma itself and which hide some of those which might aid in differentiating the lesion. As soon as the projectile strikes, the trauma is accompanied by a special state of the subject. This state varies from simple stupor up to complete coma. The face is pale and covered with cold sweat; the temperature drops, the pulse is small, the respiration slow, the muscles are relaxed, and the tactile sense is greatly dulled. This state often lasts for some time, and when it finally disappears the symptoms belonging to the vertebral trauma slowly develop. If the perivertebral tissues are alone involved, pain and rather profuse hemorrhage are the only symptoms noted, but a bone lesion gives rise to more distinct symptoms, whether the former is a fracture of the spinous or transverse apophysis, of a vertebral plate, or of the body of the vertebra.

The symptomatology of fracture of the posterior arch depends upon the position of the point of entrance of the ball, the immobility of the spine, the projection of displaced fragments, pain on pressure, abnormal mobility and crepitation, the search for which should be undertaken with great prudence, if indeed it is admissible. As to fractures of the vertebral bodies, they can be recognized by the projection of the spinous apophysis of the injured vertebra, as well as by the separation of this apophysis from its neighbors, likewise by stiffness and deformity of the spine.

If along with the vertebral lesion there is also injury to the cord, the symptoms due to the latter are in the foreground, but they are, so to speak, only secondary in value, because, in point of fact, in every vertebral trauma there is almost always more or less attrition of the cord. If the lesion is slight, the symptoms quickly disappear, but if they are to persist, they will become distinct only as time goes on. These consist in disturbances of the motility, sensibility, reflex action, and other principal organic functions. A motor paralysis involves the musculature dependent on the segment of the cord below the point of injury, and this paralysis may develop suddenly, being either bilateral or unilateral, in the latter case involving the same side as the seat of the lesion. Sensation is abolished in all its forms or partially for the areas whose nerves enter the segment of the cord situated below the lesion. These sensory disturbances are more common and distinct when the trauma is received on the back. They may suddenly appear; they exist on both sides or only on one side, and, in the latter case, the anesthesia is on the opposite side from the lesion. As is the case for motility, this anesthesia may include all the types of sensation or only some of them. One will frequently observe an area of hyperesthesia over the lesion and on the same side.

The reflexes are altered. Sometimes they are absent or exaggerated, but at all events, this is not pathognomonic of either a total or partial lesion of the cord, for it is well known that in total section of the cord the reflexes have been preserved in some

instances. This apparent contradiction between experimental work and clinical observation may very probably be due to the fact that in man the cord has partially lost the autonomy that it possesses in animals, so that, in reality, the abolition of the reflexes exists in total section of the cord, but their preservation in no way implies a partial lesion.

Later on in the process, trophic disturbances arise, such as bedsores, retention of urine, followed later by incontinence and occasionally erections. The respiration and circulation are sometimes disturbed and even oculopupillary symptoms may be evident. But all these clearly vary with the nature and site of the cord lesion. The higher the seat of the injury, the greater will be their extent. Beside all these symptoms which are observed equally in open or closed traumatism, there is one that is only met with in penetrating wounds of the spine. I refer to the discharge of cerebrospinal fluid. This may be perfectly limpid or tinted with blood, and if the wound is large, the fluid continually escapes in large amount. In order to have a discharge of the cerebrospinal fluid it is evident that the meninges must be opened, and this is not uncommon when the projectile traverses the vertebral canal. But here again, the issue of the cerebrospinal fluid does not of necessity imply that there is a lesion of the cord, and when it occurs we can only infer that there is a penetrating wound, but without any assurance that the cord itself is involved.

From the symptomatology, it would at first sight seem as if an exact diagnosis of the lesion produced by the trauma could be made, and this is quite true when the projectile has not penetrated the vertebral canal. But it is quite a different matter when the ball has penetrated, so that the question becomes a delicate one to decide. It would appear after the symptoms enumerated (more or less complete motor or sensory paralysis) that the diagnosis between a total and partial lesion of the cord might be at once settled, but this is far from the reality. As I have already pointed out, total abolition of motility and sensation does not of necessity indicate that a total lesion of the cord exists, a fact which numerous operations and autopsies have demonstrated beyond a doubt. The same applies to the condition of the reflexes, which by no means indicate whether or not the cord lesion is total or partial. Experimentally, it has been supposed that total section of the cord gives rise to an increase of the reflexes, but in practice, with the evidence of numberless autopsies, it has been made clear that complete destruction of the cord produces absolute abolition of the reflexes, and this can, I think, be considered final. But the reverse is not true, and numerous are the cases where the condition of the cord has been verified at operation, autopsy, or by the symptomatic evolution, so that it may be maintained that an abolition of the reflexes is not symptomatic of a total section of the cord and that in reality, there is absolutely no pathognomonic symptom of this condition. Nevertheless, serious presumptions can be maintained as to the probable condition of the cord, and there are certainly cases where collectively the symptoms will give the clue to the diagnosis of complete section of the cord.

Experimentally, it has been shown that when the

cord has been simply compressed, even as late as a fortnight after the reaction of degeneration was absent, while in cases in which the cord had been completely cut, there was absolutely no excitability of the nerves to the induced current after the fourth day. These cords were studied histologically, and it was found that in compression the degeneration was incomplete, and in complete section it attained its highest degree. If the cause of compression disappeared, the cord slowly regained its functions. Although of rather recent date, these experimental results have been verified in man upon several occasions.

Lumbar puncture is still another diagnostic means at our disposal. Undoubtedly, it will not give any indication as to the state of the cord lesion, but it will allow us to diagnose a compression from hematorrhachis or reveal the onset of an infective process within the vertebral canal, and in the latter, not only is it a diagnostic measure, but a therapeutic one as well.

Radiography is useful to discover the presence of the projectile, bone splinters, or even a hematoma, but it should not be forgotten that the correct interpretation of the plates may be a very difficult matter, so that several plates taken at various angles must be made.

The prognosis of gunshot wounds of the spine and cord will naturally vary, and above all will depend upon the nature of the lesion of the cord. A partial lesion will be much less serious *per se*, than a hemisection, and above all a complete section. A simple fracture of any portion of a vertebra will have a far better prognosis than a lesion which at the same time involves the cord. A simple fracture of the posterior arc is much less serious than the shattering of a vertebral body.

The location of the trauma deserves particular consideration, because the higher up it is, the less compatible with life will be the lesion. If the cervical region is the seat of the trauma, the majority of the bodily functions are destroyed and death will soon occur, even when the case is one of simple compression, especially when the trauma involves the fourth cervical segment. The nearer the trauma to the lumbar region, the greater are the chances of recovery, even should there be complete section of the cord. A glance at the statistics of recent years shows that the general prognosis of gunshot wounds of the spine and cord is rather bad, and what increases its gravity is that, among the cases in which recovery took place, there were many instances in which the bodily functions were never completely reestablished. In spite of all this, the progress of antisepsis and operative technic have somewhat improved the prognosis, likewise our more perfect knowledge of the pathology of the lesions.

I now come to the surgical treatment, and from the clinical viewpoint two classes may be admitted, namely; those cases in which it is a question whether or not penetration has taken place, and, secondly, those in which penetration is certain.

In the first class, where it is doubtful whether penetration of the vertebral canal has occurred, there are no cord symptoms and no escape of cerebrospinal fluid which would indicate penetration. The wound may be closed by a clot at the time of

examination, nevertheless this negative symptomatology gives no clue as to the true condition of things. Lumbar puncture will solve the question, and if it shows that the vertebral canal is intact, all that is necessary is to clean the wound and apply the usual dressings. If, however, lumbar puncture shows that the canal has been opened, the proper conduct is somewhat uncertain, because there is much discussion as to the correct thing to do. Some surgeons hold that an aseptic interference is indicated, on account of the danger of possible infection, and, therefore, advise cleaning out the wound, including the meninges, when the canal has been opened. Others, believing that infection is not to be feared in each and every case, rely on the expectant plan and operate only when the first symptoms of inflammatory trouble become manifest.

Meningeal infection may be either primary or secondary. The primary form is due to the entrance of bits of clothing with the projectile, but this is uncommon, as is shown by the long list of traumatisms in which the cord was directly involved and still the patients recovered without operation. At the present time, the projectile of firearms may be considered as sterile, but what is to be particularly feared is secondary infection, and this occurs when the wound is large and when cerebrospinal fluid escapes. Nevertheless, there are reported cases where the fluid has escaped in large amount and still no infection arose. But just because there are exceptions, it is nevertheless an undoubted fact that a fistula predisposes to infection; therefore if no nervous symptoms are present and if there is no issue of the cerebrospinal fluid, the wound may very properly be closed with drainage. Now, if several days later untoward constitutional symptoms arise, lumbar puncture should be resorted to, which is at the same time a therapeutic and diagnostic measure and will indicate the necessity or not of secondary interference.

In the second class of cases, where it is certain that there has been penetration of the vertebral canal, the trauma may or may not be accompanied by nervous phenomena. In cases where no cord symptoms exist and where lumbar puncture shows that the canal has been opened, if there is no fistula and the wound is narrow, there is no indication to act at once. But, if in spite of the absence of cord symptoms, the wound is large, allowing the cerebrospinal fluid to escape, infection should be feared and immediate operation is, I think, logically indicated, which will thoroughly clean the wound. At the same time all foreign bodies can be removed which otherwise would be causes of compression. Drainage should be established, and I consider that it is wiser not to attempt to suture the dura mater.

In other cases of penetrating wounds, radiculomedullary symptoms are present, but here again, the indications differ according to the nature of the wound. In the first place, the wound may be narrow and closed by a clot, and no cerebrospinal fluid escapes. In these circumstances the proper conduct will be indicated by the kind of cord lesion with which we have to deal, so that it is of the utmost importance to arrive at an anatomical diagnosis of the medullary lesion and, if possible, differentiate a partial from a total lesion. The diagnosis of the

former is easy, but it is a difficult matter to make a precise anatomical diagnosis. A simple clinical examination will not be sufficient to indicate whether there is compression, contusion, or partial section of the cord, so that radiography must be resorted to, bearing in mind what has already been said regarding it at the beginning of this paper. Too much must not be expected, because small splinters of bone or a clot causing compression will not be detected by this means. It is just in these cases that the location of the wound should be given careful consideration, and the higher up it is the greater will be the chances of a fatal issue from increasing compression. Therefore, primary laminectomy should at once be done. If the wound is in the lower dorsal or lumbar region, operation is less urgently indicated and time may be taken for the diagnosis.

There are cases where quite a lapse of time ensues between the receipt of the injury and the appearance of the symptoms, and here one observes either radicular or medullary excitation of a progressive type. Hemorrhachis should be considered and a lumbar puncture, which will give a clue to the diagnosis and which at the same time acts therapeutically, will be all that is necessary, for a few days at least. If after puncture has been done, there is regression of the paralytic symptoms, all well and good, but should they remain fixed or again increase, secondary laminectomy should be done without further delay.

Other subjects show paralytic symptoms immediately after the injury, the paralysis being of the limp type from the beginning, but the symptoms rapidly improve. These are cases of contusion of the cord and, as pathology shows, the lesions are nondestructive, so that repair takes place. The work of repair should be carefully followed, and just so soon as it ceases or there is regression, we may conclude that there is something more than a contusion of the cord. The arrest in repair may be due to compression from the projectile, a bone splinter, or to destructive lesions. In the former case, radiography will indicate what is to be done, in the latter we must admit that we are powerless. It is possible to make a diagnosis before operating, but radiography is not sufficient, and electrical examination of the paralyzed muscles must be resorted to. If, after the fourth day there is no reaction of degeneration, the case is one of compression, but if the reaction of degeneration appears before the fourth day, section of the cord must be diagnosed and operation is contraindicated. Should there be the slightest doubt, operation should be resorted to at once in order to prevent nondestructive lesions from becoming destructive. Unfortunately, the cases are numerous in which, clinically, the anatomical diagnosis of the medullary lesion is impossible, even if the lesion can be judged total or not. The diagnosis should be completed by an electromuscular examination, and if after four days there is no reaction of degeneration, we can assume that the cord is compressed. Consequently, laminectomy should be done without delay. If by the fourth day the reaction of degeneration is present, the lesion can be considered total and operation is out of the question.

Beside these narrow wounds partially occluded by clot, without escape of the cerebrospinal fluid, there are others where the wound is gaping with exit of the cerebrospinal fluid. As in the cases where radiculomedullary symptoms are absent, the principal danger is infection, and no matter what the nervous symptoms may amount to, operation is indicated. There are cases in which the projectile, lodged in a vertebral body, projects into the canal and compresses the cord. If, on account of its position it cannot be removed, a few of the posterior arcs are to be resected and thus some space will be given to the cord, resulting in a complete recovery. This decompression will allow the non-destructive lesions to undergo repair, but naturally will have no influence on total lesions.

If there is a total section of the cord, either diagnosed before or found at operation, it appears to me, in spite of the case recorded by Stewart and Hart, that suture of the cord is perfectly useless from the standpoint of repair. At the most, when during an interference, the cord is found almost completely cut across, the two ends may be approximated by suture of the meninges. The only outcome to be expected is to have saved the integrity of the few fibres remaining intact, by preventing the two ends of section from separating still farther by the elastic retraction of the meninges. The only point gained is to have prevented an aggravation of the already existing lesions by the transformation of an incomplete section into a total one. The nerves in the cauda equina are rarely all involved in a gunshot wound of the lower part of the spine, and a trauma at this point is the least serious of any. By the dissociation of the cord at this point, it would be quite exceptional if all the nerves were cut, so that in practice only a few groups of muscles will be found to participate in the paralysis. Then too, as these nerves have a peripheral structure, their suture will probably result successfully.

I now come to the consideration of the operative technic. According to the time of the interference, the operation will be either primary or secondary. The former is indicated in cases of some complication following a gunshot wound of the spine, while the latter has for an end the removal of a projectile, to deal with a secondary infection such as an osteitis or suppurating fistula, and, lastly, to do away with a compression resulting from an hyperostosis. But in each case the technic will be the same, the only difference being whether the vertebral canal has been penetrated or not. In the latter case all that is required is to open up the wound, clean it out, and remove the projectile.

If, by our examination, we have been able to diagnose a penetrating wound, this should be freely opened up in order to have sufficient light and room for exploration. In doing a laminectomy, the spine may be approached by its posterior aspect or by its anterolateral surface. By the posterior approach we can do either a temporary or permanent laminectomy.

Permanent laminectomy is done as follows. The subject is placed on the side or on the ventral aspect, while the incision may be either straight in the middle line or paraspinous. In certain cases a

U, H, or L shaped incision may be selected, but the curved incision is the one that gives the freest exposure, and it should always be made to extend above and below the portion of bone to be resected. After incision of the musculoaponeurotic layers of the periosteum, the plates should be peeled off up to the beginning of the transverse apophyses. The free hemorrhage resulting requires no attention and can very well be controlled by packing for a few minutes. Next the vertebral blades on each side are cut, then the ligaments, and with stout forceps the bone flap is raised up by downward traction in order to disengage the plates which are implanted in each other. Chipault's gauge is by far the handiest instrument for the purpose. The resulting hemorrhage is again controlled by gauze packing. I should say that hemilaminectomy is far more rapidly done, but the operative field obtained is too restricted for practical purposes.

Temporary laminectomy is best done by Bickham's technic. After locating the spinous apophysis of the vertebra *above* those that are to be resected, the skin over it is incised and next the ligaments attached to this apophysis, which is resected at its base. After control of the bleeding, an osteoplastic flap is formed by a U shaped incision of the integuments and muscles. The branches of the U should begin on the plates of the vertebra whose spinous apophysis has been excised. With a Doyen saw, which is the best instrument to my mind for the purpose, the plates are cut through, and after incision of the ligaments the bone flap is turned upward. This technic has been modified by Cavicchia and Alessandri by making a median skin incision, then detaching the muscles and periosteum on one side, after which the spinous apophyses are sectioned at their base. Next passing *under* these apophyses, the soft parts on the opposite side are detached. All the apophyses on one side are retracted and thus the exposed arcs can be resected.

When the vertebral canal has been exposed, it should be cleaned and the foreign bodies present removed. When the lesions are extradural, the perimeningeal spaces are cleared of clot, bone splinters, and the projectile if present. A secondary interference has for object the removal of an hyperostosis or a focus of osteitis, which should be opened and freely drained. Sometimes this is impossible in practice. As to the meningeal lesions, the dominating symptom is the escape of cerebrospinal fluid, and if the possibility of infection can be laid aside the meninges can be sutured. Should there be a radiculomedullary lesion, the meninges should be freely incised and the cavity delicately and carefully disinfected, and if one is dealing with the region of the cauda equina, the cut nerves may be sutured after the faradic test to determine to which side they belong.

When the cord itself is cut simple meningorhaphy or meningomyelorrhaphy is to be discarded, since repair is out of the question. However, Munro, in 1900, founding his supposition on the possibility of suture of the roots, thought that in the case of section of the cord the condition of the subject might be improved by an anastomosis between the upper and lower rhachidial nerves, and a good result was obtained in dogs by Kilvington

by this means. Bird and Kilvington applied the operation in one case, but were unsuccessful on account of some technical error. (*Guy's Hospital Journal*, 1906; *British Medical Journal*, April 27, 1907). In man, the operation cannot be resorted to in the cervical region, but is applicable in the dorsolumbar segment on account of the particular direction taken by the rhachidial nerves. From the standpoint of practical surgery, this technic should be studied still further.

When by radiography the location of the ball is determined, it should be prudently removed, but extraction will be difficult when the projectile is in front of the cord and particularly when it is lodged in the body of the vertebra. The cord must be retracted to one side, with or without temporary section of the spinal roots, and the bone around the ball is chiseled out. The vertebral canal is then closed by a careful approximation of the muscles or by placing the bone flap back. If infection is feared, the wound should be drained for at least forty-eight hours. In operating in the cervical region especially, there may be free hemorrhage from the vertebral artery, and if care is not taken while manipulating the cervical segment of the cord, a paralysis of the pneumogastric may ensue.

As an after result, especially when drainage has been used, a fistula may persist, exposing to secondary infection. The cerebrospinal fluid may collect under the sutured flap, when puncture will accomplish all that is necessary. For hemorrhage from the vertebral artery, I would merely remark that the vessel can be reached by either the prester-nomastoid or retrosternomastoid routes.

To reach the spine at its anterolateral aspect in the cervical region, there are two routes, the first by way of the buccal cavity, but for many obvious reasons this is rarely, if ever, resorted to. The lateral aspect of the neck is the route to be selected, either by following the bullet track or by passing in front or behind the sternomastoid so as to come upon the apices of the transverse cervical apophyses. The opening made by the projectile is then sought for and the ball removed. To reach the anterolateral aspect of the spine in the thoracic region is a most difficult undertaking on account of the ribs and important viscera contained in the mediastinum. The operation of costotransversectomy has been resorted to by Gross and Sencert, these surgeons combining laminectomy with mediastinotomy. Their patient died, but it must be admitted that the condition of affairs was very bad, as a fragment of bone, which could not be removed at operation, projected into the vertebral canal and had torn and flattened the cord (*Revue médicale de l'est*, 1908).

For the lumbar region, Treves's technic is the best. An incision is made just inwardly to the external border of the sacrolumbar mass, and the apices of the transverse apophyses are exposed. When the psoas is reached, care must be taken to avoid section of the nerves, which are deeply situated.

To conclude, I may say that temporary laminectomy, although giving a solid spine, is a difficult operation, and through bone regeneration from the periosteum the same solidity may be obtained by

permanent laminectomy, which is far less difficult of performance. In all these interferences the use of the chisel and hammer should be avoided as much as possible, because they only increase the already existing contusion of the cord. To reach the vertebral bodies, it is better practice to resort to the lateral route through the neck, as asepsis is much more easy to maintain and I can say without hesitation that the retrosternomastoid route is the proper one to select, as fewer vessels and organs are likely to be wounded.

3 RUE BELLOT.

MEDIAN BAR OBSTRUCTION IN PROSTATIC DISEASE.

Report of a Case.

By J. DAWSON WHITALL, M. D.,
Philadelphia.

It has only been for the past few years that this type of prostatic trouble has received the share of attention it deserves. The apparent increase in the number of reported cases merely shows more diagnostic skill on the part of the general physician and urologist. Clinically the symptoms resemble those of the average prostatic hypertrophy, it being impossible, from symptoms alone, to differentiate the two conditions.

The etiology is somewhat obscure, but we do know that there is replacement of each lobe and isthmus with fibrous tissue instead of normal cellular element. The connective tissue, especially of the isthmus, contracts, thereby impinging upon the lumen of the urethra. The latter opening may in fact be so distorted that the urethral orifice may be raised to a much higher level.

As in prostatic new growth, obstruction plays an important role. It may be relative (occasional) or absolute, depending upon the length of time the symptoms have been present; the hygienic, dietetic, and medicinal treatment which has been followed. The patients are always past middle life. Frequency of micturition, dribbling, bladder tenesmus, all the foregoing are more or less dependent upon the amount of cystitis present. Dietetic indiscretions, exposure to dampness may cause absolute obstruction, relieved only by catheterization, at times a most difficult procedure. These patients are very neurotic, bloodvessels arteriosclerotic, with hypertension to a marked degree. It is often a question whether the prostatic condition is not merely the local effect of the general sclerotic involvement.

The urinary findings are almost legion, varying from acid to alkaline (ammoniacal), the latter being more frequent; pus in small or large quantity depending upon the degree of obstruction, the cystitis and the amount of residual urine present. There may be albumin, tube cysts, granular or hyaline, showing kidney involvement, either primary or secondary. Blood may also be present.

The physical examination must be local and general. Preceding all instrumentation the patient must be placed on urinary antiseptics and the urine rendered as clear as possible by bladder irrigations twice daily, with boric acid solution. The total bladder capacity and residual urine must be meas-

ured. When the residual becomes disproportionate to the total amount, it means severe cystitis. Rectal examination reveals nothing abnormal. Under the cystoscope the gland may appear normal or slightly atrophic; the bladder walls are thickened and hypertrophic with great vascularity; or, if the case is one of long standing, the walls will appear pale and glistening in areas showing dilatation and fibrous change. The ureteral openings may be normal or slightly dilated. Stone may be present.

The heart, lungs, and abdomen must be carefully gone over and the blood pressure and sclerotic changes noted.

TREATMENT.

Treatment may be divided into: 1. Medical, (a) local, (b) general; and, 2, surgical. The medical treatment consists in the administration of an abundance of pure water and urinary antiseptics. If cystitis is marked, irrigation of the bladder must be practised twice daily till the condition is controlled. Constipation must be corrected. If the patient leads a catheter life, irritation and inflammation of the bladder can be kept down only by the most rigid surgical cleanliness in regard to instruments and solutions. The skin must be kept active. The diet must be modified; nothing like rich or highly seasoned foods nor alcohol permitted in any form. A patient may be made comfortable for a number of months along these lines, or the condition may grow worse, the average man growing tired of the rigid routine laid down. The borderline between medical and surgical cases is not rigid, but one merges into the other gradually. If after several months' treatment, there is not much, if any improvement, and if the patient fails to live the catheter life properly, and provided, all things considered, he seems to present a fair risk, then surgical removal of the obstruction must be considered.

Suprapubic prostatectomy will give the clearest and most rapid operative field, and convalescence should be speedy. The entire gland with the obstructing isthmus is enucleated by blunt dissection with the index finger of the right hand, while the index finger of the left hand acts as a guide in the rectum. The entire prostatic urethra is removed with the isthmus. No retention catheter is used. A drainage tube of large calibre is placed through the incision and drains the urine for thirty-six to forty-eight hours. The bladder is irrigated twice daily with saline solution, and dressings are changed frequently. *No urethral instrumentation is done*, but the urine is allowed to seek its way naturally in from ten to twenty days. The patient is allowed to sit up out of bed by the seventh day.

The following case is reported as a type of this condition:

CASE. G. S., aged seventy-two years, negative as far as family or personal history was concerned. Had been most regular in his habits, no alcohol nor tobacco. His health was of the best until three years ago, when he first noticed nocturnal frequency of urination. Difficulty in starting the stream and dribbling then appeared; he never voided more than three ounces. He had never had complete obstruction, necessitating catheterization. He had been on the accepted medical treatment for several months, but felt it to be so unsatisfactory that he wanted relief, even at the expense of added risk. He said he would rather not be

here at all than be here as he was. The patient had never passed blood.

Physical examination revealed a fairly active man for his years. Arcus senilis present. Was very nervous. Lungs normal; aortic second sound accentuated; arteries very hard. Blood pressure, systolic 180, diastolic 130; pulse pressure 50. Urine negative for albumin, sugar, and casts; many pus cells, alkaline and turbid; total bladder capacity, seven ounces; residual urine 3.5 ounces. Rectal examination revealed no hypertrophy of prostate. Prostatic urethra difficult to catheterize. Cystoscope revealed atrophic lobes and median obstruction; vesical walls much thickened.

The patient was admitted to the Northwestern General Hospital and a suprapubic prostatectomy done March 10, 1914, following the method given above. There was considerable oozing for two days, which was gradually controlled. On March 25th the patient left the hospital, drainage still present. He did not void normally till March 28th, eighteen days after operation. The incision then healed very promptly. At the present writing (August, 1914) the patient has excellent control, passes a good stream, and has only a slight turbidity of the urine, while he has gained steadily in weight.

2124 NORTH TWENTIETH STREET.

WAS THE ENGINEER'S MIND IMPAIRED BY ALCOHOL?

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The accident.—A New York express train, on the Lackawanna railroad, on the morning of July 4, 1912, dashed into an excursion train near Corning, N. Y., killed thirty-nine persons, and injured an equally large number. The excursion train, on the same track, was delayed by some accident. The morning was foggy, and although the danger signals were set, fusees placed on the track, and a brakeman had been sent back with a red flag and lights, the express train rushed on and failed to recognize the signals until within a few hundred feet of the excursion train, too late to avoid a terrible accident. The express train engine was thrown from the track, and the engineer badly bruised.

A charge of manslaughter and willful neglect was made against the engineer. After various hearings and considerable testimony, the charge was *nolled*. The supposition was that the railroad authorities and influential friends of the engineer recognized the futility of pressing such a charge, which would have incarcerated the engineer for a term of years, and increased the claims for damages against the railroad.

The *Literary Digest*, of New York, published a picture of the wreck and a headline which read *The Engineer Was Drunk and Thirty-nine Lives Were Lost*. The *World*, of New York, and other papers repeated this charge in different ways. A few months later, the engineer sued the *Literary Digest* for libel, alleging \$50,000 damages. After various delays, the suit came up for trial in the Supreme Court at Elmira, N. Y., May 8, 1914.

Main facts in the trial.—The question at issue was, Was the engineer intoxicated in part, or inca-

pacitated by the use of spirits to the extent that he could not act rationally? The term, drunk, was considered in a general sense, and not specifically, meaning stupor or delirium, but referring to some confusion of sense impressions and bewilderment of reasoning powers, with general inability to act according to circumstances and conditions.

On the witness stand, the engineer swore that he was not drunk, that he had taken two glasses of gin before midnight on the night of July 3d, a few hours before the accident; also that he had drunk nothing but lemon and seltzer at the different saloons that he had visited on that night. He went to bed about one o'clock and was not intoxicated. He was called at three a. m., but was so sleepy that he did not get up, and had to be called a second time. Then he went to the roundhouse and started out with his train. Shortly before the accident, he discovered a fault in the water injector and was trying to remedy this, and did not notice the signals of danger or anything unusual until a short distance away from the excursion train. He then applied the emergency brakes, but did not have time to jump from the engine before it crashed into the excursion train. He was thrown to the ground and made unconscious. From this he recovered.

Evidence of the conduct and appearance of engineer preceding the accident.—The engineer was not considered a drinking man, but he was not an abstainer. He had been in the employ of the railroad twenty-eight years and had been considered a reliable, efficient man. On the night before the 4th of July, 1912, in company with a former bartender and drinking man, he visited several saloons, and was seen on a trolley car, coming from the park at about midnight, in a confused condition. When walking on the street he staggered and was supported by his friends.

He was seen in several saloons. In one he took a lunch of some kind, and finally about one o'clock he was taken home by his companion. The testimony as to his condition was conflicting. Some persons declared that he was intoxicated, staggered, and talked in a maudlin way. Others declared he was sober and did not appear unusual. Several barkeepers remembered that he was in their saloons, but could not remember whether he had drunk anything or not. At three o'clock the call boy, as usual, awakened him with difficulty to take his train. He went to sleep again, and at four o'clock he was called again. At 4.45 he took the train and went out. He was apparently very nervous, and in his haste failed to put on his overalls. The train was late and he seemed excited and disturbed, but was not considered drunk by those who saw him.

There was a fog on the track for a mile or so near the scene of the accident, but it was not so dense as to make it impossible to distinguish a train half a mile away. The flagman swore, and his testimony was verified by others, that he went back eight tenths of a mile from the excursion train, placed a fusee on the track, waved the red flag, and shouted as loud as possible to the engineer, who seemed to have his back turned and did not recognize the signal or check the speed in any way. Two semaphores were set over a mile back. Other railroad men in the vicinity observed that the train did

not pay any attention to the signals against it, until within a few hundred feet, when it was impossible to check the speed to any great extent. The engineer's statement that the water injector was faulty was not sustained by an expert examination of the engine after the accident. The injector was found to be working well, and seemed not to be impaired in any way.

Reasons for the Literary Digest's charge.—The assumption that something must have been wrong with the brain of a skillful engineer who failed to recognize the signals, was most rational, and the fact that he had been drinking the night before suggested causes that were very natural and rational. It was not a question whether he was stupid or delirious, but whether his brain was impaired from spirits, and whether this explained his inability to see and act rationally, under the circumstances.

The fact that he acknowledged having drunk gin on two occasions, was sufficient to warrant a conclusion that he had drunk more. As he was in company with a drinking person, and visited several saloons, there was a reasonable certainty that he did not drink seltzer and harmless drinks at all these places. If he had used only gin, this would have impaired his mentality. It is very rare that men who drink gin do not take other equally strong drinks, and under certain circumstances it would be anomalous to suppose that they did not.

The testimony of different witnesses that he appeared confused and had to be helped by his assistant, was very reasonable, and the fact that others did not discover this was no evidence that it was not true. His retiring after midnight and sleeping profoundly, so much so that it was difficult to awaken him, was unusual. For a man who is accustomed to start at once when summoned, and attend to his duties promptly and without hesitation, and to have done so for years and years, and now on this occasion to show such unusual stupor and somnolence, was most unusual. His appearance on taking the train showed nervousness and excitement, which was all unusual for a man who had been on the road for years and was perfectly cool and collected on all occasions of daily duty.

There seemed nothing in the surroundings, although the train was late, to explain this nervousness. He was doing what he had been accustomed to, for a long time, without attracting the slightest attention from his associates, but this time they noticed something unusual, which of course could not be explained in all details.

The question before the jury was, admitting that he drank gin before midnight, Was it possible that the effects of this drinking would continue three or four hours after, and up to the time of the accident, and could he have full possession of his senses and be competent to act with judgment and discrimination, in a sudden emergency, and in conditions that were unusual?

The statement of the *Literary Digest* that he was drunk, was to be taken in the general sense, meaning incapacity to see and reason, and to act, traceable to the palsy from spirits. Did this condition exist in his case, and what was the probable evidence of it being a reality?

A scientific study of the facts.—A hypothetical

question was submitted to me, embodying the foregoing facts and asking whether a man in this condition could be called sane and sober. A negative answer calls for an explanation which may be summarized as follows:

Laboratory researches and exact scientific studies confirm the fact that a quantity of spirits from two to four drams, impairs the sense activity and impressions, and the reasoning powers to an extent that is measurable. Sometimes a smaller amount than this has been noted in its effects. It is now generally understood that half ounce or less of pure spirits has a marked effect in obscuring the sense impressions and diminishing the reasoning processes that follow. If a person takes small doses of spirits at meals, in the form of wine or beer during the day, at short intervals, the effects are cumulative, and an unmistakable degree of anesthesia follows. Therefore the so called moderate drinker is a most pronounced example of diminished sensory and reasoning capacities.

Exact measurements of such persons show impaired sight, touch, taste, and smell, also inability to reason accurately and quickly. These measurements are open to correction from the fact that they cannot be compared with previous studies of the person when free from alcohol. When made from time to time on the same person, the increasing debility shows the abnormal condition.

In general terms, the sensory impressions are lowered, imperfect, and the ability to determine exact events as they are, is lessened, and from this the reasoning capacity is likewise deranged. This may not be apparent in automatic and accustomed work, but in work that requires promptness and great exactness, a slow diminution is evident. When new conditions arise, requiring sudden, intense sensory and reasoning activities to adjust them to the conditions, this failure is evident.

Thus, a man on a locomotive or in charge of some machinery that requires constant care and judgment, may seem to be perfectly normal as long as everything goes on without a break or change, but let some unusual condition happen, some obstruction or breakdown, or some emergency which requires rapid and prompt judgment, and the defect will be seen. This is evident in men who are in positions where color signals are depended upon for guidance, as men in the pilot house of a ship or on a locomotive on a dark night. After a glass or more of spirits, the color sense is impaired and cannot be depended upon, hence such men are very dangerous.

The so called moderate drinker is unfit for any such situation. Hearing is disturbed. The moderate drinker is unable to distinguish sounds with the same acuteness as before, and when they are heard it is after a longer lapse of time. Thus a whistle, the ticking of a clock, the sound of a bell is heard from a half second to three seconds later than by one who has not drunk.

The rapidity of thought is also measurable, and can be stated in exact terms. One man who is sober will pronounce the name of a person in from one half to three fourths of a second from the time it is brought to his vision, and after using half an ounce of spirits, it will be one second or one second and a half later before he can pronounce the same

word. This indicates a veritable anesthesia of the reasoning processes, a slowing up and diminution of their acuteness. These are facts which are verifiable beyond question. This anesthesia in a moderate drinker is more or less continuous, and it is doubtful if there is any restoration and change, except from total abstinence covering a long time. In persons who drink only at intervals and perhaps in moderate quantities, there is the same anesthesia, sometimes very acute and very often provoking stupor and somnolence, from which there is restoration and recovery.

When the senses and reasoning resume their former vigor is largely unknown, but undoubtedly many hours and sometimes days elapse before they entirely recover. That this derangement is present, is manifested by a variety of symptoms, of which nervousness, hypersensitiveness, and irritation and a generally disturbed manner are unmistakable symptoms.

It is a well known fact that both small and large doses of alcohol, in almost any form of beverage, have widely differing effects owing to peculiar organization. One person becomes stupid in a very short time; another is exalted up to the verge of delirium; a third is mentally excited and so on, for a long time. How long this condition lasts, is unknown, but instruments of precision and measurements of the arterial tension, show that many hours and perhaps days pass before the former condition comes back.

The statement that after intoxication, or visible change from spirits, full recovery follows after a few hours or a night's sleep, is unverifiable. The opinions of the patient, that he is as well as usual, and in no way suffers from any aftereffects, is untrue. Studies of time reaction, fatigue centres, and arterial tension disprove his own statements. To the person who is not accustomed to drink, except at long intervals, there is a sudden, pronounced anesthesia, and although it passes off quickly, there are grave doubts as to the disappearance of the effects at the same time.

In this particular case, assuming that the engineer had not drunk except at long intervals and in limited quantities, then suddenly he takes spirits, which cause the stage of stupor and bewilderment, the effects could not possibly disappear after a few hours' sleep or even a day or so after. If this man had been accustomed to drink small quantities regularly, there would be a very strong base for pronounced anesthetics and palsies which would last a long time.

It is a common observation in hospitals where persons are brought in more or less incapacitated from spirits, that the deranged condition remains for a week or two, and the first few days manifest an inordinate desire for coffee and tobacco, with general nervousness and a condition of unrest and general derangement which requires hypnotics to overcome it.

It is the common experience of persons who have used spirits the night before in a greater or less quantity, to require spirits next morning, as a medicine, to remove the disordered conditions which they suffer from. Persons who have drunk to a degree of stupor, are always more or less bewildered and

disturbed after eight or ten hours' sleep. This may not always be noticed. It is the experience in factories that employ expert workmen, that the work they do after a holiday or the first of the week, is more or less imperfect and the output is smaller.

These workmen are often so called temperance men, but have drunk during the holiday small quantities of spirits which have materially injured their work for some time afterward, hence the effort is made to secure only total abstainers for exact and specific work. In the coarser labors of factories and different industries, the same defects are evident after Sundays and holidays, traceable to the same causes. Typesetters, engravers, proofreaders, and men engaged in exact work, show the same conditions. Brain workers, and persons occupying positions of responsibility, requiring intense concentration of sensory and mental activities, are found to be more susceptible to the anesthesia from spirits.

Brain workers of the highest class soon discover that spirits in small quantities lower their senses and reasoning powers, and they abstain from necessity. Probably a very large number of persons are unconscious of this impairment, because their work is automatic and is seldom called in question, except when blunders and mistakes occur.

These facts are accepted and constantly proved by increasing evidence, both in the laboratory and by practical observation. The statement that the impairment from this anesthesia is uncertain as to time and duration and depends upon positive congestion and palsies of certain nerve centres, is another fact and scientific conclusion.

The *Digest's* charge that the engineer was drunk was exact and literally true. He was drunk in the sense of being incapacitated for the emergencies that occurred at that time. Had nothing unusual occurred, he could have driven the train to its destination, as he undoubtedly had done before under similar conditions, without accident, but he was certainly more or less incapacitated from faulty sense and reasoning activities to understand and act promptly in unusual circumstances and conditions.

The cross examination which followed, brought out in detail many of the experiments which have been made, bearing on these facts, and the general conclusions are recognized beyond question.

The judge in his charge to the jury said, among other things:

A man is intoxicated or drunk when intoxicating liquors have affected his faculties to such an extent as to lose the normal control of them. In other words, when intoxicating liquors are taken into the system to such an extent as materially to disturb any apparent observation of the mental faculties, so he has not the full and usual control of them, he is drunk. Now a man may be dead drunk when he is unconscious; he may be stupidly drunk when he is stupid; he may be staggering drunk when he staggers; he may be foolishly drunk when he is foolish, but a man may be drunk and walk straight, and a man may be drunk and attend to his business, and attend to it correctly, and a man may be drunk and not give any sign of it to the casual observer. . . .

The question you are called to determine in this, Was this plaintiff in normal control of his faculties at the time of this accident? Was he less alert? Was he less careful? Was he less vigilant? Was he less attentive to his duties by reason of the fact that he had been drinking intoxicating liquors? If you so find, then you have a right to find that he was drunk. . . .

The plaintiff has given no evidence showing or tending to show that he suffered any special damage. He was discharged at once and before this article was published, but if he is entitled to recovery, he can recover for the disgrace and the injury to his feelings, to his character, that was occasioned by this publication. The burden of proving that the plaintiff was intoxicated, or that his mental faculties were impaired by intoxicating liquors, is upon the defendant.

In other words, the plaintiff should satisfy you that in this case he was of a rational sound mind, and in no way incapacitated by any previous conduct, for the duty he was called on to perform.

The jury returned a verdict of one dollar without costs, which was practically a victory for the defendant. Apparently this is the first test case in which the irresponsibility of a person, hours after the use of alcohol, was questioned.

It is assumed in legal circles that the conduct and appearance of the person accused, immediately before, and at the time of the act, would furnish the data from which to determine his mental condition. To this there are many exceptions. In a recent murder case, it was proved that at the time of the crime the man showed premeditation, judgment, and normal control, and yet his previous history showed him to be most irrational and insane. This was not considered and the man was executed.

The principle is the same, that the man who had been intoxicated from spirits or from any other cause for a few hours before the act was committed, could not have regained a degree of sanity to the extent of knowing and controlling himself in a rational way. In this instance the accident was the direct outcome of some grave, mental impairment most unusual for a man who was constantly on the alert for danger, and prompt in its recognition and prevention.

The second fact is that some particular cause was responsible for this. One conclusion adds additional interest. The engineer was a middle aged man, who had been subjected to the special nervous strain of driving an engine for twenty-five or more years. Irrespective of all special care he may have given to himself, he had less of his former vigor and mental strength, and was less able to act with alertness. Men in this position sometimes become more cautious and timid. Others become stupid and dull and slow to act. Both of these conditions are due to general degenerations from age. He was not a strictly temperate man and had taken spirits at irregular intervals, and this would indicate an intensification of his natural weakness, which would extend on, a long time after the spirits, and would be particularly prominent in sensory and mental incapacity.

A second conclusion based on a variety of facts, indicates certain causes to which there would be few if any exceptions. Thus, a man acknowledging that he had drunk two glasses of gin, and had visited several saloons where spirits were sold, with a drinking companion, and later was found in a very heavy stuporous sleep, indicates most naturally the direct effect of spirits. If later, on awakening, there were disturbances of manner, evident nervousness and irritation, and complete failure to observe the ordinary caution signals, together with unusual stupidity in recognizing and averting the accident, the evidence would be complete.

The last conclusion is the application of what science teaches concerning the anesthetic effects of spirits, their duration, and prominent influence over the sensory and reasoning functions of the brain. From this there would be faults, defects, and disabilities which might continue for a very long time afterward.

This case makes prominent the fact that the anesthesia from alcohol is not a transient condition, and may extend on for days, yet be unobserved, except through critical examination and study.

LOCALIZATION OF BRAIN LESIONS.

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The ability to tell what part of the brain is involved when this organ becomes the seat of actual disease, may often prove of great practical value. The exercise of this ability helps us to determine whether brain surgery will probably benefit the patient, which aids in forming an opinion as to the future of the case, and enables us to decide where and how to operate, should surgery be indicated.

The principle upon which rests our ability to locate brain lesions, is that every muscular action bears a fixed relation to a definite centre in the brain, and that each of the special senses registers in a definite part of the cerebrum. Thus a given paralysis, not of the flaccid, peripheral nerve type, points to corresponding centres in the brain or to the nerve fibres immediately leading from these centres. Or, again, anesthesia of a given sense organ or area, when demonstrably not due to peripheral damage, points to disease of that part of the brain responsible for the perception of the normal sensation coming through the particular organ or area involved.

The following analyses of case histories of brain disease are intended to illustrate the laws and methods governing localization of destroyed or injured portions of the brain.

CASE I. Mr. T., hotel keeper, aged fifty years, when examined, presented abnormalities as follows: 1, Difficulty of speech; 2, tendency to drag the right foot; 3, occasional convulsive movements of the right hand; and, 4, inability when blindfolded to distinguish objects by their feel in his right hand. The speech difficulty was interesting. The patient talked much, but often used the wrong word or was unable to remember the word desired. Particularly was he unable to comprehend written words, failing to read aloud successfully so simple a legend as the title of the *Saturday Evening Post*. The pulse was slow and full, though the blood pressure was not excessive. There was no special evidence of hardening of the vessels. The optic nerve heads, while not showing the tortuous veins indicative of intracranial pressure, were somewhat pale and gave evidence of pressure in the past. Mr. T.'s illness was of gradual onset, having developed slowly during several months. The Wassermann of the blood was negative, and a study of the spinal fluid showed nothing abnormal. The urine was normal. The knee jerks were exaggerated, particularly the right, but there was no ankle clonus nor Babinski reaction.

We know that the patient in this case suffered from a brain lesion because of his difficulty of speech; and additional support is lent to this opinion by the increased knee jerks indicating upper

neuron involvement, and by the patient's inability to recognize the nature of objects merely through the tactile sense of the hand. Moreover, the twitching of the muscles of the right hand suggested an irritative lesion of the motor hand centre on the left side of the brain, and the dragging foot indicated a corresponding left motor centre destruction. Thus, it was evident that the motor areas for the right hand and right foot were involved in the lesion, and we know that these areas lie along the frontal convolution which bounds the fissure of Rolando in front, on the side opposite to that of the paralysis. It was further evident that the portion of the brain called the angular gyrus, situated between the parietal and temporal lobes near the posterior extremity of the fissure of Sylvius, was doubly involved; because the perception of written words occurs in this gyrus and because the stereogenous sense—the power to recognize objects by their feel—is also a function of this particular fold of the gray matter. Agraphia, then, or word blindness, and astereognosis, or inability to know objects through the tactile sense, both being well marked in this case, the angular gyrus was decided upon as a probable posterior boundary of involvement, while the motor area of the frontal lobe was taken as the probable anterior limit.

Operation was advised, and a window was made in the side of the skull by Dr. Charles M. Remsen, of Atlanta, to whom the writer is indebted for the privilege of studying the case. The opening in the skull was unusually accurate in relation to the lesion exposed, which consisted of a yellow, caseous mass corresponding very nearly to the opening in the cranium. This mass bulged into the window and fluctuated under pressure. Puncture resulted in the release of fluid which spurted eighteen inches into the air, and suggested that the mass was a cyst. Removal of a portion of the caseous tissue together with the fluid, and closure of the skull resulted in considerable improvement in speech during the two months that have elapsed since the operation, and entire relief from the twitching movements of the hand and tendency to drag the right foot. Also the ability to read is improved. Only slight improvement, however, can be noted in the astereognosis.

CASE II. Mr. McD., clerk, aged twenty-one years, when seen with Dr. William M. Dunn, of Atlanta, exhibited mild paralysis of the left lower extremity and left upper extremity and of the right side of the face. The paralysis had come on suddenly a few hours before, while the patient was attending a matinee. Upon leaving the theatre his difficulty of gait caused the patient to appear drunk, but he reached a drugstore and was sent home in an ambulance. The patient gave a history of syphilis several years before and of treatment including mercury and neosalvarsan. The lower extremity cleared up within a fortnight of rest and potassium iodide administration, but a residue of paralysis persisted in the right upper extremity after several weeks daily application of faradic electricity. There was no true aphasia. The patient had had rheumatism.

The lesion in this case involved the internal capsule of the brain, because this is the only part of the brain where a lesion sufficiently circumscribed not to cause various symptoms other than those present in the case, could produce a complete paralysis of the voluntary muscles of one half of the body. All the fibres passing downward from

the motor area of the cerebrum converge into the pyramidal tract in the internal capsule, and at this point a comparatively small lesion may intercept all the voluntary impulses destined to supply the opposite side of the body. In McD.'s case the lesion was low down in the capsule, near the lower margin of the pons, because at this point the fibres passing to the facial nerve have already crossed to the opposite side, whereas the main pyramidal tract to the extremities has not yet crossed over. A lesion higher up the course of the tract in the capsule, would have caught the facial nerve fibres before they had crossed over and would result in paralysis of the side of the face corresponding to the affected side of the body. The nature of the lesion was probably embolic, though the possibility of a small hemorrhage must be considered.

CASE III. A. R., a negro boy aged twenty years, was seen at the clinic of the Atlanta Medical College. This patient's one and only symptom was complete hemianesthesia. One entire half of his body had gradually become numb and dead to sensation. From the history, the lesion appeared to be luetic, and the patient was put upon anti-syphilitic treatment. Little if any improvement, however, had resulted up to the time he was last seen by the writer. The reflexes were normal, and the emotions stable.

The internal capsule embraces practically all the sensory fibres from the opposite side of the body on their way toward the cortex. It is conceivable that a lesion of the posterior portion of the capsule could intercept all the sensory impressions from one side of the body. The absence, however, of any motor involvement, as in this case, points more strongly to the optic thalamus as the seat of the lesion, because the thalamus is the end station of all the sensory neurons from the opposite side. From the thalamus fibres radiate into the cortex. Of course hemianesthesia should always make one think of hysteria; but in the absence of increased tendon reflexes or of emotional instability, hysteria may reasonably be ruled out.

CASE IV. Little Miss S., a child, aged five years, when first examined, presented a marked internal strabismus of the left eye, and some paralysis of the same side of the face. The ocular palsy had preceded the facial paralysis several days. The paralysis developed rather rapidly during a week or so. A few days after the first examination, deafness was noted in the left ear, and, a day or so later still, considerable difficulty in swallowing was experienced. Following closely upon this the heart action became rapid and irregular, and the general condition of the patient continued to grow worse so rapidly that a decompression operation was done, the child dying shortly after leaving the table. More or less fever accompanied the course of this case; and a lumbar puncture made early revealed the presence of considerable intraspinal pressure. Examination of the fluid, however, failed to show evidence of tuberculosis.

This was a remarkable case of progressive bulbar palsy. First the disease attacked the nucleus of the sixth nerve which energizes the external rectus of the eye. Spreading gradually backward, the lesion, which probably was inflammatory in character, involved the nuclei of the facial, the auditory, the glossopharyngeal, and finally the pneumogastric nerve. Some authors describe such cases under the classification of inferior poliomyelitis. The decompression operation revealed considerable intracranial pressure; but as an autopsy could not be secured, the question of whether a tumor existed or not could not be determined.

CASE V. Master W., aged fourteen years, was in a thoroughly flaccid state of relaxation, unable to speak, except explosively and profanely at long intervals. He seemed to be in a stupor, and showed inequality in the pupils, the right being larger and less responsive to light. The condition followed rapidly a few hours after the boy had fallen down a flight of stone stairs, sustaining a blow over the right eye. The symptoms cleared up within ten days under rest and iodides, and the patient remained well. There was some choked disc of the right retina. The boy was left handed.

The mental disturbance, the speech difficulty, and the generalized relaxation all point to a lesion of the right frontal lobe. The speech centre in left handed persons is on the right side. The swollen veins of the right retina—the so called choked disc—indicated that considerable pressure existed within the cranium, probably due to hemorrhage.

CASE VI. Master P., aged eight years, was normal in every way until he received a blow on the head at the age of four years. Henceforth he became restless, less vigorous, and a kleptomaniac. He stole as much as seven dollars at a time from his parents at the age of five years and used it to carry crowds of newsboys into the picture shows. The periods of kleptomania came upon him at intervals of several months, like fits of epilepsy. Between times he would not take money, purposely left in his way to test him. Upon examination, there was nothing of note, except a depression well up and forward over the frontal lobes of the brain, a lack of development for a lad eight years old, and a++ Wassermann. To the Wassermann in this case I did not attach any importance, because clinical symptoms to corroborate the reaction were lacking. The mental examination of Master P., proved conclusively that he was not constitutionally unmoral, for he had keen moral sense, being able beyond his years to discriminate between right and wrong. Also when questioned about his thefts, he became much agitated and genuinely penitent.

No analysis of this case is called for. It may be remarked, however, that there is probably an irritative lesion over the higher centres of the frontal lobe, which generates periodical explosions of psychic energy, taking the form of morbid impulses, very much as such lesions produce the seizures in traumatic epilepsy.

CASE VII. Miss McC., aged eighteen years, first complained of clumsiness at the piano. Several weeks later she began to stagger slightly in her walk. Examination three months after the gradual onset of the trouble showed, 1, a marked stagger upon attempting to walk, with tendency to fall toward the right; 2, increased knee jerks; 3, normal strength in both upper and lower extremities; 4, positive Wassermann of the blood. There was no choked disc, but the appearance of the optic nerve heads was not normal and gave evidence of a neuritis in the past. Vomiting occurred now and then.

A diagnosis of cerebellar disease was based upon the incoordination (of the upper and lower extremities) without loss of power. Labyrinthine disease might have been thought responsible for the unsteadiness of gait, but not for incoordination of the finer individual movements. The tendency to fall toward the right is said to indicate a right sided lesion. The lesion in this case was probably a tumor; though in the absence of more marked signs of intracranial pressure, there is doubt as to the nature of the lesion.

In concluding these random reports from my case history files, let me express the hope that they may prove suggestive and interesting, even though they are far from constituting a comprehensive exposition of the subject of localization of brain lesions.

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THE NASOPHARYNGOSCOPE IN TREATMENT.*

Diseases of the Eustachian Tube and the Middle Ear.

BY THOMAS J. HARRIS, M. D.,
New York.

In 1902, I read a short paper before the American Laryngological, Rhinological, and Otological Society, in which I raised the question whether we were really securing the results that we should by the methods of treatment then in vogue for non-suppurative affections of the middle ear, that is, by inflation and massage of the drum membrane. My contention, which was not taken seriously by many of my hearers, was that from the very nature of the procedure, whether by Politzer bag or catheter, employed at infrequent intervals, we could hope only temporarily to relieve the condition, and that what was demanded was treatment of the cause or causes producing the rarefaction of air in the middle ear. Since that day, we, as otologists, have seen a great light. Without depriving Politzer of one particle of the credit that is due him for his discovery of the value of inflation, we have come to recognize that, valuable as it is, alone or improperly employed, it can do harm rather than good, and that what is demanded is a rational understanding and treatment of the underlying etiological and pathological conditions. Great truths demand constant restatement, and cannot be too often dwelt upon. We have no thought that we shall be able to say anything new, but we hope to impress upon some who possibly have not appreciated it, the supreme importance of taking a broad view, etiological and pathologically, of chronic otitis media.

We do not propose to consider the subject in an exhaustive manner, but rather to emphasize those points which have impressed themselves upon us with increasing weight during the last few years. What, then, is the picture that is most generally met with in cases of so called catarrh of the middle ear? By that we mean nonsuppurative processes which do not belong to the affection known as otosclerosis. It is generally one in which the drum is more or less retracted, and in which the position of the ossicles, due to the same cause, is more or less altered. In the later stages, the inflammatory deposits in the middle ear have been transformed into adhesive bands, and the drum itself, as a result either of disease or unwise treatment, has become atrophied. Corresponding to these changes in the middle ear, we find the Eustachian tube swollen and often almost or completely impermeable to the entrance of air. In the later stages of the disease this obstructive swelling disappears, and in its place comes a wide open or atrophied tube.

So far we are agreed, for a picture that all have seen time and time again has been described. If we have been able in the early stages of the disease by the introduction of air, either by the Politzer method or the catheter, to restore the drum to its proper position and the hearing to nearly or completely normal, the picture is complete. For years many never went beyond this point. The pa-

*Read before the Section in Diseases of the Ear, Nose, and Throat, Academy of Northern New Jersey, March 23, 1914.

tient was catheterized from two to three times a week, and massage was applied to the drum by the Siegel or Delstanche otoscope. In favorable cases from four to six weeks' treatment restored the hearing in whole or part, and the patient left, pronounced by us cured. In other cases, the treatment for a few hours improved the hearing or tinnitus, but before it was time for another treatment, the condition was as bad as before.

This failure to secure a permanent cure in many cases is easily understood when it is remembered that the method at the best is a crude one. Politzer's assertion that the introduction of air through the tube has the effect of ventilating the middle ear, of allowing any secretions that may be there a proper exit, as well as effecting a general massage of the tubal walls, is undoubtedly correct. His admission, however, in the light of our present knowledge of the bacteriology of the ear, that by inflation, secretions from the nasopharynx are often driven into the middle ear, to be absorbed there later on, is sufficient to condemn it from an accurate scientific standpoint. When Politzer made this most valuable contribution to the science of otology, bacteriology did not exist, and the relations of suppurative affections in the middle ear and the mastoid, to the nose and throat, were little understood. The experience, which is common to all, of seeing a middle ear suppuration and mastoid disease develop after a nasal operation or acute suppuration of the sinus, is evidence in itself of the close relation between these organs. In more than one instance we have known of mastoid disease resulting from a patient blowing pus into his ear when he was suffering from an acute cold.

Our first groping toward a more rational treatment came with the devising of the bougie by Urbanschitz, and later of the employment of the electric bougie by Ducl and others. By this method many brilliant cures have been effected, but here again there was a failure to go far enough. The all important question in the permanent cure of the disease under consideration, is what is producing the trouble in the tube and how best it is to be combated. It is now recognized that the Eustachian tube and the middle ear are to be regarded as one organ for purposes of treatment. While it cannot be denied that disease may enter the middle ear through the blood, for all practical purposes it may be said that, without exception in any case which we are called upon to treat, the invasion takes place through the Eustachian tube.

This axiom is the cardinal point in all treatment of the middle ear. It has long been recognized but only in a half hearted way. Much of the indifference in our attitude toward this has rested upon the imperfect view that we have been able to obtain in a majority of cases of the Eustachian tube, and the nasopharynx. In a tractable throat and in the hands of a skillful rhinologist, it is possible with a small larynx mirror to obtain a good view of the parts in question. In the great majority of cases, however, the view is faulty, unsatisfactory, or impossible. In recent years a number of substitutes for the mirror have been devised. The first of these that has received practical recognition, is the pharyngoscope of Hays. Later, Yankauer devised

his method of direct inspection by means of the spatula, drawing the soft palate forward, and at the recent International Medical Congress in London, Gyeryay, of Hungary, demonstrated his method of direct inspection by means of the modified Brünning tube. The simplest and most practicable of all, however, is the nasopharyngoscope, devised or rather modified by Holmes, of Boston, and it is to him especially that credit should be given for the treatment now under discussion.

Two chief questions which present themselves in our consideration of the subject are, first, what are the actual conditions present in the Eustachian tube and nasopharynx; second, what is the cause, or what are the causes, producing this condition?

First, as to the conditions present; these, as shown by the nasopharyngoscope, depend upon the stage of the pathological process. To appreciate them, demands an acquaintance with the appearance of the pharyngeal mouth of the normal tube. The mouth of the Eustachian tube varies in shape, being sometimes triangular, sometimes kidney shaped, sometimes pelvis shaped. The tube itself is of two portions, the cartilaginomembranous portion, extending from the pharynx to beyond the isthmus, and the osseous portion. The cartilaginomembranous portion is the part that is chiefly concerned in treatment. The cartilage is made up of two portions, a posterior or median part, and a lateral or anterior part. There are two lips to the mouth of the tube, the posterior lip, attached to the salpingosphenoidal fold, and an anterior lip, attached to the salpingopalatine fold. The cartilaginous portion extends two mm. beyond the isthmus, a fact which is important to bear in mind, because it means that the narrowest part of the tube, the isthmus, is not inextensible because of bony walls. Behind the posterior lip is the fossa of Rosenmüller. In front of the narrow anterior fold is the wall of the sphenopalatine fossa, and in front of that the posterior end of the inferior turbinate. Swallowing causes a distinct movement of the walls at the mouth of the tube, which can be seen to open. The mucous membrane is of the same color and histological formation as that covering the nasopharynx. There is, of course, no secretion to be seen in the tube. The pathological condition depends upon the stage of the disease. If it is an acute process, the mouth of the tube will be swollen to a greater or less extent, often so much so that it appears to be completely closed. The mucous membrane is seriously affected and edematous, bathed in a secretion which may be pure mucus or mucopus. What is impressed upon the observer, is that the tube is sharing directly in the pathological process involving the nasopharynx.

The application of cocaine and adrenaline to the mouth of the tube will often open it up sufficiently to allow the pouring out of secretion. This, if the process in the middle ear has become purulent, may be pure pus. As the disease advances, the intensity of the inflammation diminishes. If, instead of an acute or even a subacute, we are dealing with a chronic otitis, pure and simple, we may find what is at first glance an entirely normal tube, and yet careful inspection will show, if the process is not too advanced, involvement of the bloodvessels

on the anterior wall, a more or less profuse secretion from the glands inside of the mouth of the tube, and a faulty opening of the tube itself, due to swelling of the mucous membrane. This swelling can in time become an organized hypertrophy. Introduction of the bougie will meet, according to the stage of the disease, with more or less pronounced obstruction. Often the swelling of the posterior lip of the tubes is so great as to obliterate the fossæ of Rosenmüller. In the later stages this hypertrophy is replaced by adhesive bands. A characteristic picture is to see with the pharyngoscope, a firm plug of mucus lying in the mouth of the tube, which in itself is sufficient to account for the tinnitus and difficulty of hearing.

When, on the other hand, the process is one far advanced, the picture is one of decided dryness and shrinking of the mucosa and an increasing patency of the Eustachian tube, corresponding to a similar condition in the drum membrane. This atrophy is apt to be closely associated with an atrophy of the mucous membrane of the nasopharynx, and there may be persistent crust formation lying upon the tube mouth. At one time we were very enthusiastic in our belief that the Eustachian tube presented in many of these cases veritable strictures, causing stenosis, and the certainty of a cure by the dissolving of these strictures by means of electrolysis was urged. While it cannot be denied that a true stricture of the tube does occur, we have long been satisfied that the usual picture, where a bougie fails to enter or enters with difficulty, is not one of organized tissue, but rather of swollen, and perhaps, in extreme cases, hypertrophied mucous membrane. So much for the condition met with in the Eustachian tube.

The answer to the second question is of equal importance. What is the cause, or what are the causes producing the tubal condition? These, in our opinion, are both local and general. The discovery of Wilhelm Meyer was the most valuable contribution to the etiology that has ever been made. Countless are the cases of saved or restored hearing that are to be ascribed to the removal of the hypertrophied lymphatic growth. We all know, however, that certain cases fail to respond. This must be due to one of three things; either an adenoid was not the cause of the trouble, it was removed too late, or it was not properly removed. The nasopharyngoscope shows conclusively that the last is often the true cause. It will show in case after case, after operation, masses of adenoid growth, or, in persons of advancing years, organized cicatricial bands lying in the fossæ of Rosenmüller. It is not the adenoid, *per se*, which causes trouble to the hearing, but the site of the adenoid, and small quantities, especially where cicatricial bands are found, are sufficient to cause serious trouble to the hearing by interfering with the proper function of the Eustachian tube.

So far, otologists are generally agreed. When we come to speak of the nose as a contributing cause, differences of opinion will immediately arise. We would not underestimate for a moment the sincerity of those who believe that septal deformities are responsible for middle ear disease. Within only a few days we read a contribution by one of our

former assistants, a man of wide experience, who maintains that the septum is largely responsible for middle ear disease. We can only say that our experience has not led us to regard the usual septal deformity as an important cause. This does not mean that a pronounced nasal obstruction cannot have its effect upon the ear. We only know that in many such cases the hearing is perfectly normal. Whatever may be the truth in regard to disease of the anterior nares, obstructions in the posterior nares have undoubtedly decidedly deleterious effects upon the Eustachian tube. Particularly is this true of hypertrophy of the posterior end of the inferior turbinate. As has been already stated, the inferior turbinate is anatomically in close relation with the mouth of the Eustachian tube. Not infrequently, the hypertrophy is so large as to overlie the Eustachian orifice. Tinnitus is often due to the hypertrophied tip pressing upon the tube. Holmes, in a series of cases examined by him, found fifty-four where there was hypertrophy of the inferior turbinate, posteriorly, and in seventeen of these the hypertrophy pressed upon the tube. Yankauer has reported a series of six cases where the tinnitus was due to persistent mucus in the fossæ of Rosenmüller. In addition to pathological affections of the nasopharynx and the posterior nares, the pharynx, and especially the tonsil, must be recognized as possible and often important causes, offering, as they do when diseased, rich soil for the breeding of pathogenic bacteria, which will be found in every case of middle ear disease. We must not, however, stop in our consideration of the treatment of this affection with the local symptoms present. Very important in our judgment is the relation of the general condition to the ear, especially the condition of the gastrointestinal canal. This Sargent Snow has dwelt upon with tireless zeal. We agree thoroughly with him that many of these cases may be due to an infection proceeding from the gastrointestinal canal, and that all local treatment can or will be of only temporary benefit unless the real cause of the affection is set aside.

With these general remarks on the subject of the producing cause or causes, let us come to the consideration of treatment. First, as to general treatment, we have been sadly delinquent in past years. Too often a patient has received only a local examination, and a more or less painful inflation, with the instructions to return in three days. Every case demands the most careful study and should be treated individually. In all cases it is well to have a urine analysis with the view of determining any contributing causes in the secretions. Careful inquiries into the digestion should be made with regulation of the diet where called for. Many patients will readily acknowledge a faulty digestion with constipation and the presence of more or less gas. It is our practice to give all these patients a prescription of blue mass, to be taken every third or fourth day while under treatment. We have found a pill of blue mass combined with extract of colocyath and extract of hyoscyamus to work satisfactorily. The pill is always to be followed up in the morning by a laxative water. A careful examination of the nose and nasopharynx is then in order. Where deformities of the septum exist, we are gov-

erned in the advice we give the patient by the actual condition. If the deformity is such as to interfere with treatment of the ear, or if catarrhal symptoms are present, the operation should be performed. In our opinion, however, it is never warrantable to promise a cure or improved hearing by operation upon the septum. Wherever cicatricial bands are present, or remains of adenoids, these should be removed. Treatment of the Eustachian tube is to be carried out under the nasopharyngoscope. This, properly introduced, will give a clear picture of all the parts. It will show among other things the region of the os sphenoidale, and whether pus is draining from the sphenoid.

When ethmoidal or sphenoidal disease exists, it demands operation for its own sake, as well as to remove the purulent discharge which drains down over the turbinate and keeps the walls of the mouth of the Eustachian tube inflamed. The nose and nasopharynx are to be carefully cleansed of all secretion and then gently sprayed with a one per cent. solution of cocaine, introduced with the applicator or spray. This will permit, in the great majority of cases, the introduction without difficulty of the nasopharyngoscope. In three years' use of the instrument, we have encountered only one case where there has been any real pain. Of course, where there is marked septal deformity it will be difficult or impossible to introduce it. It should be introduced upon the side opposite to the Eustachian tube to be examined, although it is not impossible to get a good view of the Eustachian tube on the same side as the instrument. The region of the middle meatus and of the sphenoid, the fossæ of Rosenmüller, the tubes, the inferior turbinate, all are to be carefully studied. When the condition has been thoroughly recognized, the treatment is to be instituted.

This in the acute cases consists of proper cleansing, and then of the introduction of a fresh solution of argyrol, twenty-five to forty per cent. Holmes is using for this purpose his Eustachian syringe. This, where the parts are much swollen and tender, undoubtedly is less apt to wound than the bougie. The controlling principle of treatment is to avoid force, exercising the greatest gentleness. We are in the habit of using argyrol introduced gently into the tube in acute cases, and then of painting all the parts adjacent. In chronic cases, where there is obstruction in the tube, gradual dilatation with the bougie is the proper procedure. Here again the rule is to begin with the smallest size of bougies. The introduction of the bougie beyond the isthmus is not called for, as the portion beyond, because of its osseous walls, is rarely obstructed. Holmes has devised a catheter which carries a wire, to be bent at the end and wound with cotton. Properly wound and introduced, this can do no harm. It requires, however, some practice and skill to wind the cotton, in order not to have an exposed edge which may wound the mucous membrane. If there is any amount of resistance, the bougie should be removed and introduced again, otherwise a faulty passage may be made. Fresh wire should be frequently used, otherwise it is possible for the end to break off after frequent sterilization, and an unpleasant accident take place. In place of argyrol,

protargol can be used, or nitrate of silver in increasing strengths.

The treatments should be given, according to the condition present, daily or every other day, later twice or once a week. At first it will be impossible to pass beyond the isthmus of the tube. Later on, the bougie will enter the middle ear, if desired. Where, in place of hypertrophy there is an atrophy of the tube, stronger solutions of silver will be indicated. Since we have been impressed with what may be called the new treatment of otitis media, we dispense to a large degree with the use of the catheter and the Politzer bag. In the last year we have employed them scarcely a half dozen times. Proper treatment to the nose and nasopharynx, it is understood, will be given in connection with the treatment of the Eustachian tube. It is astonishing what can be accomplished by this method.

During the past winter we had under our care a woman suffering from acute middle ear disease, with bulging drum. Our assistant was prepared to operate, but constant and persistent treatment of the tube caused the pus to drain off through this channel and so any operation was avoided. We should not recommend this as a routine procedure, except where the case can be under combined observation, but we are convinced that in many cases taken early enough it will be possible to avoid a paracentesis.

A single word in conclusion; one of the most careful observers that we know is Yankauer. Yankauer has, in an elaborate thesis, advanced the argument that the proper procedure in suppurative disease of the middle ear is plugging off the nasopharynx from the middle ear by a closing of the Eustachian tube. Careful study and observation make us feel that Yankauer is mistaken. The Eustachian tube has a function. Because it becomes diseased, it is not warrantable to assume that its function should be destroyed; rather should it be restored to a normal condition and the cause eliminated.

104 EAST FORTIETH STREET.

ALLEGED TUBERCULOSIS CURES UPON THE MARKET.*

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It has been said on more than one occasion that the public likes to be fooled. No one is more inclined to believe this statement than he who studies the advertised "cures" upon the market today. If all the claims made for them by the promoters were true, sickness and suffering would be no more and the millenium would set in ahead of time. There are the so called cancer cures, consumption cures, headache cures, skin cures, kidney and bladder cures, rheumatism cures, asthma and hay fever cures, catarrh cures, diphtheria cures, rupture cures, "weak men" cures, habit cures, obesity cures, epilepsy cures, scalp cures, pile cures, pneumonia cures, and many others. Of late, perforce, there has been a growing tendency to label these products

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as remedies or "for" certain diseases, rather than as out and out "cures," and to mask the claims by skillfully worded suggestions conveying the impression that the product will cure, without making any direct assertion to that effect. The representations, however, amount to the same thing, namely, that the medicine will do away with the affections for which it is recommended. It is to be regretted that preparations of this kind are not what they are announced to be and that disease cannot be wiped out in this simple way. The cure of diseases like those named above requires, however, in the vast majority of cases, much more than the mere giving of medicine, as those who have had experience in treating them, well know. What will suit or help one patient, will not necessarily suit or help another, and the *management* of a case is often of more importance than medicine.

It is not the purpose of this paper to emphasize the harm done by the sale of advertised consumption "cures," the loss of valuable time to the patient during which he might be receiving benefit at the hands of those best fitted to cope with his disease; the danger to the public which results from lack of proper medical supervision of patients suffering from infectious diseases, like pulmonary tuberculosis, and the lack of adequate advice and control in the matter of promiscuous expectoration and other practises whereby these diseases may be spread among members of the community; the depression of body and spirit resulting from the dashing of the hope of cure engendered by groundless promises, etc. These evils are self evident. It will be rather the object to point out the essential characteristics of the schemes whereby attempt is made to deceive and defraud the credulous sick.

In general, there are two methods of placing these alleged cures upon the market. The first is through the agency of the pharmacist. Almost every one is familiar with the names and wrappers of the more widely advertised patent medicines of this class. They are given publicity through the newspapers and by means of posters, placards, and the display advertisements which are familiar sights in and around the pharmacy. The sentiment with which the sale of nostrums of this kind is regarded by different pharmacists, varies. Many of them recognizing the disadvantages that accrue to the public in most instances from the purchase and consumption of such products, are distinctly opposed to their sale and would gladly dispense with them entirely, were it not for what are considered to be business obligations resulting from the demand caused by the wide publicity given them. Others appear to have no compunctions in the matter. Between these two extremes there are pharmacists who hold every shade of opinion upon the subject. In general, however, it may be said that all pharmacists, with possibly a few exceptions, feel that on account of the keenness of competition and for other business reasons, it is essential that they should be in a position to supply these goods to purchasers upon request. Some pharmacists, however, while willing to supply the goods upon demand, endeavor to discourage their sale to the public. One drug company in Chicago is said to have started a campaign against the sale of nostrums in

general and displayed in its windows a card in advertising form bearing these words: "Please do not ask us what any old patent medicine is worth. For you embarrass us, as our honest answer must be that *it is worthless*. If you mean to ask at what price we sell it, that is an entirely different proposition. When sick consult a good physician. It is the only proper course. And you will find it cheaper in the end than self medication with worthless patent nostrums." In addition, the salesmen within were instructed to inform those who inquired for the most prominent nostrums, that they would only waste their money by purchasing them. These measures appeared to have little if any effect. The pharmacy in question was unable to dispense with its patent medicine trade, and it is said that nostrums comprise more than one third of its stock in trade today. This experience and others of a similar character seem to indicate, that for the vast majority of pharmacists the sale of nostrums is an essential feature of the drug business, and it seems that the remedy for the nostrum evil must be sought in other directions.

The second important method of marketing nostrums for tuberculosis is to send them directly to the consumers by mail or express. Products furnished in this way are not found in the druggists' stock and are not advertised in the shops. To this class belong some of the most widely advertised "consumption cures" in the country. The initial advertisement is usually of small size. It appears by preference in farmers' weeklies, religious journals, and newspapers whose circulation is confined mostly to small communities or rural districts, although it is occasionally seen in the larger newspapers and periodicals. The object is merely to interest the reader and by means of extravagant statements cause him to write to the advertiser for further information. An inquiry is followed by a series of letters, couched in extravagant terms, which have for their object the sale of the remedy described in the initial advertisement. They are for the most part stock letters, shrewdly devised in typewriting guise so as to give them a personal appearance. The letters are not always of this character, however; occasionally they are personal. In this event they are generally written by masters in the art of correspondence, and instances are known where gullible patients have been induced to buy, at more or less regular intervals for a period of one or even two years, a product which practically consisted of nothing but water.

Devices known as "symptom blanks" are usually employed for the purpose of still further conveying the impression that each patient is looked after individually and each case is treated on its own merits. These blanks contain a number of questions with regard to the symptoms present. The number of questions varies from a dozen or so to seventy or eighty. The prospective purchaser is informed that from the replies submitted to these questions, an accurate diagnosis of his disease will be made. The impression is also conveyed that the case will be treated individually and that the medicine furnished will be adapted to suit the peculiar needs of the patient. It is not necessary to comment here upon the impossibility of making a re-

liable diagnosis from information of this kind. The degree of individual attention each patient's report blank receives can be gauged from the fact that mail order concerns doing a business of this kind sometimes receive as many as 4,000 pieces of mail matter daily.

The "diagnosis" is transmitted to the inquirer together with information as to the cost of the treatment and urgent solicitation to purchase a supply of the remedy. If he does so, at the end of a month or at some time before the medicine gives out, he is urged to purchase another supply, and so on. If he stops and complains that he has experienced no beneficial effects, he is told that he has not taken enough and is urged to buy more. If after receiving the "diagnosis" letter, he decides not to purchase the medicine, he becomes the recipient of begging letters at intervals of about a month, their number depending upon the persistence of the advertiser. Each one is usually accompanied by a drop in the price, so that a "treatment" originally priced at \$25 may be offered at the end of six months for \$2.50. Eventually if the patient does not die beforehand, he sees the end of them. Practically the same medicine is furnished to each patient whatever the diagnosis may be.

Analysis has shown that the medicines usually contain ordinary medicinal agents, some of which are occasionally useful in combating the distressing symptoms of the disease; but so far as has yet been learned, their effect is temporary only, and they cannot in any sense be regarded as "cures" for tuberculosis. Creosote or its derivatives, and codliver oil, are occasionally found as ingredients. Sometimes the so called "extracts" of codliver oil are present. Not infrequently the product is represented to contain codliver oil, when in fact it contains none of this ingredient. This was found to be true in case of a Compound Elixir of Cod Liver Oil, held out to be a cure for consumption (N. J. 598).¹ Analysis failed to disclose the presence of any codliver oil, or any active medicinal principle thereof. A product (N. J. 898), represented to be "a never failing remedy for the cure of all kinds of throat and lung affections" and "without a peer as a curative in all forms of throat and lung diseases" was found to consist of oil about sixty per cent. (tar indicated) and an aqueous solution forty per cent., containing morphine derivatives and some unimportant substances dissolved from the tar. No mention of the opium and morphine derivatives appeared upon the label, as required by law. A "cherry balsam" for the "cure" of "consumption" and "hemorrhage of the lungs," represented to "strike at the very root of the disease," was found to be a hydroalcoholic solution of opium, sugar, benzaldehyde, inorganic salts, and coloring matter. It contained no cherry bark extract or balsam (N. J. 1234). A notorious "consumption cure" (N. J. 1551), widely advertised and known, was found to consist of several separate preparations: 1. The medicine proper, which was found to consist essentially of morphine, cinnamic acid, and arsenic; 2, a tonic represented to contain iron

among other things, but which was found to contain no iron; 3, a "cough mixture" containing alcohol, chloroform, and codeine; 4, a "mixture" consisting of a hydroalcoholic solution of alkaloidal material containing quinine; 5, tablets containing codeine.

At present the most promising hope of abating the evil appears to reside in two agencies, namely, legislation and education. Recently laws have been enacted to protect the public from the avarice of nostrum vendors, and more has been accomplished in this way within a few years than was accomplished in all of the preceding years of the history of the country taken together. The beneficial results of this legislation have become apparent in many ways. It has also become apparent that more effort still is needed to meet the question at issue with success, and in the opinion of many who have given close attention to the subject, these efforts should be directed along the lines of securing more stringent legislation (such as an extension of the law to cover all oral, written or printed statements regarding medicinal preparations), and educating the public to understand the futility of depending upon advertised "cures." The present limits of the food and drugs act cover only the package and material accompanying it, printed or other; not advertisements, letters, and other advertising material not sent with the medicine. As long as the publication of false and misleading assertions with regard to medicinal agents is permitted, so long will it be the duty of the better educated element of the community, particularly those educated along medical lines, to set forth in every possible way the true character of worthless nostrums.

3915 CHEVY CHASE HEIGHTS.

TROPÆOLIN AS AN INDICATOR FOR GASTRIC ACIDITY.

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Any one who has given much attention to gastric analysis must have been struck by the discrepancy between chemical and clinical values in the so called hyperacidity of the stomach, especially when the chemical hyperacidity is measured by decinormal sodium hydrate against Toepfer's reagent (dimethylamidoazobenzol). On the one hand, there may be obtained high acid values with no symptoms of hyperacidity; on the other, very little acid with quite marked symptoms. The amount of acid shown to be present by titration against Toepfer's reagent and phenolphthalein, more especially the former, has commonly been taken as the index of acidity one hour after the administration of an Ewald test breakfast. The dimethylamidoazobenzol acidity is said to constitute the hydrochloric acid present in an uncombined or free state, and the phenolphthalein acidity the sum of all the acids in the specimen.

Different authorities have differing ideas as to the amount of dimethylamidoazobenzol and phenolphthalein measured acid necessary for a diagnosis of hyperacidity. Riegel says free acid 50 to 60,

¹Notice of Judgment. Issued by the Department of Agriculture in accordance with the provisions of Section 4 of the Food and Drugs Act.

and total acid 60 to 100; Zweig and Elsner, free above 40 and total above 60; Ewald and also Rosenheim, total acidity above 60; and Hemmeter places the normal limits for free hydrochloric acid between 20 and 30. In spite of these variations, one will often find cases below the lowest normal limit, in which there is clinical evidence of hyperacidity, and cases approaching the highest, in which there is none.

The conclusion that there is free hydrochloric acid present normally in the test meal filtrate, has seemed to me to be unjustifiable. It is at variance with our ideas of the animal economy, that as much acid as that measured by Toepfer's reagent should be physiologically formed only to be wasted, or, what is worse, to produce harmful effects on the mucous membrane which surrounds it. The most obvious explanation is that Toepfer's reagent is not simply a reagent for free hydrochloric acid.

It is now well known that indicators for acids react to certain definite concentrations of hydrogen ions, and there are combinations of protein with hydrochloric acid and peptide or aminoacid with hydrochloric acid, which are highly enough ionized to react to dimethylamidoazobenzol. A few drops of an alcoholic solution of tropæolin, when added to as dilute a solution of hydrochloric acid as two hundred and fiftieth normal, will produce a red coloration, yet there are combinations of much more concentrated acid with protein or Witte's peptone, which, though reacting strongly to Toepfer's reagent, will not give a red with tropæolin.

That there is a marked difference in the acid values of combinations of various aminoacids and hydrochloric acid, can be shown by the behavior of two of these. Ten c. c. of a twentieth normal solution of aspartic acid in twentieth normal hydrochloric acid requires more than ten c. c. of twentieth normal sodium hydrate solution to neutralize it to dimethylamidoazobenzol, while a similar solution of glycocoll requires only about six c. c. of the sodium solution. From this one may judge that the Toepfer measured acid may vary in quantity in accordance with the variety of aminoacid or peptide formed by gastric digestion.

In searching for other and better methods for measuring the acids which accompany and probably produce the symptoms of hyperacidity, I first tried the indicator method devised by Michaelis and Davidsohn, but found, of the reagents mentioned by them, that tropæolin was by far the most efficient. In a fairly large experience I have yet to discover a patient with typical symptoms of hyperacidity, whose filtered Ewald test breakfast failed to strike a red color on adding a few drops of tropæolin (tropæolin, 0.5 per cent. in fifty per cent. alcohol), nor have I found a normal case which gave this reaction.

In order to obtain a better quantitative reaction, I have more recently begun to titrate with decinormal sodium hydrate against the tropæolin, and while the end point is a little difficult to define, yet the procedure will be found of great value. To ten c. c. of the filtrate are added three drops of the tropæolin solution and then the sodium solution from a burette until the red color is altered to an orange yellow, which is taken as the end point. This titration is

of course practicable only when there is hyperacidity, as normally the color is already orange. The same solution may be used for titration against dimethylamidoazobenzol and phenolphthalein.

It should be noted here that if ten c. c. of decinormal acid is titrated with tenth normal soda against tropæolin, it takes only 8.2 c. c. of the soda to produce the end point (dimethylamidoazobenzol takes 9.7 and phenolphthalein, of course, ten c. c.). Whether this tropæolin reacting acid is free hydrochloric acid, I am as yet unprepared to say, but from certain not fully completed experiments, I am led to believe that it may be partly, if not entirely, the combination of hydrochloric acid with certain highly ionized aminoacids, such as glutamic acid.

In general, it has been believed that the higher the acidity in the stomach, the better the peptic digestion, but experimental work has been contrary to this assumption. Michaelis and Davidsohn have placed the optimum for peptic digestion at a hydrogen ion concentration of 0.016, which is equivalent to about sixtieth normal acid. I have found that taking a mixture of ten grams shredded wheat biscuit, 0.3 gram pepsin, and 100 c. c. of twentieth normal hydrochloric acid as a standard, if one doubles the amount of acid or increases the strength to tenth normal, there results a marked retardation of peptic digestion. Thus one has to consider the possibility of a vicious circle in hyperacidity; the peptides and aminoacids are formed too slowly and hence are not present to combine with the excess of acid.

The employment of tropæolin in conjunction with the older methods in the titration of normal and abnormal stomach contents, gives us some very interesting results. The cases cannot as yet be classified exactly, but may be roughly divided into the groups shown below.

1. Cases in which there are no symptoms of hyperacidity and in which the dimethylamidoazobenzol and phenolphthalein values are normal or subnormal. There is no reaction with tropæolin.
2. Cases which show clinical evidence of hyperacidity, but in which the phenolphthalein and dimethylamidoazobenzol values are normal or even subnormal (it is not unusual to find dimethylamidoazobenzol values as low as 20, and phenolphthalein as low as 40). The filtrate gives tropæolin values from 4 to 20.
3. Cases which show all three titrations very high, a not unusual finding in duodenal ulcer.
4. Cases which show no tropæolin reaction and no symptoms of hyperacidity, though both dimethylamidoazobenzol and phenolphthalein titrations are considerably higher than normal. In connection herewith I will cite a case which illustrates very well the inadequacy of measurement by Toepfer and phenolphthalein. A severe case of hyperacidity gave values tropæolin 35, dimethylamidoazobenzol 52.5, phenolphthalein 75. After ten days of treatment in which all symptoms had disappeared, the test meal reading was, tropæolin 0, dimethylamidoazobenzol 44, phenolphthalein 70. Here we see simultaneous disappearance of symptoms and tropæolin reaction, while the dimethylamidoazobenzol and phenolphthalein were but slightly changed.

Another method of employing tropæolin is in the so called achylia cases. In these one titrates with tenth normal hydrochloric acid instead of the soda, until a red color is reached, its first appearance being taken as the end point. The hydrochloric acid deficit in cancer of the stomach varies from 40 to 30 per 100, while in benign achylia it is usually under 20. The idea underlying this titration is, of course, that the peptides produced by cancer ferments require much acid for their saturation, and that the peptide-hydrochloric acid combination is not highly ionized enough to react to tropæolin. In benign achylia there is little or no gastric digestion and therefore no peptides or aminoacids to take up the added hydrochloric acid, leaving it free to react with the tropæolin.

CONCLUSIONS.

1. In the gastric contents of a normal individual, removed one hour after a test breakfast, there is no free hydrochloric acid.
2. Toepfer's reagent is not solely a reagent for free hydrochloric acid, but will also react to certain highly ionized combinations of acid and protein and acid and aminoacid or peptide. As a measure of hyperacidity it is practically valueless.
3. The acid which is sufficiently ionized to react to tropæolin is the acid which produces in some manner the symptoms of hyperacidity, and tropæolin can be used to measure that hyperacidity.
4. The hydrochloric acid deficit to tropæolin is greatly raised in cancerous, compared to benign achylia.

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693 SPADINA AVENUE.

PURPURA HÆMORRHAGICA TREATED WITH HORSE SERUM.

By JACOB M. BODENHEIMER, A. B., M. D.,
Shreveport, La.

That horse serum is a valuable agent in the treatment of hemorrhagic diseases is being more and more recognized; here and there are scattered throughout our more recent literature reports of its use in the treatment of purpura. But the rarity of the affection has necessarily limited the application of this valuable agent. Therefore, it is without apology that I report its successful use in the treatment of a recent case.

Most authorities agree that the differential diagnosis between purpura simplex and purpura hæmorrhagica depends more upon the severity than upon any marked differences in the symptoms.

CASE. My little patient, a well nourished female child, aged twenty-six months, had been raised upon the bottle since birth, and had been a remarkably healthy child up to about one month previous to the attack of purpura. At this time, she acquired a grave acidosis which was followed by a severe attack of ileocolitis, lasting a week. Although the stools became normal, the fever continued. An examination of the blood showed the presence of plasmodia. Euquinine in two grain doses every three hours was then administered over a period of one week. At the end of this time the mother called my attention to the petechiæ which were very marked over the legs. The next

day there was bleeding from the nose, hemorrhagic blisters on the gums and tongue, together with bloody stools. No blood in the urine. There was some depression. The temperature was 100° F. per rectum. The hemorrhagic spots were scattered all over the trunk and upper and lower limbs.

Ten c. c. of horse serum was administered intramuscularly. Calcium lactate in two grain doses every two hours, and gelatin and orange juice freely, was administered by mouth. The hemorrhagic blisters in the mouth, which upon close inspection proved to be gangrenous, showed a marked improvement in twenty-four hours after the administration of the horse serum; in fact, they acted as remarkably as the diphtheritic membrane does after the administration of diphtheria antitoxin. The epistaxis ceased, but the bloody stools continued. In forty-eight hours the blisters or gangrenous spots in the mouth, which had been at least a quarter of an inch in diameter, were practically well. The bloody stools continuing, ten c. c. more of horse serum was administered and the treatment by mouth continued.

The stools were markedly improved in the next twenty-four hours, and after two or three days were normal. The treatment by mouth was continued for a week and the child carefully nourished. She was watched for some time, but up to the present writing, three months having passed, there has been no return of symptoms.

She had the not unusual urticaria ten days after the serum administration, but outside of the usual parental alarm and discomfort to the little patient, the recovery was uneventful.

A careful investigation into the history of both sides of the family for several generations back discloses no hemophilia. An aunt is peculiarly susceptible to cinchona and its derivatives, the smallest dose producing a rash. That drugs will produce purpura is the opinion of most writers on the disease. In the absence of more definite etiology, no other factor but the euquinine can be assigned as the leading cause for this attack of purpura.

To summarize: Horse serum acts specifically in purpura; at least it did in my case. The rapid results were very unlikely caused by the oral medication. The family history in regard to drug idiosyncrasy is an important factor in drug administration.

Therapeutic Notes.

Treatment of Progressive Spinal Muscular Atrophy.—C. W. Burr, in the *Therapeutic Gazette* for February, 1914, states that of five cases of this admittedly rebellious condition under his care, one showed a positive Wassermann reaction, two a weakly positive reaction, and one a negative reaction, while in the fifth the diagnosis of syphilis was safely made on clinical grounds. This observation, taken together with the fact that a decided improvement took place in one of these cases under treatment with mercury and potassium iodide, appears to warrant the conclusion that syphilis may be a cause in some cases of progressive spinal muscular atrophy. It seems to him appropriate, indeed, to give every patient, especially if seen early in the disease, a trial course of antiluetic medication. In

the case favorably influenced by mercury and iodide, that of a woman thirty-five years of age so wasted and palsied that she could not walk without being supported on both sides and was unable to use a knife in feeding herself, the patient improved so that she could clothe herself, write, get out of bed, and walk with the aid of one person.

In treating cases of muscular atrophy with anti-luetics one must make sure that the wasting is not due to arsenical multiple neuritis the result of previous administration of salvarsan. In one of the author's patients, at first suspected to be suffering from anterior horn cell disease, further injury by continued use of salvarsan was narrowly averted.

Treatment of Gallbladder Infections.—D. L. Rundlett, in the *Journal-Lancet* for February, 1914, states that for symptomatic relief in these cases he has obtained the best results from the administration of the following combination in hot water four or five times daily:

R Sodium salicylate, { of each grs. v (0.3 gram).
Sodium succinate, {

Fiat chartula No. i.

Carlsbad salts, likewise given in hot water, are useful in the morning to clean out the intestinal canal and assist in relieving excessive gastric acidity. The author has had no success with hexamethylenamine.

For intestinal putrefaction with abdominal distention, he administers a combination of ox bile, pancreatin, sodium bicarbonate, betanaphthol, and phenyl salicylate. Given about two hours after meals, this undoubtedly assists in controlling fermentation, though only a palliative measure.

A diet with fats largely excluded has proved of most value in his experience. Milk, buttermilk, fresh vegetables, and fruits are allowed, but all foods liable to putrefaction, such as overripe cheese and shellfish, are prohibited; likewise highly seasoned foods and pastries.

The use of bacterial vaccines before operative drainage of the gallbladder proved disappointing, but after the intervention they were plainly observed to be of assistance in eliminating the infection.

Treatment of Quinsy.—Henke, in *Presse médicale* for March 7, 1914, is stated to have used a multivalent antistreptococcic serum in circumtonsillar abscess, with gratifying results. The diagnosis of this condition having been made, he seeks the exact seat of the inflammation by inspection and exploration with a probe, then injects at this point, with a syringe and under light pressure, 30 or 45 minims (2 or 3 c. c.) of serum. The needle should be introduced to a depth of 1.5 or two cm., more superficial injections being ineffectual. In the case of abscesses apparently starting from the supratonsillar fossa the author uses a curved hypodermic needle which is inserted in this area.

This treatment was employed in thirty-five cases. In some, in which fluctuation could already be detected, no results were obtained except that spontaneous evacuation seemed to take place sooner and more frequently. Where the part was still in the stage of infiltration, however, positive effects were noted. In twenty instances the condition was com-

pletely aborted, swelling being distinctly less on the day after the injection and wholly disappearing by the third day. Moreover, in the first few minutes after the injection the distressing pain, which had rendered the patient unable to swallow, left off entirely, a feeling of distention in the neck alone remaining. The aborting effect cannot, however, be said to occur constantly; in a few instances the abscess ran the usual course and resort to the knife was necessary.

Treatment of Trifacial Neuralgia.—Martineau, in *Nouveaux remèdes* for September 24, 1913, is credited with the following combination for the relief of this condition:

R Morphinae hydrochloridi, ...gr. ⅓ (0.01 gram);
Antipyrinae, ... { āā grs. ix (0.6 gram);
Potassii bromidi, { 3ss (2 grams);
Acidi citrici, ...grs. xl (2.5 grams);
Acidi tartarici, ...grs. lxxv (5 grams).
Sodii bicarbonatis, { āā grs. lxxv (5 grams).
Sacchari lactis, ... {

M. et ft. in chartulam No. i.

Sig.: Take in half a glassful of water.

Treatment of Whooping Cough.—Perrin and Remy, in *Revue médicale de l'Est* for September 15, 1913, report having used with good results a mixture of methyl salicylate and oil of eucalyptus:

R Methylis salicylatis, ...3i (30 grams);
Olei eucalypti, ...3iii-v (90-150 grams).

Misce.

Sometimes even a one in 10 mixture was used. The mixture was spread in a thin layer on plates or saucers and allowed to volatilize in the patient's room, the vapors exerting both an antiseptic action in the bronchi and an antispasmodic effect. In warm weather the measure is of advantage, in that it affords a simple method of continuous inhalatory treatment, requiring no source of heat or apparatus of any kind. Some patients respond better, however, to the direct use of a spray or saturation of the air with water vapor.

Treatment of Ringworm.—C. H. Foley, in the *Lancet* for January 24, 1914, recommends the following treatment for ringworm as both simple and efficient: The part is first washed with a strong solution of sodium bicarbonate, then swabbed with a piece of lint that has been moistened with a solution of one part of ether in two parts of alcohol, to remove fats. The area is then dried, a 2.5 per cent. tincture of iodine painted on, and immediately after, an ethyl chloride spray directed over the part. The author finds it best to work with a pair of ethyl chloride tubes in each hand, as a larger area can thus be covered in a given time. The deeper the disease process, the longer the spray must be applied. The spraying is continued until the skin has become china white. Twenty-four to forty-eight hours later the patch of ringworm becomes quiescent. Minute infected spots are then looked for and similarly treated. In a few days to a week these spots also disappear. By this method Foley has been successful in curing in one week ringworm of months' standing, and he states that it has never failed him.

In ringworm of the scalp three or four applications of the iodine and spray are required, but on the face or smooth surfaces a single one is sufficient.

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THYROID ORGANOTHERAPY IN OBESITY.

The use of proprietary "antifats" containing thyroid gland has been fittingly condemned by the medical press, but when we see textbooks limit the treatment recommended for obesity to diet lists and thyroid gland in from three to five grain doses three times a day, it becomes a question whether the readers who unfortunately depend upon such books for guidance, are not as dangerous to the public as the proprietary empiricists. In truth, while the causes of obesity are very numerous, thyroid is indicated in less than one half of the cases. Even here it is a remedy which should be employed with the greatest circumspection and under close supervision.

A clear history of these patients is necessary to determine the exact nature of the cause and whether thyroid may not prove detrimental. Thus in cases due to emotions, fright, and shock, it will soon bring on rapid heart action, dyspnea, and other morbid phenomena. Obesity following traumatism may be classed in the same category. This rule applies also to cases following typhoid fever, pneumonia, pleurisy, measles, and pertussis, or occurring in subjects exposed, in the course of their daily occupations, to poisoning by lead, phosphorus, or arsenic. Very minute doses of these toxic agents, also of morphine, strychnine, tubercle toxins, and diphtheria toxins, given to guineapigs along with

their food, cause these animals to increase in weight, sometimes very markedly and rapidly. Cases of obesity traceable to persistent though slight hemorrhages, as in recurrent epistaxis and metrorrhagia, are not infrequent. In some parts of Europe cattle are subjected to occasional bleedings to increase their market weight. Vulpian and Dechambre have observed the same effect experimentally in dogs. Anemia and chlorosis are familiar causes of obesity. In all these, it is obvious that treatment of the prevailing disorder, whether nervous, vascular, or sanguineous, is indicated.

The so called "lymphatic type" in which von Noorden, Magnus-Levy, and others have advised the use of thyroid, provides abundant opportunity for errors. Many cases which apparently belong to this type present cardiac, renal, or vascular disorders; these thyroid tends to aggravate. Patients with albumin or casts in the urine, or who have any degree of cardiac disorder, will do badly under this remedy. This applies also to the majority of patients in whom the adiposis is due to excessive eating. It is in the latter that dietetic treatment proves efficient.

The class of cases in which thyroid will prove advantageous includes those in which a gouty diathesis is clear, especially where asthma, migraine, lithiasis, or eczema of the recurrent type is a feature of the history. It is also indicated where hypothyroidism is suggested by its typical signs, especially pain or sensitiveness in the occipital region, migraine, aching between the shoulder blades which rest in bed tends to aggravate rather than relieve, premature alopecia or grayness, and in women, "leakage" or stained leucorrhea in the absence of local lesions. Even in these patients large doses of thyroid should not be employed; from one to three grains is a limit which cannot be exceeded without danger.

PUERPERAL SEPTICEMIA IN PRIVATE PRACTICE.

In the mortality figures just given out by the city department of health for the quarter ending June 30, 1914, it is found that eighty deaths are recorded as due to puerperal septicemia. We learn also that the corrected average of deaths from this cause in the preceding five years was seventy-four, and that the mortality shows an increase of six deaths over the quinquennial average. It is probable, moreover, that the actual number was considerably larger than that reported, since, as has been pointed out, the deaths of women succumbing to puerperal infection are frequently recorded under the disease of the organ attacked. To go back a few years, it is found that, in 1905, the quarterly average of

deaths from puerperal septicemia was 77.5, and in 1906, 73.5. Some allowance must, however, be made for the increase in population.

These statistics have been cited to show that in New York, at least, the mortality from this infection is by no means decreasing; they appear to favor the statement made by Ellice McDonald some months ago (*American Medicine*, March, 1914) that, while in hospitals the mortality is much reduced, puerperal septicemia is no less prevalent in private practice than it was before the days of antiseptic methods. In the maternity institutions, as is well known, the most scrupulous attention is paid to asepsis, and the fatality from septicemia is extremely small; while the deaths are almost invariably among patients brought in from outside. Thus, in the annual report of the Lying-in Hospital of the City of New York issued in January last, it is stated that during the year there were five deaths in women confined by private physicians and midwives, and sent into the hospital post partum with developing puerperal infection, and also four deaths from septic abortion. McDonald gives large statistics to substantiate his assertion, but states that the figures are inaccurate and much under the actual rate of occurrence, since, puerperal infection being considered by the laity to be due to lack of care upon the part of the doctor, physicians dislike to register a possible criticism against themselves.

In view of its preventability, puerperal infection is vastly more common than it should be, and no effort should be spared to avoid the needless sacrifice of so many lives. One encouraging sign in this city is the increased qualifications of late required in midwives and the increased vigilance in their supervision. While conditions regarding these women are by no means ideal, the health department reports a pronounced improvement. A standard for midwives has been fixed and a municipal training school established, and now it is no longer possible, as formerly, for a midwife to obtain from the department a permit to practise when she has had no training other than that afforded by attending a number of obstetrical cases under the supervision of a private physician. The midwife must be a graduate of a school of midwifery recognized by the department to maintain a certain standard.

ONE THOUSAND CATARACTS IN SIX WEEKS.

One thousand and twenty-four cataracts removed between January 1 and February 15, 1914, is the remarkable record in a single hospital connected with the Quetta Medical Mission in India. Compare it with the 183 operations for cataract in a year at the

Manhattan Eye, Ear, and Throat Hospital between October 1, 1911, and October 1, 1912, to be divided among seven surgeons, four junior surgeons, and a large number of assistant surgeons. The Quetta hospital, according to Dr. H. T. Holland in the *Indian Medical Gazette* for June, has three surgeons, one assistant surgeon, one subassistant surgeon, one sister, one compounder, two dressers, and three ward boys, an entire staff and force of twelve, who work at the highest possible pressure daily from 8.30 a. m. to 6 p. m. During these six weeks 2,330 operations were performed, 1,024 of them for cataract. The maximum number of outpatients in any one day was 706, the largest number of operations 129.

Doctor Holland's comments on Smith's intracapsular method seem to us far more worthy of consideration than the opinions of surgeons whose experience is limited to comparatively few cases. Although he himself prefers this method in ninety-five per cent. of his patients, he maintains that every operator should perform from fifty to one hundred extractions with capsulotomy before attempting to extract in capsule, because the latter operation is so much more difficult, and he reserves for capsulotomy the cases in which the lens will not present without greater pressure than he considers desirable to exert, and those in which the intraocular tension is high. The disadvantages of the procedure he gives as the tendency to the escape of the vitreous, which becomes immeasurably less as the skill of the operator increases, the U shaped pupil, which is of little importance, and an increased tendency to choroidal hemorrhage, which seems greater to him than it does to Smith. The advantages are less tendency to iritis and to sepsis, greater economy in time for after-treatment and dressings, no needling for secondary cataract, and a shorter stay in the hospital. He obtained between 95.5 and ninety-six per cent. of successful results.

The percentage of success as to visual results is not much higher than that obtained by excellent surgeons with capsulotomy, and a study of the advantages and disadvantages he presents leaves it questionable whether the latter would not preponderate in practice here. It takes a surgeon in this country a long time to get his first hundred cataracts, usually a number of years, and then he has to decide whether his patients will have a better chance if he tries an unfamiliar technic. The advantages of a shorter stay in the hospital, and of economy in time for after-treatment and dressings have much less weight here, where we have fewer patients and abundance of time and room to care for them, than in India, where the number is enormous and the accommodations are scanty. This leaves the balance to be determined between the increased tendency to

loss of vitreous and to choroidal hemorrhage, and the less tendency to iritis and sepsis, with no need for a secondary operation. Every intervention on the eye entails a certain amount of risk, so it is well to avoid a subsequent needling unless its avoidance means greater danger of injury. It is admitted that even the most skillful surgeons lose vitreous occasionally during extraction in capsule, and it is stated that this danger becomes "immeasurably" less as the skill of the operator increases, but how about the increase of skill of surgeons who are not likely to operate on a hundred cataracts a year? Will they live long enough to attain the proper skill? According to Doctor Holland, considerable skill is also necessary for the selection of cases to be reserved for capsulotomy. Increased tension may be recognized, but much experience is required to determine when a lens will not present without undue pressure. The disadvantages therefore seem to us to be increased in this country by the lack of skill of our surgeons in selecting the cases in which the performance of the operation is not advisable, and in preventing loss of vitreous. All in all, extraction in capsule appears to be better fitted for surgeons who are cramped for time and space and have daily opportunity to perfect their technic, than for those who operate only occasionally and have abundant time and space at their disposal.

ON THE BLEACHERS.

It is a pity that our national game is usually participated in actively by some eighteen or twenty men of fine physique, while some eighteen or twenty thousands, who are more in need of muscular exercise, sit and look on at the sport. We are not the first to utter this complaint. It is not such a lamentable condition of affairs, however, as it seems. The "fans," in the lump, are no doubt a contemptible lot from the point of comparative bodily development, but if they could change places with the men on the diamond for a season or for many seasons, the improvement of the former and the deterioration of the latter would not be nearly so appreciable as we often imagine.

The muscular development possible is not so great as the enthusiastic advocates of health by exercise often make out, and the amount of exercise needed by adults to keep them in trim is, if they are otherwise sensible in their habits, not extensive. This is not saying that the occupants of the bleachers would derive no benefit from more exercise, but the fan derives more benefit from watching the game than we usually suppose.

In the first place he gets out of doors into pure air, which is much in itself, even if it is not of daily

occurrence. The fan is swept by breezes and bathed by at least indirect sunlight; besides, he gets much nerve and muscle exercise, not only from shouting and waving his arms, but from the high muscular tension which accompanies the whole time of play and reaches a climax in the triumphs of the game.

We do not have to flex and extend our joints in order to exercise our muscles vigorously. Indeed, several much advertised systems of physical development are founded on the effects of using the muscles without moving the bones to which they are attached. Then there are the times of deep breathing which necessarily precede the use of the vocal organs in the expression of appreciation or depreciation of players and umpire. These unusual bodily changes are accompanied by all the benefits of quickened circulation and automassage of the digestive organs which accompany deep breathing. Last, but not least, there is the healthful effect of pleasurable excitement and forgetfulness of routine employment.

It would be better if the occupants of the bleachers got down on the ground, stretched their legs, and tossed the ball a little, but there is no room on the diamond of a great city for such a proceeding—alas! there is scant room in the whole great city for such a performance. Ball players, like other athletes, are chiefly the product of the rural regions. But if, as we have remarked, players and spectators could exchange places for a season, the results would not be so astonishing as many imagine. Save for a slight decline in muscular skill and general bodily welfare of the members of the team, and a slight improvement along the same lines on the part of their erstwhile admirers, there would be little change. Athletes are largely born, not made, and physique in general is the result of heredity and conditions of early life, rather than of training. Some of the most vigorous, healthy, and enduring men the world has seen, such as Napoleon, Dickens, Scott, Balzac, Johnson, Brahms, Beethoven, Titian, Michelangelo, Turner, Goethe, Bismarck, Washington, took no special exercises, and entered into no strenuous athletic games, but seemed to develop bodily through mental force. These men took more or less exercise, but they made no special effort along these lines. They maintained by temperate use what was theirs through gift of Nature, through whose bestowal, save for slight changes from conscious effort, we are what we are.

Baseball is a blessing, even to those who handle its implements with the imagination, and the benefits derived by the onlooking occupants of the bleachers is probably very much more than we know. If these will not play ball, it is the next best thing that they see it played.

WINTER AND THE WAR.

An ominous preliminary note concerning the probable effect of winter on the troops now warring on the continent is sounded in a news item about Charing Cross Hospital, which now flies the Red Cross flag, in the *British Medical Journal* for September 25, 1914. Most of the thirty-six cases recently received from the front are serious and comprise several of rheumatism and pleurisy, an indication of the severe weather already experienced. Certain wards of Charing Cross Hospital which have been unused for a long time, are being renovated and will soon provide 250 beds.

ABBOTT'S AND CALOT'S METHODS COMPARED.

Abbott's method of correcting scoliosis is the most advanced that we have (*JOURNAL*, April 27, 1912); it has been built up by a combination of forces. The effect, if these forces are skillfully applied, is to straighten the vertebral column and bring the ribs into symmetry. Mayer, in *Medizinische Klinik*, p. 1226, 1914, analyzes these separate forces, shows where they appear to fail, and introduces a comparison with Calot's method. The defect of Abbott's method, according to Mayer and Joachimsthal, is that a left convex scoliosis is not properly treated by pressure applied to the side. The result, as we grasp it, sometimes throws the ribs out of symmetry; they tend to turn upon the fixed scoliosis. We do not propose to weigh these objections; we take Mayer's paper on its merits, and from this point of view, his practical conclusion is noteworthy. Abbott's method, he says, is the best for the purpose of correcting the scoliosis and the deformity of the ribs, and allowing expansion of the lungs. On the other hand, Calot's method fixes the vertebral column better, and in addition to this regularity of position, allows a certain freedom or elasticity of joints. He therefore combines them; in other words, the lateral pressure of Abbott's method and the erect position of the spine are obtained, together with a loosening of the curvature. His illustrations are an evidence of the soundness of his views.

WHAT CONSTITUTES A GOOD NURSING NIPPLE?

According to Earle B. Phelps and Albert F. Stevenson in the Hygienic Laboratory *Bulletin No. 96* (August, 1914) issued by the United States Public Health Service, red nursing nipples should be avoided as probably containing antimony, though antimony is found in some black nipples; there is no objection to the red color imparted by oxide of iron. Experiments made at the laboratory indicate the possibility of this antimony being dissolved and ingested by the infant using the nipple. The use of artificial rubber is likewise objectionable, as this generally contains some chloride of sulphur. The rubber should be free from shoddy, from antimony, lead, arsenic, or mercury. Aside from the question of chemical constitution, the nipple should be sufficiently stiff to resist collapse to a reasonable extent,

should be easily turned inside out for cleaning, present a perfectly smooth interior surface, have no reentrant angles or sharp crevices, and should not be made of spongy, porous rubber.

Obituary.

THOMAS OPIE, M. D.,
of Baltimore.

Doctor Opie died unexpectedly, October 6th, in Washington, where he had been living with a daughter since his retirement from practice seven years ago. He was born in 1840 in what is now part of West Virginia and was educated at the Universities of Virginia and Pennsylvania, graduating from the latter in 1861, and proceeding almost immediately to join the Confederate army, in which he served under General Jackson as surgeon. At the close of hostilities Doctor Opie became associated with the late Dr. Nathan R. Smith, who put him in charge of the campaign against yellow fever, which he carried on bravely according to the lights of those days. Subsequently with five other physicians Doctor Opie founded the College of Physicians and Surgeons of Baltimore. As dean and professor of gynecology in this institution, he was a widely quoted lecturer. Doctor Opie was a man of great personal charm and had an immense circle of acquaintances throughout the south; he is survived by two sons—one of whom was a member of the first medical class graduated from Johns Hopkins—three daughters, and twelve grandchildren. He had been a widower for over twenty years.

News Items.

The Harvey Society Lectures.—The second lecture in the course will be given on Saturday evening, October 24th, at the New York Academy of Medicine, by Dr. Thomas Lewis, of London, on the Excitatory Process in the Heart.

Lecture by Professor Ferree.—On Monday evening, October 19th, at the Museum of Natural History, Seventy-seventh Street and Central Park West, Professor C. E. Ferree, of Bryn Mawr College, will deliver a lecture before the section in astronomy, physics, and chemistry on The Efficiency of the Eye Under Different Conditions of Lighting.

St. Luke's Day at Calvary Church.—A special service for the physicians and nurses of New York will be held at Calvary Protestant Episcopal Church, Twenty-first Street and Fourth Avenue, New York, on Sunday evening, October 18th, St. Luke's Day, at 8 o'clock. Addresses will be delivered by Dr. Howard A. Kelly, of Baltimore, and Dr. William H. Jeffries, of St. Luke's Hospital, Shanghai, China. There will be special music by the choir and an organ recital before and after the service. All who are interested are invited to attend.

Doctor Bulkley's Lectures on Cancer.—The governors of the New York Skin and Cancer Hospital announce the following course of lectures by Dr. L. Duncan Bulkley on Wednesday afternoons, at 4:15 o'clock, on the Medical Aspects of Cancer: November 4th, Nature of Cancer; November 11th, Frequency and Geographical Distribution of Cancer; November 18th, Metabolism of Cancer; November 25th, Relation of Diet to Cancer; December 2d, Medical Treatment of Cancer; December 9th, Clinical Considerations and Conclusions. Each lecture will be preceded by a half hour clinical demonstration of dermatological cases. The lectures will be free to the medical profession, on the presentation of professional cards.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, October 19th, Philadelphia Clinical Association, Medical Society of Woman's Hospital; Tuesday, October 20th, West Branch of the County Society; Wednesday, October 21st, Business Meeting of the County Medical Society, Section in Otolaryngology of the College of Physicians, Mount Sinai Hospital Clinical Society, and the Northwestern General Hospital Clinical Society; Thursday, October 22d, Pathological Society and the Germantown Branch of the County Society; Friday, October 23d, Neurological Society, Northern Medical Association, South Branch of the County Society, Medical Club (directors), Jefferson Medical Clinical Society.

Medical Association of the State of New York.—A meeting of the First District Branch of this society, which comprises the members of the medical societies of the counties of New York, Westchester, Rockland, Putnam, Orange, Dutchess, and Richmond, was held in New York on Thursday, October 8th, under the presidency of Dr. Henry Lyle Winter, of Cornwall. Among those who presented papers and took part in the discussions were Dr. S. Adolphus Knopf, Dr. Arthur F. Holding, Dr. W. Stanton Gleason, Dr. Edward D. Fisher, Dr. Henry Lyle Winter, Dr. George M. MacKee, and Dr. Edward C. Thompson. Officers were elected as follows: President, Dr. James E. Sadlier, of Poughkeepsie; vice-president, Dr. Floyd M. Crandall, of New York; secretary, Dr. Charles Ellery Denison, of New York; treasurer, Dr. George A. Leitner, of Piermont.

McGill Men to the Front.—About one hundred and twenty medical officers who have been on duty at Valcartier, Quebec, have gone to the front with the first contingent of Canadian troops. Among these are the following from McGill University: Lieutenant Colonels K. Cameron and C. F. Wylde; Majors R. P. Campbell, S. H. McKee, and John McCrae; Captains A. MacKenzie Forbes and George Shanks; Lieutenants G. A. Ramsey, H. E. McDermot, H. E. Cummings, C. H. Robson; Dr. F. G. Finley, Dr. C. B. Keenan, and Dr. George Shanks. Doctor Finley and Doctor Cameron will be in charge of the medical and surgical services, respectively, of No. 1 General Hospital. It is said that Dr. H. S. Birkett, dean of the medical faculty of McGill University, will follow shortly, and Dr. J. George Adami, professor of pathology, has enlisted as a private.

New York and New England Association of Railway Surgeons.—The twenty-fourth annual meeting of this association will be held in New York, on Wednesday, October 21st, with headquarters at the Hotel Astor. There will be two scientific sessions, one in the morning and one in the afternoon. An interesting feature of the morning's program is a symposium on the treatment of fractures. Seven papers on the subject will be presented, accompanied by numerous lantern slides. Dr. William Seaman Bainbridge, of New York, will deliver the annual address in surgery, his subject being the Surgical Treatment of Chronic Intestinal Stasis, which will be illustrated. The officers of the society are: Dr. C. A. Pease, of Burlington, Vt., president; Dr. W. H. Marcy, of Buffalo, N. Y., first vice-president; Dr. D. H. Lake, of Kingston, Pa., second vice-president; corresponding secretary, Dr. George Chaffee, of Brooklyn; recording secretary, Dr. J. H. Reid, of Troy, N. Y.; treasurer, Dr. J. K. Stockwell, of Oswego, N. Y.

Discussion on the Tonsil in Brooklyn.—A meeting of the Brooklyn Pediatric Society will be held, Wednesday evening, October 28th, at 9 p. m., in the building of the Medical Society of the County of Kings, 1313 Bedford Avenue, to which the profession generally is invited. It is expected that a lively discussion will take place concerning the indications for ablation of the tonsil or its partial removal only. It is known that serious results follow the wrong procedure.

Dr. Thomas R. French, clinical professor of laryngology in the Long Island College of Medicine, after careful clinical study, is prepared to maintain that he has a method by which definite operative indications are made clear. His paper, Tonsillotomy versus Tonsillectomy, will bring laryngologists from other cities to discuss his theories, among them Dr. Bryson Delavan, professor of laryngology in the New York Polyclinic; Dr. Henry L. Swain, professor of laryngology in the medical school of Yale University, and Dr. G. Hudson Makuen, professor of laryngology in the University of Pennsylvania.

Minnesota State Medical Association.—At the annual meeting of this association, held in St. Paul on October 1st and 2d, Dr. John T. Rogers, of St. Paul, was elected president. Other officers were elected as follows: Dr. L. M. Roberts, of Little Falls, first vice-president; Dr. E. S. Muir, of Winona, second vice-president; Dr. Earle R. Hare, of Minneapolis, treasurer; Dr. Thomas McDaniel, of St. Paul, secretary; Dr. F. R. Weiser, of Windom, and Dr. Hugh F. McGaughey, of Winona, councillors.

New York State Hospitals for the Insane Overcrowded.—The number of patients in the State Hospitals for the Insane in New York increased nearly 100 a month during the eleven months ending September 1, 1914. On October 1, 1913, there was a total of 32,599 patients in these institutions and on September 1, 1914, there were 33,679 patients. As the accommodations were wholly inadequate last year, the overcrowding in these institutions becomes almost unendurable.

State Tuberculosis Conference.—A conference of the tuberculosis workers of New York State will be held in Syracuse, at the Onondaga Hotel, on Wednesday and Thursday, November 11th and 12th, under the auspices of the State Department of Health and the State Charities Aid Association. Superintendents and boards of managers of tuberculosis hospitals, visiting nurses, officers and members of local tuberculosis committees and associations, district sanitary supervisors, health officers, members of boards of health, and members of boards of supervisors have been invited to attend.

Silver Jubilee of Johns Hopkins Hospital.—The twenty-fifth anniversary of the founding of Johns Hopkins Hospital and the Training School for Nurses was celebrated with elaborate ceremonies in Baltimore during the week beginning October 5th. The event also marked the twenty-first anniversary of the establishment of the medical school. Hundreds of men and women who have won distinction in the fields of medicine, surgery, and nursing, many of them graduates of the institution, were in attendance. Sir William Osler, who had planned to attend, was unable to leave England on account of the war. The program of the four days' celebration included lectures and clinics, demonstrating the strides made in medical science during the past twenty-five years. Dr. Thomas Lewis, of London, delivered the Herter Lectures. Class dinners and banquets were features of the social side of the celebration, and the last day was marked by an inspection of the James Buchanan Brady Urological Institute, a gift to Johns Hopkins Medical School by Mr. James Buchanan Brady, who was present at the ceremonies. The magnificent building is nearing completion, and when finished will contain the most complete urological laboratories in the world. Dr. Hugh H. Young is director of the institute.

Personal.—Dr. David E. Wheeler, of Buffalo, the first of the American physicians to be sent to France with the funds provided by the Duchess de Talleyrand, has sailed for Europe, accompanied by his wife, who will offer her services to the American Hospital in Paris as a nurse.

Dr. H. MacDonald Peggs, of New York, has gone abroad to make a reconnaissance in the war zone for the British Imperial Club of New York. He will go first to England and find out what surgeons, nurses, and supplies are needed there, and then to the front where he will do the same thing, and as soon as his reports are mailed to the club will take service in the British hospital corps. The club will send the supplies that his reports call for and will also send twenty-five surgeons who have volunteered to join the British hospital staff. These surgeons will report to Doctor Peggs, who will assign them to the hospitals where they are needed. The British Imperial Club will pay the expenses of the surgeons.

Dr. Daniel R. Hicks, of Brooklyn, who was engaged in postgraduate work in London when war broke out, has joined the French Red Cross Society and gone to the front at Rheims.

Dr. Albert C. Thomas, of New Haven, Conn., has been appointed superintendent of the Foxboro State Hospital. Doctor Thomas was for ten years assistant superintendent of the Connecticut State Hospital for the Insane at Middletown.

Dr. Sumner Everingham, of New York, left for Paris last week, in answer to a call from Dr. Joseph Blake for American surgeons for service in the American Hospital in that city.

Medical Association of the Greater City of New York.

—A stated meeting of this association will be held in Du Bois Hall, New York Academy of Medicine, on Monday evening, October 19th. Dr. H. Beeckman Delatour will read a paper on Pelvic Abscess Following the Use of the Fowler Position, which will be discussed by Dr. Robert T. Morris, Dr. Forbes Hawkes, Dr. Russell S. Fowler, and Dr. Clarence A. MacWilliams. Dr. Edward Wallace Lee will read a paper on Physical Defects as a Factor in the Causation of Crime, and among those who will participate in the discussion of this paper are Almuth C. Vandiver, Esq., counsel to the Medical Society of the County of New York, Dr. Robert T. Morris, and Dr. Arthur C. Brush.

Civil Service Examinations in Philadelphia.—Among the positions in the medical service for which examinations will be held by the Philadelphia Civil Service Commission in the near future are the following: On Tuesday, October 27th: Hospital nurses, women only, salary \$600 to \$900 a year for one position and \$900 to \$1,200 for another; resident physicians, with opportunities for promotion, salary to start, \$720; resident physicians, \$600 to \$900 a year; assistant bacteriologist, salary \$1,200 to \$1,500 a year. On Friday, October 30th, there will be an examination for assistant in the pathological and bacteriological laboratory, Department of Health and Charities, salary \$720 a year. On Thursday, November 5th, an examination will be held for the position of superintendent of the Philadelphia Hospital for Contagious Diseases, salary \$3,000. For further information regarding these examinations address the Civil Service of the City of Philadelphia, Room 875, City Hall, Philadelphia.

News of the Medical Schools.—At the opening of the School of Medicine of Boston University, Dean Sutherland announced the receipt of a gift of \$100,000 for the establishment of a maternity hospital.

Among the new appointments to the faculty of medicine of the University of Alberta, at Edmonton, are the following: Dr. A. Rankin, professor of bacteriology; Dr. D. G. Revell, professor of anatomy; Dr. H. H. Moshier, professor of physiology.

Cornell University Medical College opened on Wednesday, September 30, 1914, with an enrollment as follows: For the degree of M.D., first year, 55; second year, 28; third year, 32; fourth year, 20; special students (work not leading to the degree of M.D.), 12; for the degree of Ph.D., 5; making a total of 152. All students now registered, with the exception of those pursuing the combined seven years' course leading to the degrees of A.B. and M.D., are graduates of Arts and Sciences, or doctors of medicine doing advanced work. Students in the combined course present the baccalaureate degree before they are admitted to the second year in medicine.

The faculty of the school of medicine of Marquette University, Milwaukee, announces that the campaign for an endowment is proceeding satisfactorily and it is hoped that so substantial a progress will be reported that on that basis the rating of the institution will be raised, it being the only factor standing in the way of a higher classification. Notice has been issued of an advancement of admission requirements to take effect January 1, 1915. After that date no applicant for the degree of doctor of medicine will be admitted unless he has satisfactorily completed two years' work in the College of Arts and Sciences of Marquette University or presents equivalent credits from another institution.

There are 28 hospitals in the Pittsburgh district with a capacity of 3,614 beds, requiring annually 75 interns. The school of medicine, University of Pittsburgh, is in affiliation with 7 of these hospitals, 2 general and 5 special, representing a combined capacity of 1,400 beds, all available for teaching. The combined dispensary service of the hospitals connected with the school represents 36,000 treatments annually, an average of 3,000 a month.

The dispensary of the Eye and Ear Hospital, which the school operates and manages, alone averages 13,000 treatments a year for diseases of the eye, ear, nose, and throat. The pathological and bacteriological work of five of these large hospitals is done in the laboratories of the school, in its new building on the campus. This is the only medical school in Pennsylvania west of Philadelphia. It is rated as A+, requires two years of recognized college work for admission, and provides a combination course giving two degrees in six years.

Pith of Progressive Literature.**LYON MÉDICAL.**

July 12, 1914.

Error in the Moriz-Weisz Reaction.—P. Courmont and Delorme point out that the urine of a person ingesting cryogenin to the amount of 0.25 or 0.5 gram daily gives the typical yellow color of a positive reaction when tested with potassium permanganate. This fact was noted in normal subjects and in patients suffering from diseases other than tuberculosis. In the tuberculous, the reaction was more marked, or caused to appear where previously absent, when cryogenin was given for febrifuge purposes. The authors retain their faith, however, in the diagnostic and especially the prognostic value of the Moriz-Weisz test, if the error mentioned is guarded against.

Neosalvarsan in Tabes dorsalis.—L. Bériel and A. Gonnet report results in a series of cases, including twenty-three in which the effects had been traced for a period of six months to two years. Weekly intravenous injections of 0.45, 0.60, 0.75, and 0.90 gram were given, with intervals of one to several months. In eleven patients the lightning pains were considerably reduced or entirely relieved; visceral crises, noted in five cases, were relieved in but one instance; ataxia, pronounced in thirteen cases, was reduced in nine, sometimes to a remarkable extent; upon the general condition, trophic disturbances, ocular paralyses, urinary symptoms, pupillary signs, and tendon reflexes, no noteworthy effect was produced. In recent cases or in subacute exacerbations the treatment appeared to check, probably only temporarily, the tabetic process. On the whole, the drug is frequently more beneficial than mercury, and it seems never to make the condition worse, which mercury sometimes does.

July 19, 1914.

Fulminating Uremia.—L. Thévenot and J. Rebattu report the case of a man aged forty-eight years, who was suddenly seized with vertigo and fell to the ground. Consciousness was not completely lost at the time, and later nothing distinctly abnormal was noted save a little slowness in answering questions, cardiac enlargement, and some albuminuria. Three days after the seizure, examination of the blood showed that it contained the unusually high ratio of 3.45 parts of urea per mille. In spite of the patient's manifest mental lucidity and satisfactory general condition, an unfavorable prognosis was given—rightly, as the event proved, for on the next day restlessness and twitchings appeared and the patient died in a brief convulsive seizure the succeeding night. The authors, from this case and a series of others, have become convinced of the great prognostic value of examination of the blood for urea in nephritis, and agree with Widal and others that where the urea does not exceed 0.5 in 1,000, uremia need not be feared; where it exceeds 0.5 but is less than one, examinations should be made at shorter intervals, while where it exceeds one, an unfavorable issue in a relatively short period can be predicted. A high Ambard coefficient where the blood urea is normal or only slightly augmented, while a sign of renal impermeability, does

not herald oncoming uremia and cannot be used for prognostic purposes.

Prognosis of Spontaneous Meningeal Hemorrhage in Young Subjects.—Cordier, Lévy, and Nové-Josserand state: While the foregoing condition generally ends in recovery, fatal cases sometimes occur. A young man under their observation had two hemorrhages at an interval of ten months, the second being followed, after another interval of about eleven months, by acute encephalitis and death. At least some of these cases are to be looked upon as results of a subarachnoid localization of an infection—influenza in the case reported—or latent intoxication. Soon or late the process may extend suddenly to the nervous parenchyma, causing an acute hemorrhagic encephalitis, with its serious or lethal prognosis. Prognosis is good as far as the meningeal phase is concerned; it must be guarded in view of possible subsequent complication.

REVUE MÉDICALE DE LA SUISSE ROMANDE

August, 1914.

Apraxia.—Long and Long discuss the current views as to the several clinical forms under which this symptom may appear. They agree with those who divide the cases into three groups according as the apraxia is motor, ideational, or ideomotor, but maintain that lines of distinction between these groups often cannot be drawn, probably the grouping—owing to insufficient knowledge—is necessarily a somewhat artificial one, based on theoretical psychological analyses rather than physiological facts. It is known that motor apraxia may be due to involvement either of the left parietal lobe, the Rolandic convolutions, the motor centres in the left hemisphere, the corpus callosum, or possibly, a portion of the left frontal lobe, while ideational apraxia corresponds to diffuse pathological processes such as meningoencephalitis or cerebral atheroma, which destroy or inhibit nerve connections through which tactile, visual, auditory, and kinesthetic impressions are transmitted to the parietal lobe. On the whole, it must be concluded that the course and prognosis of apraxia vary considerably; they depend especially upon the nature of the local disease, tumor, inflammation, necrosis, or hemorrhage, the patient's age, extent and multiplicity of the foci. According as these factors are favorable or unfavorable, symptomatic improvement through a process of reeducation will be possible, or a progressive enlargement of the field of symptoms will take place. The authors report a case of combined motor and ideational apraxia.

Mortality of Whooping Cough.—A. D'Espine analyses the statistics on the death rate of pertussis from various Swiss and foreign hospitals. In his own clinic, in a recent series of forty-six cases, the death rate was 8.6 per cent. The average ratio of deaths from pertussis to total deaths in Switzerland in the three decades 1881-1910 was 10.54 per 1,000. More deaths took place from this disease during the same period than from either diphtheria, measles, typhoid fever, or scarlatina. From examination of various other statistical data D'Espine points out that the mortality from whooping cough is still very high, often about twenty per cent., in the majority of large European hospitals. Cases of uncompli-

cated pertussis should not be sent to the hospitals unless no other course is possible, as is sometimes the case in orphan asylums, or unless the patient's home environment is distinctly unfavorable, as in crowded slum dwellings. Outdoor conditions, secured either by free ventilation, the use of open sheds, or treatment actually in the open air, is a necessity in the efficient management of pertussis cases. Hospital prophylaxis of the complications of the disease by means of isolation pavilions and previous detention in a "doubtful pavilion" provided with cells each containing a single bed and under the supervision of a carefully trained personnel, is also advisable.

RIFORMA MEDICA.

September 12, 1914.

Salvarsan and Neosalvarsan in the Treatment of Syphilis.—G. Verrotti concludes from clinical observations that it is notably in the ulcerative lesions of malignant syphilis that salvarsan and neosalvarsan are of conspicuous value. Salvarsan contains thirty-one per cent. arsenic, neosalvarsan twenty-one per cent., the chief difference being the greater ease of administration of the newer remedy. The author calls attention to a distinct difference between salvarsan and mercury in their influence on the Wassermann reaction. Under mercurial treatment, there is a gradual attenuation of the Wassermann reaction parallel and progressive with the disappearance of the lesions, a uniformity which is not in evidence under salvarsan. In constitutional syphilis mercury remains the remedy *par excellence*; the iodides are necessary in later lesions. The prolonged intermittent treatment remains the rational therapeutic method. Salvarsan, new and old, can only rank as exceptional remedies. Ulcerative lesions of the nose and soft palate have shown miraculous and rapid response to salvarsan. A second indication is found in certain lesions that resist ordinary treatment or in patients who do not tolerate mercury, for instance in psoriastic lesions, onychia and paronychia. A third indication, less clearly defined, is in those visceral affections, renal, cardiovascular, nervous, where mercury often proves harmful. Cases of renal arteriosclerosis of luetic origin, treated with small doses of salvarsan, have shown undoubted improvement. Caution is advised in the doses. The author finds that in inflammatory lesions, principally of the vascular system or meninges, salvarsan has proved of advantage: the combined therapy even more efficacious, while in the essentially degenerative processes as tabes and progressive paralysis results have been less discernible. The author comments on the frequent relapses after apparent cures, especially in the secondary stage, relapses of an intensity and virulence even surpassing the first attack. The conclusion is that while locally a cure has been effected, there has been no permanent attenuation of the vitality of the spirochete.

Treatment of Chronic Toxic Retrobulbar Neuritis.—N. Scalinci believes that arteriosclerosis is a causative or at least predisposing factor in the etiology of chronic retrobulbar neuritis of the toxic or alcohol tobacco type. This variety occurs usually between the ages of forty-five and sixty

years, though younger men are quite as often habitual drinkers and smokers. The findings in some autopsies sustain this theory, and Krüger is cited as having found sclerotic changes in the retinal vessels of persons suffering from retrobulbar neuritis. Three cases are narrated in which theobromine proved of benefit. The patients who were all over fifty years old had noticed defective vision for some months and presented varying degrees of diminished visual acuity in both eyes and central scotoma; in two the phenomenon of nyctalopia was present, the third having noted nebulous vision at intervals throughout a year; one showed a pallor of the temporal side of the papilla. Distinct evidence of arteriosclerosis was present in two of the cases, the third having a gouty and rheumatic inheritance. Theobromine with iodides was used, all the patients recovering in the course of three to four months.

ROUSSKY VRATCH.

June 7, 1914.

The Action of Poisons on the Bloodvessels of the Liver.—V. I. Berezin studied the effect of several poisons on the circulation of the isolated livers of frogs and guineapigs. Adrenaline caused marked constriction of the vessels; histamin either had no effect or, at times, caused dilatation. A similar effect was produced by barium chloride. Caffeine and also peptone produced marked dilatation. Nicotine produced vasoconstriction, which disappeared on prolonged infusion. Repeated application of nicotine produced less constriction.

Bactericidal Action of Ethylhydrocuprein on *Bacillus mucosus ozonæ*.—K. K. Vishnevsky reports the results of his investigation of the bactericidal properties of ethylhydrocuprein. He found that it kills *bacillus ozonæ* in dilutions of one in 200. In dilutions of one in 300 to one in 500, it is still bactericidal, depending, however, on the nature of the medium. In dilutions of one in 8,000, it inhibits the growth of the bacillus.

Effect on the Blood of Work in Caissons.—A. S. Solovtsoff found in all laborers in caissons a condition of anemia characterized by a decrease in the red blood cells, hemoglobin, and often the white cells. There appeared to be no parallelism between the oligocythemia and the oligochromemia; on the contrary, the latter was frequently accompanied by a sudden increase in the red cells. The morphological changes in the cellular elements consisted in an increase of microcytes, a decrease in the polymorphonuclears, and an increase in the lymphocytes and eosinophiles. Occasionally, hyperleucocytosis was observed. With cessation of the work the blood returned to normal in one to one and a half month.

June 14, 1914.

Treatment of Pernicious Anemia.—M. P. Michailoff obtained very favorable results from splenic extract in thirty-five cases of anemia, including two of pernicious anemia. The extract is marketed by Poehl under the name lieuin and is put up in ampoules of 2.5 c. c. of a two per cent. solution. The author injected subcutaneously one such dose daily in each of the two cases with a marked improvement of the condition after a few injections. The effect is ascribed to a hormone which stimulates the hemopoietic system.

Cultivation of Tissues Outside the Organism.—N. W. Weselkin and E. A. Kartashevsky induced diabetes in cats by removal of the pancreas and employed the plasma for cultivation of bits of splenic tissue. No direct difference in growth was observed, but from their observation of the course of healing of the wounds in the animals subjected to operation, the authors conclude that the removal of the pancreas lowers the resistance of the cells by reducing phagocytosis and changing the zymogenic properties, thus favoring infection.

Effect of Mallebrein on Inflammation of the Upper Respiratory Passages.—D. U. Mansfeld extols the effect on inflamed mucous membranes of the upper respiratory passages of mallebrein, which is a twenty-five per cent. solution of aluminum chloride, originated by Doctor Mallebrein, of Karlsruhe. The action is attributed to the chlorine given off when the drug comes in contact with the mucous membrane. Mallebrein may be used as a gargle, twenty to twenty-five drops to three tablespoonfuls of water; by inhalation, fifteen drops to three tablespoonfuls of water, and by local application. In cases of nasopharyngeal catarrh, tonsillitis, and other acute infections of the upper respiratory passages the results seemed to be superior to those obtained from any other treatment.

REVISTA DE MEDICINA Y CIRURGIA PRACTICAS.

September 7, 1914.

Technic of Quinine Injections.—José Manuel Puig y Causaran suggests a simple modification of technic to avoid abscesses after hypodermic injections of quinine. The simple procedure of washing the needle with alcohol and passing it through the flame has been found to give excellent results. In regions where malarial diseases are common, physicians are often deterred from using hypodermic medication, especially in children, for fear of unpleasant consequences, a feature which can be obviated by the foregoing method.

Dermoid Cysts of the Sclerocorneal Margin.—Santos Fernandez reports that among 50,000 patients four cases of dermoid cysts of this part were encountered. These congenital cysts of the eyeball, although benign, take on a slow growth and aside from their unsightliness cause disturbance by interfering with the closing of the eyelids. In three of the cases, the cysts were successfully removed. In one case a second operation was needed for complete removal, a small scar only remaining in each. Early operation is advised.

BRITISH MEDICAL JOURNAL

September 26, 1914.

Evolution of Toxemic Iritis.—W. M. Beaumont analyzes our present knowledge of iritis when due to causes other than direct infection of the eye; the condition is essentially of a toxic nature. Poisons absorbed from a bacterial focus anywhere in the body are capable of inducing this affection, and it is probable that so called sympathetic ophthalmia arises by absorption from the primarily affected eye. The author argues against iritis being a manifestation of acute inflammatory rheumatism. The toxins elaborated in this disease do not seem to have a special affinity for the eye. On the other

hand, infections commonly known as chronic rheumatism very frequently give rise to toxins causing iritis; the tissue primarily involved in the joints and iris in these conditions is the same, fibrous tissue. The whole question is whether toxins in a given infection possess affinity for tissues of the iris.

Treatment of Acute Gonorrhea in the Male.—W. Wyndham Powell recommends irrigations of the anterior urethra in the acute stage, from five to six pints of a solution of potassium permanganate varying between one in 2,000 to one in 5,000. The solution is injected at a temperature of about 100° F. and with a hydrostatic pressure of at least six feet in order to dilate the urethra to permit the exposure of the bases of all the folds. This treatment yields excellent results, and the reason that irrigation has not gained more recognition is that both insufficient pressure and insufficient fluid have been used.

Treatment of Uterine Fibromyoma.—Karl Gauss reports most favorably upon the effects of radiation. From 500 to 1,500 Kienboeck's units should be applied, screened through an aluminum filter three mm. thick, with the tube at a focal distance of twenty cm. Under these conditions Gauss has obtained up to ninety-five per cent. of cures. The rays are applied over about twelve areas on the abdomen and six on the back over the pelvic region, beginning with the lower doses and exposing at intervals of two and a half to three weeks. Sanious myomas, submucous ones, and those which cause serious pressure symptoms, are better treated by operation.

Treatment of Contracted Pelvis.—Henry Jellett gives a conjugate diameter of from two and three quarters to three and one quarter inches as falling within the limits of a second degree contraction: conjugates of less than the lower of these figures render delivery through the normal channel impossible. On the treatment of second degree contraction Jellett says: 1. Pubiotomy is the operation of choice, unless there are special circumstances in the case or special complications present. 2. Pubiotomy is especially indicated in the young multipara, because, owing to previous labor, the vaginal canal is dilated and lacerations are unlikely to occur, and because of the effect of the operation on subsequent pregnancies. 3. On the other hand, Cæsarean section is more suitable in the elderly primipara, because vaginal laceration is more likely to occur, and because it is unnecessary in her to take account of further pregnancies. 4. Premature labor is indicated only under special conditions which render either of the foregoing operations impossible or inadmissible. 5. Craniotomy is permissible only when the child is dead.—Frank, of Cologne, in the succeeding paper, comes to essentially similar conclusions regarding the value of pubiotomy in contracted pelvis of the second degree, and emphasizes the fact that the subcutaneous operation is fraught with a minimum of danger and is an exceedingly simple procedure.

Veratrone in Eclampsia.—F. W. N. Haultain reports five cases to illustrate the value of this preparation of veratrum. In eclampsia an elevated blood pressure, while not primarily the cause of convulsions, increases their probability. The injection of one c. c. of veratrone commonly reduced

blood pressure; in almost every instance the fits ceased. This depressant action was only temporary, lasting for a few hours, but was associated with a reduction in the pulse rate and marked diuresis and diaphoresis. Vomiting occurred in some instances. In animals it was found that the drug also lowered blood pressure and slowed respiration; these effects were not produced after section of the vagi. Both epinephrine and pituitary constrict the arterioles after veratrone has lowered blood pressure. The conclusion is that veratrone stimulates the afferent vagus fibres and produces its effects reflexly through the vasomotor centre. Haultain believes that it constitutes to a certain extent an antidote to the eclamptic poison. * After rise of blood pressure, following a dose of veratrone, the fits seldom recur. Eclamptics stand large doses with manifestation of but mild symptoms, while noneclamptics are made desperately ill by similar doses.

Rapid Relief in Acute Lumbago.—William Haig advocates: 1. Deep thumbing of the lumbar muscles, in the process of which a painful area is usually found either in the middle line or to one or other side. 2. Fixing the part of the vertebral column below this painful region by firm pressure of the thumb on each side of the spine. 3. Making the patient perform movements of flexion, acute dorsiflexion, lateral flexion, and rotation. The result is cure of the attack of lumbago, inasmuch as the patient is able at once to return to his work, and in no case has it been necessary to repeat the process.

Babinski's Sign in Functional Disease.—F. C. Eve finds that Babinski's sign is usually present for a few hours or even a day or two after fits, coma, or paralysis due to epilepsy, uremia, or eclampsia. On the other hand he has never found it present after hysterical fits or paralysis. Others have found it present after alcoholic or anesthetic coma, after some drugs, such as strychnine and hyoscine. The sign is indicative of a change in the pyramidal tract in organic disease; the inference is that in the conditions named there is some blocking in this tract, probably through the selective action of toxins.

LANCET

September 26, 1914.

Improvised Apparatus in the Treatment of Certain Fractures.—J. H. Watson and T. Snowball describe a modified Buck's extension for fractures of the thigh which presents many advantages, beside being readily carried out by improvised apparatus. A board is fastened at the foot of the bed so that its upper end extends a few feet above the level of the bed. Its upper end is notched on either side and a pulley is screwed into the middle of the top to carry a cord. Another pulley is screwed into the face of the board four or five inches above the level of the mattress. By means of dressings of adhesive plaster a rope is made to pull from the sole of the foot, the line of traction passing just behind the malleoli. This rope passes under the lower pulley, up over the top one, and to its free end there is attached a suitable weight. A strong pole, about

the size of a broomstick, is obtained of sufficient length to extend from one of the notches in the upright board to the mattress at the head of the bed. Placed in this position it is used for the support of the leg by means of broad bandages which are so placed as to support the extremity with the hip and knee slightly flexed. The ankle is maintained in semiflexion by another sling passing under the heel. In this position, with the foot of the bed somewhat elevated, there is continuous traction and the weight of the extremity is supported by the slings entirely independent of the force of the traction. The patient has considerable freedom of movement. The results by this method are good in most cases of simple fracture, and in cases of compound fracture the method is particularly suitable, for it enables the wound to be treated without the need of disturbing the position or relaxing the traction.

Urinary Dextrin.—P. J. Cammidge and H. A. H. Howard describe in detail their methods for the isolation and purification of dextrin from the urine of patients suffering from pancreatic affections. This dextrin splits off a pentose on hydrolysis. By splitting off this pentose, a method has been devised whereby the amount of dextrin in the urine can be estimated with considerable accuracy. The findings are expressed in terms of the iodine coefficient. This has enabled the authors to investigate the occurrence of this body in the urine of diabetics and those with other pathological conditions. The test is not sufficiently delicate to determine the amount of dextrin in normal urine, this giving an iodine coefficient of zero. The authors state: When carbohydrate metabolism is being imperfectly carried out, a high iodine coefficient is obtained. If, however, the interference with carbohydrate metabolism is such that sugar appears in the urine, a previously high iodine coefficient usually falls, to rise again when the sugar disappears. In many cases of persistent glycosuria, too, this movement of the iodine coefficient and the sugar excretion in opposite directions has been observed, a rise in the one being accompanied or preceded by a fall in the other. In severe cases of diabetes, where more sugar is being excreted in the urine than would be accounted for by the carbohydrate taken as such in the food, particularly when a fatal termination is close at hand, the course of the iodine coefficient of the urine and the sugar excreted follow each other. These observations suggest that the urinary dextrin is probably a derivative or antecedent of glycogen intermediate between that substance and dextrose. In the former case, the body still possesses the power of breaking down glycogen to a polysaccharide of low molecular weight, but this instead of being converted into dextrose, which in its turn would give rise to water and carbon dioxide, suffers irregular oxidation.

BOSTON MEDICAL AND SURGICAL JOURNAL.

October 1, 1914.

X Ray Evidence in Early and Late Cancer of the Stomach.—Franklin W. White and Ralph D. Leonard say that in the large majority of cases of cancer of the stomach examined, the x ray evidence has merely confirmed the diagnosis already made, but such evidence in early cancer is very scanty.

Small areas of induration in early primary cases often are not characteristic, and the transition stage in cancer evolving from ulcer is very difficult or impossible to distinguish. Very rarely an early diagnosis has been made. The most important technical evidence is an irregular defect, with rigid stomach wall. The better the technic, the better the chance. A few routine plates and fluoroscopic examinations may not be enough, but the authors do not think that by using a large number of plates, a positive or negative early diagnosis of gastric cancer can be accurately made. Still the method will occasionally aid in the early detection of cancer and should be given a trial in every suspected case. It is helpful in ruling out cancer, for in no case where a normal picture of the stomach was found, has cancer been proved to exist, and, in spite of its limitations, it is of distinct aid, not only in the diagnosis, but in locating the cancer, determining its size and extent, and in deciding about its operability.

Intraspinal Use of Salvarsanized Serum.—C. W. McClure reports these results in nine cases in which the salvarsanized serum was employed according to Swift and Ellis's method. Improvement in the subjective and objective symptoms was obtained in four cases of cerebrospinal syphilis under treatment with intravenous injections of salvarsan, mercurial inunctions, and the intraspinal use of salvarsanized serum. With this improvement there was a diminution in the cell count, the protein content, and the strength of the Wassermann reaction in the cerebrospinal fluid. The Wassermann in the blood remained unaffected up to the time of leaving the hospital. Two cases of tabes were relieved of subjective symptoms and the number of cells in the cerebrospinal fluid reduced. A case of tabetoparesis showed no change in the laboratory findings and only slight improvement symptomatically. One case of paresis showed marked improvement in the symptoms and the laboratory findings. The Wassermann reaction became negative in the cerebrospinal fluid. One case of paresis showed no improvement in either the symptoms or the laboratory findings, but progressively grew worse.

Report of Cases of Lung Abscess at the Massachusetts General Hospital Clinic.—Charles L. Scudder from the study of sixteen cases of lung abscess treated by operation deduces: 1. The bronchiectatic process should be attacked by the surgeon while it is limited to one lobe of a lung. A very decided attempt should be made to determine as early as possible the diagnosis of bronchiectasis. Surgery may be able then by the excision of a single lobe to cure such a condition. 2. Actinomycosis of the lung must be recognized in its initial stage and vigorously attacked, for only in this way is there a great likelihood of curing this fatal disease. 3. Several cases followed tonsillectomy. 4. The surgeon should be alert to the occurrence of lung abscess associated with embolism following ordinary surgical operations. Early operative intervention upon the lung may not only preclude the possibility of the extension of the pulmonary lesion in such cases, but may save life. 5. An increasing number of intraabdominal infections are associated

directly with an infection through the diaphragm, of the diaphragmatic pleura, and then of the lung, with pulmonary abscess. These cases must be attacked early. 6. The x ray is of great value in the diagnosis of lung abscess. The thorough röntgenological examination necessitates fluoroscopic observations, stereoscopic plates, and both anterior and posterior views. 7. With the eleven cases reported from the same clinic by Doctor Lord in 1906, we have a total of twenty-seven cases operated in for abscess of the lung. There were nine deaths, eighteen recoveries, and eleven practically cured without cough or sputum.

Neosalvarsan.—W. J. McGurn is convinced that when accurately handled neosalvarsan is both safe and dependable; that in preparing and administering this agent, a cool room with perfect illumination is of equal importance with strict asepsis; that the beginning of oxidation of neosalvarsan is simultaneous with its exposure to air; that immediate injection should be interpreted as forbidding a delay of more than ten minutes from the time of opening the ampoule until the injection is completed, which time can easily be reduced by half; and that the use of therapeutic agents containing ammonium carbonate or mercury should be suspended for a period of forty-eight hours preceding and for several days following the intravenous administration of either new or old salvarsan.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

October 3, 1914.

The Surgical Treatment of Exophthalmos, by C. H. Mayo.—This paper was abstracted in our issue for July 4th, page 43.

Aperiosteal Amputation, by H. M. Lyle.—This paper was abstracted in our issue for July 4th, page 43.

Penetrating Wounds of the Abdomen, by Randolph Winslow.—This paper was abstracted in our issue for July 4th, page 44.

Abderhalden's Test in the Diagnosis of Cancer, by C. F. Ball.—This paper was abstracted in our issue for July 4th, page 47.

A Consideration of Some Practical Breast Milk Problems, by A. W. Myers.—This paper was abstracted in our issue for June 27th, page 1312.

The Feeding of Skimmed Breast Milk, by F. C. Neff.—This paper was abstracted in our issue for June 27th, page 1312.

Some Present Day Problems in the Surgery of Gastric and Duodenal Ulcer, by H. Collinson.—This paper was abstracted in our issue for July 4th, page 44.

The Autoserum Treatment in Dermatology.—See our issue for August 9th, page 272.

Röntgenological Observations on the Function of the Ileocolic Valve, by J. T. Chase.—This paper was abstracted in our issue for June 27th, page 1311.

Sporotrichosis in the Mississippi Basin.—R. L. Sutton reports five cases, and concludes: Cutaneous sporotrichosis is a comparatively common disorder in the middle West. In every suspected case a bacteriological test should be made as early as possible; otherwise the employment of powerful antiseptics,

such as iodine, may render cultural examinations negative, even though the fungus is still present. In most instances the symptomatology is so characteristic that a mistake in diagnosis is hardly possible if one is at all familiar with the disease.

Bilateral Peripheral Facial Palsy.—T. B. Throckmorton reaches the following conclusions: 1. Bilateral facial paralysis is much more uncommon than the unilateral type. 2. While cold, draughts, localized congestive conditions, infectious and toxic processes, etc., seem to be largely responsible as direct agents in the production of the peripheral type of facial paralysis, the relationship between the nerve trunk and its bony canal (Fallopian aqueduct) may not be altogether a negligible factor. 3. Congenital narrowing or stenosis of the Fallopian aqueduct may be more instrumental as a true basic causal factor than is commonly supposed. 4. Hereditary predisposition to peripheral facial paralysis may be present in some individuals.

Pemphigus neonatorum.—H. N. Cole and H. O. Ruh base a paper on an outbreak of this affection which occurred at the Maternity Hospital, Cleveland: 1. In an epidemic of nine cases it was possible to isolate in pure culture *Staphylococcus aureus* in all cases in which the unbroken vesicles were to be found. In one case the termination was fatal, and a coccus was found in the internal organs at necropsy. 2. The epidemic was started from a case of typical pemphigoid of the newborn, which later changed into a clinical picture of dermatitis exfoliativa neonatorum (Ritter). As the etiological agent in the two diseases is the same, the authors believe there should be no distinction between them. 3. Impetigo contagiosa seu vulgaris seu bullosa (streptogenes) should be sharply differentiated from infantile pemphigoid, because of its different bacteriological origin. 4. They believe that infantile pemphigoid should be placed among the reportable diseases because of its severe epidemic character and high mortality, from twenty-five to fifty per cent. 5. Because of striking results obtained in their epidemic, they would recommend the use of an autogenous vaccine in all cases.

The Physician's Field in Infant Feeding.—H. D. Chapin argues that the latest scientific studies in nutrition point favorably to great simplicity in the preparation of artificial food for infants, if the biological side is properly emphasized. The physician's greatest success will come from avoiding attempts to solve feeding problems by intricate chemical manipulations of food. It is more practical to employ scientifically the biological factor. This means an ability to select food of proper strength, which will agree with the infant. The base of all feeding is the use of milk, eggs, cereals, and legumes, and when the physician has become acquainted with the biological principles of infancy, and the properties of these foods, he will have learned all that is necessary. He must then apply what he has learned to the individual infant. The principal ingredient, cow's milk, if scientifically produced and handled, may be simply diluted in right proportion to the age, it being kept in mind that none of its constituents, protein, fats, carbohydrates, must be long reduced below what is known to be the average content in human milk.

MEDICAL RECORD.

October 2, 1914.

The Surgical Management of Pericystitis.—Eugene Fuller observes: The only efficient treatment that can be applied in cases in which the primary focus is extravescical, lies in drainage of such foci through extravescical surgical operation. Detailed reports of three cases record the author's methods and results in advanced pericystitis.

Insanity among the Jews.—This paper by A. A. Brill and M. J. Karpas was abstracted in our issue for October 10th, p. 739.

Rational Diet in Typhoid Fever.—E. E. Cornwall says that a rational diet should meet in their totality the dietetic indications of the disease, and should avoid favoring particular indications at the expense of others. He enumerates various groups of indications relating to quantity, consistence, digestibility of food; fermentation and putrefaction, the food salts, water ratio, palatability, and complications which may arise in the course of the disease. He has devised a plan of feeding, formulated in three dietetic prescriptions, with modifications. The first prescription, which is for the febrile period, is as follows: 6 a. m.—Eight ounces of a two to one mixture of milk and barley water, to which has been added four grains of sodium chloride. 8 a. m.—The same as at 6 a. m. 9 a. m.—Seven ounces of orangeade made with the strained juice of an orange, one ounce of milk sugar, and water. 10 a. m.—The same as at 6 a. m. 12 m.—The same as at 6 a. m. 1 p. m.—The same as at 9 a. m. 2 p. m.—The same as at 6 a. m. 4 p. m.—The same as at 6 a. m. 5 p. m.—The same as at 9 a. m. 6 p. m.—The same as at 6 a. m. 8 p. m.—The same as at 6 a. m. At any time during the day or night give water to drink, but not more than enough to bring the total fluid ingested to 110 ounces, unless the weather is very warm and the patient desires it. If the patient has a weak heart the fluid should not exceed ninety ounces. This prescription supplies daily about fifty grains of protein and fuel of about 1,350 calories, and serves as a basic diet. In the modifications referred to, which give the patient a larger quantity and greater variety of food, the additions described consist of artificially soured milk, predigested cereal food, peptonized milk, cream, and calcium lactate. In prescription No. 2, for the transitional period, predigested cereal food, well boiled rice, and artificially soured milk are allowed. In one of its modifications a poached egg on toast is given once a day, and in another, a scraped beef sandwich. Prescription No. 3, for the convalescent period, includes milk soup (cream of corn, celery, potato, carrot, or spinach), dry toast with butter, boiled macaroni, fresh fruit juice, cream or pot cheese, and two ounces of lean beef, mutton, lamb, or chicken once a day. The author reports that his results have been much more satisfactory than they were previous to the adoption of his present dietary method.

Oil-Ether Colonic Anesthesia.—J. T. Gwathmey has found that eight ounces of a seventy-five per cent. solution of ether in oil will keep a patient weighing 160 pounds or over in surgical anesthesia

for three hours, provided a clear airway is maintained. Theoretical objections can best be answered by stating that its fundamental principles have been thoroughly worked out, both upon animals and in chemical laboratories, and, finally, in the bureau of laboratories of the New York city department of health. From experience gained in over 500 clinical cases, it may be stated positively that this method compares favorably with any other method of administering ether, when the proper technic is employed. Recently the technic has been improved by diminishing the amount of the oil-ether mixture one third to one half. This has been accomplished by using paraldehyde. When employed in connection with ether it intensifies the action of the anesthetic, gives more complete relaxation without in any way affecting the pulse or respiration. The preliminary injection is as follows: Morphine, grain one eighth; paraldehyde, dram one; ether and olive oil, āā, drams three and a half. This one ounce solution should be administered per rectum one hour before the operation instead of the chloretone. When this preliminary is given, the technic as outlined above should be followed, except that instead of a hypodermic, this dose should be repeated for athletes, alcoholics, and patients weighing over 160 pounds. For the average patient do not repeat the dose.

LANCET-CLINIC.

October 3, 1914.

Sphygmomanometer in Life Insurance.—Fisher considers the instrument indispensable in life insurance examinations. The blood pressure is best taken in a sitting posture with the arm resting on a table and muscles relaxed. It should be taken before the physical examination is made and again after, and the average of three readings should be recorded each time. When both palpatory and auscultatory readings are taken it is found that auscultatory readings are, on an average, about six mm. higher. A low blood pressure is of little diagnostic value. Occasionally, when it is accompanied by a marked tuberculous family record, the risk is declined. An applicant with a blood pressure lower than eighty-five mm. is as a rule also declined. A high blood pressure is found in about 6.5 per cent. of the applicants rejected; they most frequently have subsequently albumin and casts in urine, heart murmur, arteriosclerosis, and hypertrophy of the heart.

Prognosis of Heart Disease.—Babcock takes up this subject with particular reference to life insurance. He considers that murmurs in themselves are not sufficient cause for rejection. Neither the intensity nor the quality of the murmur should be regarded in arriving at a prognosis; a loud and harsh murmur may not indicate so serious a lesion as a faint, soft murmur. Location and rhythm are more significant. A systolic murmur may be functional or hemic; a diastolic murmur is usually organic. A presystolic murmur is of grave significance, as it usually means mitral stenosis, and the degree of stenosis is the measure of gravity. A short, presystolic bruit is not as serious as a long presystolic bruit and thrill, which usually signifies

a greater degree of narrowing. The only diastolic murmur likely to be discovered is that of aortic regurgitation; this is a serious lesion and bars against insurance. The systolic murmur of aortic stenosis is usually accompanied by a distinct systolic thrill, the aortic second sound is either enfeebled or replaced by a diastolic murmur, the left ventricle is hypertrophied and the blood pressure is low. If the second sound is accentuated, the arteries are thickened and the blood pressure is increased, the condition is probably one of sclerosis of the aorta and not stenosis. An accidental systolic bruit is sometimes observed. It is usually heard best in the recumbent position, is not associated with a palpable thrill, alteration of the second sound, or ventricular hypertrophy, and occurs oftenest in the young. A systolic murmur is not infrequently heard in the second and third interspaces to the left of the sternum. It is commonly seen in women with a low amount of hemoglobin. In healthy, not anemic men, it must be studied very carefully. A systolic murmur at the base of the sternum to the left may be produced by patency of the ductus arteriosus or foramen ovale, stenosis of the pulmonary orifice, or mitral regurgitation. Percussion of the heart area and the use of the x ray and fluoroscope help greatly to make an exact diagnosis. Pulmonary stenosis gives a murmur in the second left interspace with a thrill, a feeble second tone, and hypertrophy of the right ventricle, and should present no difficulty. Systolic murmurs in the mitral area do not always indicate mitral regurgitation. If the first tone is audible, the apex beat in its normal position, the pulmonic second sound not accentuated, epigastric pulsation wanting, and the area of heart dullness not increased to the right, then the murmur may be considered accidental. Apical systolic murmur in a middle aged person is usually of pathological significance, and is generally associated with changes in the blood pressure, in the vessel coats, in the size of the heart, and in its tones. From the standpoint of life, the systolic murmur most favorable is that of mitral regurgitation of rheumatic origin. This gives the best prognosis of all valvular diseases and there are many patients suffering injury to the mitral valve in childhood who live to the age of seventy years, carrying systolic murmurs all of their lives.

AMERICAN JOURNAL OF SURGERY.

July, 1914.

Chronic Ear Infections.—William H. Haskins says that it is well to remember that in treating any suppurative process in the ear, it is necessary to keep all moisture out of the canal. If the patients are told to irrigate, it is safe to say that the canals are never actually dried after the irrigation, and the treatment will be prolonged indefinitely. Bichloride of mercury irrigations invariably keep up discharge, if persisted in, owing to the irritation of its constant presence in the canal. The writer has found that active cultures of *Bacillus bulgaricus* will promptly overcome offensive discharges in most cases and when the membranes are thickened, the cultures frequently restore them to a healthy color after a very few applications. He employs suction with small cannulas to remove all secretions

from the canals, tympani, and attics; and as soon as the offensiveness disappears sufficient drying powder—aristol or nosophen with compound stearate of zinc or boric acid—is blown in to fill the inner portion of the canal. At subsequent visits, the canal is cleaned with suction, or alcohol, or with cotton applicators, if there has been no secretion, is again dusted, and the patients are told to do nothing except to wipe out any secretion that may come. In his private practice, he has never seen a case that does not dry up and remain so under this method of treatment, when combined with proper nasal care.

Oil-Ether Anesthesia.—J. T. Gwathmey states that this type of anesthesia is especially indicated where the element of fear is in evidence, as in cases of goitre of children and large athletic or alcoholic men, in whom occasionally death results from fear. Large fat men and women are especially good subjects for this form of anesthesia. Such cases give the anesthetist much trouble with any inhalation method, on account of narrowed air passages. It is especially indicated in bronchoscopy and gastroscopy, where the anesthetist would be in the way of the surgeon; in all operations upon the respiratory tract, head, neck, and chest. It is contraindicated in any pathological condition of the lower bowel, such as colitis, hemorrhoids, fistula, etc. When these conditions exist, they are aggravated by the introduction of oil-ether. Even when no pathological condition is known to be present, if the patient should complain very much upon its introduction, rectal anesthesia should be discontinued. Whenever ether is contraindicated, this method should not be employed, except in bronchitis, asthma, and similar conditions as previously mentioned. If, however, the patient has been ill from a previous ether administration, this is no contraindication to oil-ether anesthesia. Emergency cases usually contraindicate this method. Advantages are: In administering ether by this method in bed, every principle of anoci association, as enunciated by Crile, is fulfilled. Absence of apparatus of any kind enables the anesthetist to devote his entire time to the patient. An even narcosis is automatically maintained, and quiet natural breathing, without mucous rales. Postoperative vomiting, nausea, gas pains, etc., are reduced to a negligible quantity. The return to consciousness is analgesic.

ANNALS OF SURGERY.

August, 1914.

Amputations of the Leg.—J. F. Binnie has come to the conclusion that all the advantages of Bier's operation can be easily and safely obtained by covering the cut end of the tibia with a free transplant of bone. He has operated as follows: By any of the customary methods (preferably a flap method) he reflects the soft parts and so exposes the tibia covered by its periosteum for a few inches below the proposed line of bone section; transversely divides the periosteum of the tibia along two lines separated from each other by a space of about half an inch greater than the diameter of the bone. From the upper incision he separates the periosteum downward for about half an inch. From the lower incision he separates the

periosteum upward for about half an inch. The cortical bone of the tibia is cut transversely at the base of the periosteal flap. With an osteotome or Gigli's saw the plate of bone is cut free between the transverse incisions. This plate of bone is covered by periosteum which hangs from its upper and lower edges like a tablecloth. This is preserved in warm salt solution. The amputation is completed by sawing through the bones after forming a periosteal cuff on the tibia. The plate of bone is placed over the cut surface of the tibia and fixed there by periosteal sutures. The tibia and the plates might be united by chromicised catgut sutures introduced through drill holes instead of by periosteal sutures. If desired the bone plate may be made long enough to cover the cut surfaces of both tibia and fibula, extending between them like a bridge. Such an operation as the foregoing is entirely out of place unless asepsis can be assured and the resisting power of the patient is satisfactory.

Proceedings of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, April 20, 1914.

The President, Dr. THOMAS S. SOUTHWORTH, in the Chair.

Chronic Intestinal Stasis; Cases Illustrating "End Group."—Dr. HAROLD D. MEEKER presented two cases after ileocolostomy, the first, that of a gentleman thirty-one years old who had for ten years suffered from digestive disturbance, which had steadily grown worse. The patient weighed 148 pounds, and, clinically, presented the picture of chronic intestinal stasis, with probable duodenal ulcer. The radiographic examination, by Dr. L. G. Cole, showed evidence of stasis all along the gastrointestinal canal, with a distinct narrowing of the pylorus, a dilated terminal ileum, obstruction near the ileocecal valve, and a kink in the first portion of the transverse colon. At operation the following condition was found: A portion of the great omentum, twisted on itself, was firmly adherent to the first portion of the duodenum; and this was found to form the anterior wall of the gut over an area one and a half inch long and half an inch wide, where the normal wall had been destroyed by ulceration. The duodenum was sectioned at the upper and lower limits of the ulcerated area, the ends were closed, and a posterior gastrojejunostomy was performed. Further inspection showed a broad band fixing the terminal ileum, which caused a marked kink when the patient was erect. The colon was dilated, and the last portion of the transverse colon was adherent to the ascending colon by an apparent extension of the so called Jackson's membrane. Clearly this case had passed beyond the "mid group" of cases of stasis, and an ileocolostomy was then performed. The patient was here to speak for himself. He now weighed 170 pounds, ate anything he fancied, suffered from no pain or gas, and had a natural bowel movement once or twice daily. The second case was that of

a young married lady who had suffered from "stomach trouble" ever since she could remember, and presented the typical characteristics of chronic intestinal stasis. The radiographic diagnosis, as made by Dr. A. J. Quimby, was as follows: Probable small ulcer on the lesser curvature of the stomach, near the pylorus; dilated duodenum, due to mechanical interference at the apex of the conus duodenalis and the junction of the duodenum and jejunum; moderate iliac stasis, due to constriction from an adherent appendix; patulous ileocecal valve—the low position of the cecum aiding in draining the ileum; nonfunctioning, adherent appendix; dilated cecum and ascending colon, due to interference near the hepatic flexure caused by a mesenteric band or contracted mesentery reducing the acute angle; redundant pelvic sigmoid; dilated rectum. When the patient was operated upon, the scar of an old ulcer was found near the lesser curvature, four cm. from the pylorus, and adherent to this was a band extending to the great omentum and causing a marked kink in the transverse colon. The band was divided, the scar of the ulcer excised by an incision parallel with the long axis of the stomach, and the incision closed in the opposite direction. The obstruction causing the dilatation of the duodenum was immediately relieved when bands which produced a greatly exaggerated duodenojejunal angle were divided. The fixation of the terminal ileum was due, not so much to the adherent appendix as to a firm, broad, so called Lane band. The appendix was removed, and an ileocolostomy performed. The convalescence of the patient (who was present) had been uneventful, and today she was well and happy, having a good appetite and walking five or six miles a day.

Dr. WILLIAM SEAMAN BAINBRIDGE had presented at the December meeting, cases which belonged to the middle group of stasis, and as at that time some skepticism was expressed as to the results obtained in the end group, he had asked Doctor Meeker and Doctor Gardiner to present the patients who had just been seen.

Radiological Demonstration of the Changes Found in Chronic Intestinal Stasis.—Dr. ALFRED C. JORDAN, when he first took up work in the radiological department of this field, had been handicapped by the belief that the patient must be "prepared" for the bismuth meal by purges and enemata, and that he must take his bismuth in the form of a "meal" while fasting. The best way to give the bismuth was in emulsion, to be taken about an hour after an ordinary breakfast. While the patient was in the vertical posture the bismuth was seen to pass rapidly through the esophagus and fall at once to the greater curvature of the stomach. The patient then lay on his right side, to allow the bismuth to fill the pylorus and duodenum; and after a minute or so he changed to his back, and was examined with the fluorescent screen. One of the earliest effects of stasis was to cause the lower iliac coils to drop into the pelvis. There was then a long rise from the pelvis to the cecum, while spasm of the ileocecal valve occurred, and added to the difficulty. In many instances the weight of the overloaded cecum and ileum caused a constant pull on the mesentery whenever the patient was

upright; a thickening then appeared at the point (varying in different cases) where the strain was greatest. The iliac kink was not the primary cause of the stasis, although it aggravated the stasis, at all events when the patient was upright. It was, in fact, the iliac stasis which produced the kink, by pulling on the iliac mesentery. Some of the worst cases of iliac stagnation occurred in feeble women, and in them a kink might never appear. With regard to the large intestine, in normal cases, after twenty-four hours, the bismuth was usually seen in all parts of this portion of the canal, fairly evenly distributed, and at the end of forty-eight hours all of it should have been evacuated. In stasis, however, the delay was often extreme, and after one hundred hours there might be little bismuth beyond the splenic flexure. Undoubtedly, considerable toxic absorption occurred from the stagnant contents of the large intestine, but the greatest harm arose from the damming back of the contents of the ileum, the coils of which became infected from the cecum. In health the ileum was sterile, and not equipped by Nature to deal with microbic invasion, while the large intestine could cope with considerable numbers of bacteria. In the absorption of toxins into the circulation the glands suffered early, and one of the first changes was in the breasts, which became nodular, a very good index of the progress of a "stasis" patient while under treatment. In neglected cases, chronic cystic disease appeared in the breasts, and finally these became cancerous. Other glands suffered also, and cancer of the pancreas might be the last stage in the history.

The microbes which had entered the stagnant ileum from the cecum ascended to the upper reaches of the small intestine. Thus the duodenum became infected, and the ducts opening into it could not escape; so that in this way the gallbladder was also infected. One of the most important aspects of stasis was its effects upon the duodenum and stomach, and in the study of this part of the subject radiology was able to give the greatest assistance. The duodenum was found to be much increased in size, both in length and width, and its behavior was strikingly altered. It was apt to fill well with bismuth, but did not empty itself into the jejunum with a single peristaltic wave, as in normal cases. It showed excessively powerful peristalsis, and as wave after wave passed along its four parts, it could readily be seen that it was working against an obstruction. The bismuth was driven down to its lowest part, only to return again, time after time, to the vertical part, as each wave passed over. While this was going on the whole duodenum continually altered its form, giving the appearance of "writhing." In severe cases such writhing peristalsis continued hour after hour, a spurt of bismuth finding its way through to the jejunum every ten minutes or so. As to the proof that the "static" duodenum is due to the downward pull on the jejunum caused by the overloading of the lower iliac coils, this was manifold and complete. In the first place, the downward pull on the jejunum, could be observed at operation. The top of the jejunum, moreover, was found empty, and often it was the subject of torsion; the effect of the duod-

enojejunal kink being increased by this torsion. Again, the radiologist, while examining the duodenum, could actually see the bismuth forced into its fourth part, almost up to the junction with the jejunum. Eventually, some of it was forced through, and then it could be seen that the jejunum passed down vertically at its commencement; while a few hours later he was able to convince himself that there was stasis in the lower coils of the ileum. Few things in medicine were more constant: if they found a distended duodenum, they were certain to find iliac stasis, and, conversely, if they found a normal duodenum, with free duodenojejunal junction, they were most unlikely to find any material stasis in the lower ileum. The proof was even more complete than this—there was a definite quantitative relation between the amount of iliac stasis and the amount of duodenal distention. The proportion was not mathematically accurate, but nearly enough so to furnish proof of the dependence of duodenal distention upon iliac stasis. If the duodenum had become infected from the stagnant ileum, they would probably get ulceration. No normal duodenum became ulcerated; a chronic ulcer occurred only in the distended duodenum of intestinal stasis. It followed that one could not have a duodenal ulcer without iliac stasis. The pylorus, closing tight to prevent reflux from the distended duodenum, got into a state of permanent spasm. Its contents became too acid, and this led to a further increase of the spasm; for physiological experiments had proved that no acid can enter the duodenum without setting up an immediate tight closure of the pylorus. Thus there was delay in the emptying of the stomach, which was overloaded and became dilated. The greater curvature dropped, and the transverse colon dropped with it. As a result, there was an abnormally great strain on the lesser curvature. A chronic ulcer was apt to appear at the pylorus, or, if the pylorus dropped, the point of greatest strain was shifted toward the esophagus, and the ulcer appeared somewhere along the lesser curvature. With the occurrence of an ulcer the acidity of the gastric contents increased still more, and the pyloric spasm became so severe and constant as to simulate organic stenosis; the radiologist had to avoid this pitfall. The x ray appearances of chronic ulcer of the lesser curvature were characteristic, especially on the couch. The depressed base of the ulcer filled with bismuth, the raised margins were shown, and there was a tight hourglass constriction of the stomach over the region occupied by the ulcer. It was important to remember that this constriction was permanent except during general anesthesia, lest cicatricial contraction be diagnosed; when operating under general anesthesia the surgeon would not see any constriction, and might not realize that the stomach would be drawn in again at the seat of the ulcer as soon as the patient recovered from the anesthetic. In chronic ulcer of the lesser curvature the pyloric portion of the stomach was always large and dropped, while in the most extreme cicatricial hourglass stenosis of the stomach the greater curvature might be in the pelvis in the upright posture. The symptoms caused by chronic gastric ulcers were vague and difficult

to interpret, and they were not often diagnosticated except by the x ray, by which, as a rule, the diagnosis could be made with certainty. One of the dangers of leaving them untreated was their tendency to become malignant. The x ray appearances were those of chronic ulcer, but with more or less deviation from the typical picture. Intestinal stasis was an important cause of cancer, not only in the stomach, pancreas, liver, bile ducts, and breasts, but also in the large intestine. In the rectum and cecum long continued irritation of stagnant feces was responsible for the growth; in the hepatic flexure region, and in the first part of the transverse colon immediately beyond, fecal accumulation was often due to bands continued down from the lower surface of the liver over the pylorus and gallbladder, and these bands were found in a fair proportion of stasis subjects. The iliac colon, again, was often bound to the left iliac fossa by bands; these being the first to form in the body. These bands sometimes caused obstruction and led to a condition of chronic congestion, with yielding of the bowel wall between the bands and the production of the disorder known as diverticulitis. Following upon this long continued obstruction, they might get the appearance of cancer in this region.

After radical treatment, radiology showed that the stasis had been relieved. In a successful case the whole bismuth meal was in the rectum in from six to eight hours. If the large intestine had been left, there might be some bismuth in the descending colon for a few hours, but as soon as the patient had an evacuation, this passed with the rest. Some of the cases in which the bismuth passed back, not merely into the descending colon, but on to the cecum, were those in which the subsequent removal of the large bowel became necessary on account of flatulent distention and tenderness from the irritation in the bowel wall by lumps of secretion. As to the effect of the radical cure of stasis, the duodenum never again became distended. No photograph of the "cured" duodenum could be taken. Another proof of the efficacy of the radical treatment was shown in the stomach, which lost its constant pyloric spasm; so that the rate of emptying of the organ became normal, or nearly so, within a few months.

Thyroid Deficiency, Myxedema.—Dr. E. HERTOGHE, of Antwerp, Belgium, said that myxedema in the severe form was now a recognized pathological entity. But the mild form of myxedema, myxœdema frustratum or benign chronic hypothyroidism, was not so clearly outlined and often escaped notice. While they were unacquainted with the exact function of the thyroid gland, they did know that without the thyroid stimulus no cell, whatever its nature, could attain that morphological perfection required for efficient work, muscular, nervous, glandular, or osseous; a child born with lack of thyroid did not grow, or grew very little. If it were given a few doses of thyroid extract it would begin to develop, while if this was stopped, growth would immediately be arrested. When there was thyroid deficiency the carrying away of the cellular waste matter from the system was slow and incomplete; so that mucin, fat, and other substances accumulated, resulting in infiltration and edema of

a special kind, hard and nondepressible. Infiltration was the characteristic lesion of thyroid deficiency. If a patient affected with this special kind of edema was given thyroid extract, he immediately began to eliminate large quantities of urine and urea. The cellular waste matter was carried off, and he lost weight; but when he had got rid of the infiltration he would lose no more if given doses ten times as large. One might sum up by saying that thyroid secretion was necessary to the building up and to the dismantling of their tissues, and therefore the lack of it found an echo in all the organs of the body.

Acute rheumatism might cause, even after the lapse of years, severe myxedema. This might also result from the acute infectious diseases, and tuberculosis, syphilis, malaria, alcoholism, consanguinity, and chronic starvation hit their first blow on the thyroid system; while the thyroid deficiency resulting might fatally affect offspring. All inheritors were of a great number of generations, so that their blood was a mixture of good and bad qualities received from their forefathers. From this they might conclude that thyroid weakness, at least in a mild form, was frequent. Thyroid weakness, however, was not synonymous with cretinism. Incomplete forms were not incompatible with a fairly active and busy life, and, indeed, some of the patients were very intelligent. He desired to call attention to cases of this kind because they were very common, and because an exact knowledge of the underlying condition would enable them to grasp the cause of trouble and treat successfully pathological conditions for which they would otherwise be unprepared. In the muscles, the cells were loaded with fat and mucin and increased in size, and the connective tissue sheaths were equally infiltrated. Muscular action became painful; rheumatoid pains should not be confounded with true rheumatism. The nerve cell, whatever might be the degree of myxedematous cachexia, was never destroyed; nutrition and excretion were simply impeded. In addition to being infiltrated, it was compressed by the infiltration of its surrounding connective tissue, and the transmission of motor and sensory impulses was delayed, though not abolished; while the reflexes became sluggish. Consequently, there resulted neuralgias and shooting pains; cardiac pain was also apt to be present, with radiations into the brachial plexus simulating attacks of angina. The central nervous system exhibited early evidence of infiltration, however slight this might be, and in well marked myxedema they might have vertigo, dizziness, noises in the ears, headache, migraine, loss of memory, mental confusion, melancholia, loss of coordinating power, sudden falls, somnolence, attacks of coma. The condition was liable to be confounded with serous apoplexy or with Bright's disease, especially as some albuminuria was usually present. In mild myxedema the manifestations were not so formidable, but one should bear in mind that morning headaches, migraine, noises in the ears, and a tendency to vertigo were to be met with. Cartilaginous tissue gave clear evidence of this specific cellular infiltration, and even bone did not escape the consequences. In certain persons fractures united imperfectly, or not

at all; thyroid extract was usually given, and there would always be found—at least in those who had been benefited by its administration—additional evidences of thyroid deficiency. The painful affections of the joints resulting from such deficiency generally improved very slowly, and were the last of the manifestations to disappear. The glandular tissues were markedly affected. The secretion of sweat might be completely abolished. There was congestion of the liver, and bile passed into the circulation, causing a characteristic amber discoloration of the skin. The scanty intestinal secretion, along with the muscular weakness of the visceral walls, caused obstinate constipation, which in turn led to fermentation, meteorism, eructations, etc. Pericolitic adhesions were nearly always present, even in very young children, since in hypothyroidism there was nearly always a hereditary predisposition. The bladder, being constantly denuded of its epithelial lining, became sensitive to the irritating urine, and this accounted for many cases of nocturnal enuresis in children, the urine showing numerous squamous epithelial cells. These children presented signs of thyroid weakness, and their parents also, especially the mother, often exhibited a degree of such defect. As they grew up, the activity of the gland increased, and these troubles disappeared. A constant symptom of myxedema was lowering of the temperature, which might be due to the diminished combustion of fats and mucin, or perhaps to cerebral infiltration affecting the heat regulating centre. It was subject to diurnal variations, and was most marked about four or five o'clock in the afternoon, when the patient might have an attack of violent shivering. Even in slight myxedema there was apt to be a habitual state of chilliness, with coldness of the hands and feet. Another characteristic was dyspnea, which was extreme in severe myxedema. The oppression was less marked in mild cases, in which it might be intermittent and be manifested only on unusual exertion. The condition was then readily mistaken for asthma, and many so called asthmatics were certainly suffering from thyroid deficiency.

The hair either fell prematurely or (in milder cases) was poor and brittle, and turned gray early. Nails were striated, and in severe cases split and destroyed. The teeth were almost always in a deplorable condition of decay, possibly covered with greenish tartar, and the gums were red and irritated. The eyebrows were thinned, especially in their outer thirds—giving the face a somewhat silly expression; and the eyelashes were shed, often with resulting blepharitis. The whole skin was thickened and became easily attacked by eczema, psoriasis, and alopecia. The "milk crust" of young infants, so often the despair of both physician and mother, yielded rapidly to a few doses of thyroïdin combined with arsenic, when the condition was associated with thyroid defect, and the same could be said of psoriasis and certain forms of alopecia. Endothelial tissues shared in the general feebleness. The gallbladder, as well as the urinary bladder, became sensitive, while the accumulation of desquamated epithelium in it might become the nucleus of a calculus.

The thyroid gland played an important part in

the activity of the sexual organs, especially in the female. Absolute cretins never came to puberty. In mild forms of thyroid deficiency the uterus remained small, and menstruation began late. Sometimes the posterior wall of the organ did not grow as fast as the anterior, and retroflexion resulted. Profuse menstrual bleeding often occurred, and this was attributed to the retroflexion, while in reality it was caused by the infiltration of the mucous lining, the defective contractility of the uterine muscular cells, and the hemophilic condition. In thyroid insufficiency, hemophilia was a recognized characteristic, and profuse oozing might result from even a scratch. Nine tenths of the subjects of hypothyroidism were females, and this was explained by the direct influence of the thyroid upon menstruation, pregnancy, uterine involution, and lactation. When the thyroid was normally active, the menses were normal. When it was inactive, menorrhagia resulted, and the weaker the thyroid the greater was the loss of blood. In cases of menorrhagia, therefore, one should always think of thyroid deficiency after cancer and fibroid had been excluded. At the time of the flow many women suffered from various distressing symptoms of hypothyroidism, which were absent at other times, because, except at the menstrual period, the supply of thyroid secretion was sufficient for all the wants of the system. In pregnancy the thyroid became enlarged, and threw into the blood an unusual amount of secretion; which had the effect of suspending menstruation and thus preventing the injury to the fertilized ovum which would result from menstrual activity. This action should be borne in mind in habitual abortion in which other treatment had proved of no avail. Thyroid extract had proved an efficient remedy for inexplicable sterility. Many women taking the extract for the reduction of obesity had been surprised to find themselves pregnant during such treatment, and this unlooked for result was due to the thyroid inhibition of menstruation. After childbirth the fatty degeneration and oxidation of the uterus constituting involution could not be affected without thyroid stimulus. Finally, lactation required thyroid stuff, and in women with normal lactation uterine involution was rapid. After weaning, the thyroid was exhausted, and many mothers grew fat at that time. Where the milk was scanty, and menstruation showed a tendency to return before the physiological time, thyroid medication might prove useful; and, indeed, this was the only means for increasing the mammary secretion.

The best way to understand mild myxedema was to get a clear idea of the severer form. The latter, when properly treated, would become milder and finally disappear. So also, after such successful treatment, the disease, if left to itself, would relapse and gradually reconstruct itself; the milder symptoms being the first to return. The weakness of the thyroid was usually hereditary. Thyroïdin constituted the touchstone for mild or severe myxedema. Many persons with the milder forms did not show any external swelling, and might even be quite spare in body; the infiltration being principally confined to internal organs. If under small doses such a person lost weight, with simultaneous

improvement in his general condition, insufficient thyroid secretion might be inferred. Before beginning the treatment of supposed hypothyroidism, the patient's weight should always be taken. Loss of weight under thyroid treatment indicated the carrying off of residual waste material and settled the diagnosis. In most instances a daily dose of five grains of a reliable thyroid extract would be sufficient to secure the desired result. Constipation should be dealt with, and cold baths and alcoholic drinks, as well as much sugar or meat, should be prohibited. The patient should be carefully watched, and in mild cases the specific treatment should be intermitted from time to time. After a severe case had been cured, a daily dose of about five grains would serve to keep the patient well, and in milder cases a smaller amount than this would suffice. His treatment comprised fifteen grains of sodium iodide, one fiftieth grain of arsenous acid, and five grains of thyroid extract, carefully watched, as the daily doses for an adult. The arsenic and iodine helped the thyroid extract in some unexplained way.

Dr. JOHN ROGERS said that some types of myxedema were much more easily remedied than others, and only a few cases were susceptible of the perfect results just described. He apparently used the desiccated thyroid gland substance, but much better preparations were now available; occasionally, good results could be obtained from the hypodermic injection of thyroid. The relations of the thyroid gland to other organs were often shown in the field of the gynecologist, and sometimes, instead of menorrhagia, they found amenorrhea as the result of thyroid deficiency. The problems of the thyroid were therefore very difficult of solution. In certain conditions almost any kind of preparation seemed to be of service, and, again in others, thyroid administration proved hurtful. As far as they knew at present, the active constituent of the gland appeared to be a protein associated with iodine, and it was a fact that in experimentation upon animals which had not been fed with thyroid or iodine the only part of the body (except in one or two very doubtful instances) in which iodine was found was the thyroid gland. Search was still going on for the active constituent, and recent experiments, in which he himself was participating, with a thyroid derivative showed some curious and apparent contradictory results. The calorimeter was employed to indicate the oxygen consumption, and in one of two cases which seemed to be very much alike which were treated with this derivative there was a fifty per cent. increase, while in the other there was a decrease of twenty per cent. Thyroid disease had been found to be accompanied by disturbances in two or three groups of nerves. Thus it sometimes affected the autonomic system, and sometimes the sympathetic. The whole subject of the internal secretions was still involved in much obscurity, and the question arose, Were these internal glands mills in which the inorganic elements of the body were metabolized in order to perform their work? If once the problems of the ductless glands were mastered, they would have found the solution of old age and of life itself.

Dr. C. AM ENDE had found that a fluid extract of thyroid prepared without heat materially reduced the depressing effects of carcinomatous disease, and

when given in teaspoonful doses once or twice a day markedly relieved pain and prolonged life.

Doctor BAINBRIDGE, some time since, in walking about Antwerp with Professor Hertoghe, had picked out, simply from their appearance, numerous persons whose maximum efficiency was not what it should have been, as they suffered from thyroid deficiency. Undoubtedly in a large number of individuals the administration of a little thyroid would be followed by good results, and when that halcyon time had come when the gospel of Hertoghe was universally accepted and appreciated, they would see less of the evil effects of hypothyroidism.

Doctor HERTOGHE could by no means accept the position of Doctor Rogers, which was that of certain European authorities, also like that of Leopold Levy and Rothschild, so called thyroid instability. The chief lesion of hypothyroidism was infiltration, and if this was diminished suddenly by the administration of too large doses of thyroid the effect was apt to be disastrous and the patient was put in the same plight as if infiltration had been increased. On the other hand, if they reduced the infiltration gradually by properly regulated doses of thyroid, no bad effects would be observed. In some instances of hypothyroidism there was infiltration of the muscular tissue of the heart, producing the symptoms of angina pectoris, and in such cases the trouble would only be aggravated by the sudden use of too large amounts of thyroid. In thyroid deficiency they should therefore be careful to use moderation in doses, and not attempt to get rid of more than five to seven ounces daily of infiltration material.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Sexual Ethics. A Study of Borderland Questions. By ROBERT MICHELS, Professor of Political Economy and Statistics at the University of Basle, and Honorary Professor in the Faculty of Law at the University of Turin. London: The Walter Scott Publishing Co., Ltd.; New York: Charles Scribner's Sons, 1914. Pp. xv-296.

This is a work which we commend in its entirety to young married people and to those about to be married, but especially the last chapters, on conjugal procreation and shoals in the waters of married life. It is a sane and impartial discussion of the reproductive instinct in man, savage and civilized, but from the normal viewpoint only, there being no reference to what are horrifying to lay readers, the perversions and inversions. From the opening general principles, to the appendix on the important but little known congress of 1910 in Florence, the book will be found of fascinating interest, while only a depraved mind, such as finds harm in works of art, etc., can uncover the peculiar garbage in which it delights. If the English is the author's, he is to be congratulated on his style in handling so difficult a subject. He says that he has given a lifetime to the attempted solution of such problems as the reconciliation of youthful love with elderly morals, and he explains his frequent references to the poets as being writers who have shown insight into these matters as deep as that of any dry-as-dust scientist. The book is not addressed to those who believe that they have attained finality in the solution of sexual problems upon the basis of some dogma, be this Christian or biblical, Darwinian or Haeckelian, libertarian or libertinist, but to people intensely interested in a small group of important problems which press themselves upon our attention and urgently demand solution. The discussion of neomalthusianism,

for example, is particularly illuminating. After long banishment from English (and American) scientific discussion, sexual questions says Michels, are again engaging the attention of men of courage and insight, and it is to be hoped that we shall eventually produce literature on the subject worthy to rank with that of France, Germany, Russia, and Scandinavia. The author credits his education to Germany, France, and Italy, three countries to which he is intensely attached; to England he is a stranger, but he hopes much from the magnanimity of the British people. We can be magnanimous, too, and we trust that the bitter opposition with which this book will be greeted in certain quarters of the Union, will not obscure its important and much needed lessons. We think that less is known of feminine psychology in America than anywhere else on the globe; it will be found explored sympathetically and with curious insight in this wise and witty volume. Women are grossly divided among us into two kinds; the author shows that there are many grades of women, whose characteristics merge almost imperceptibly from one grade into the next. The average careless American male being who has held our superficial views of womankind from boyhood, will, after perusal of Professor Michels's work, gaze upon his partner, or anticipated partner, with new respect and perplexity; not, however, we hope, with suspicion.

Les Sécrétions Internes. Principes Physiologiques. Applications à la Pathologie. Par Le Dr. E. GLEY, Professeur au Collège de France, Membre de l'Académie de Médecine. Paris: J. B. Baillière et Fils, 1914. Pp. 95. (Price, 1 franc, 50.)

In this monograph of ninety-five pages, the author, who has contributed much to our knowledge of the ductless glands, studies the secretions of these organs collectively in their relations to physiology and pathology. He considers in turn, the origin of the conception of internal secretions as a whole, the development of the question, its present status, the distinctive characteristics of the various secretions, their chemistry, physiological action, and reciprocal relations. The book closes with a general survey of their pathology so far as hypersecretion, hyposecretion, and trophic deviations are concerned. The author criticizes the general application of the term "hormone" which implies only functional excitation, whereas some of the glandular products which the term represents do not possess such a property. While containing nothing new, the book is interesting in that it reviews the situation from an unusual standpoint.

Practical Hormone Therapy. A Manual of Organotherapy for General Practitioners. By HENRY R. HARROWER, M. D., Sometime Professor of Clinical Diagnosis, Loyola University, Chicago; Fellow of the Royal Society of Medicine; Fellow of the American Medical Association. With foreword by Professor Dr. ARTUR BIEDL, Vienna. London: Baillière, Tindall & Cox, 1914. Pp. xix-488. (Price, \$4.50.)

An effort is made in the present work to place organotherapy on a practical basis. The remedial application of hormones—the products of various ductless glands through which these influence one another as well as other organs—is divided by the author into four parts: 1, *Substitution therapy*, in which the hormone is given to compensate for deficient production of the corresponding secretion, owing to local lesion in or absence of the organ, for instance, the use of thyroid gland in myxedema; 2, *supplementary therapy*, in which the agent given increases directly or reflexly the corresponding secretion, owing to an increase of the physiological demand for it or to deficient output to meet this demand, as exemplified by the use of corpora lutea in amenorrhea and of pancreas in glycosuria; 3, *specific physiological therapy*, in which the hormone is used to produce a pharmacological effect irrespective of any morbid change in the organs producing hormones, as illustrated by the use of infundibular extract to stimulate uterine contractions during labor, or of adrenaline to arrest hemorrhage; 4, *empirical therapy*, in which a hormone is used merely because it has been found efficient, even though no explanation of its action from a scientific viewpoint can be found—the use of thyroid gland in paralysis agitans, for example. Each hormone is then studied in turn, and the various disorders are considered in which it has been recommended. The hormones whose therapeutic vir-

tues are enumerated are numerous and include those of the parotid, alimentary canal (secretin and pyloroduodenal extracts), pancreas, spleen, liver, thyroid, parathyroid, thymus, kidney, tonsils, adrenal, pituitary, pineal, brain, nerves, testes, prostate, ovaries, corpora lutea, mammary gland, placenta, lungs, carotid gland, lymphatic glands, and a few structures to which the author attributes but little therapeutic value. Pluriglandular therapy is then considered at some length and the modes of preparation of animal extracts for therapeutic purposes are given due attention. The scientific portion of the book ends with a short chapter on the lipoids, fatlike substances found in certain ductless glands.

While it is probable that some of the agents described will not prove very efficient, the fact remains that most of them—other than the thyroid, pituitary, ovarian, and adrenal products—have not been tried sufficiently to warrant an estimate of their actual value. On the whole, Harrower's book is very satisfactory and shows evidence of considerable research in the literature of the many subjects treated. It will doubtless prove most valuable to the general practitioner.

Clinical Examination of the Blood and Its Technic. A Manual for Students and Practitioners. By Professor A. PAPPENHEIM, Berlin. Translated and adapted from the German by R. Donaldson, M. A., M. B., Ch. B., F. R. C. S. Ed., D. P. H., Pathologist Royal Berks Hospital, Reading, etc.; Late Assistant Pathologist Royal Infirmary, Bristol, and Demonstrator of Pathology, Universities of Bristol and Sheffield. New York: William Wood & Co., 1914. Pp. viii-87. (Price, \$1.25.)

This little book first appeared as a chapter in Carl Neuberg's *Handbuch der Ausscheidungen und Körperflüssigkeiten*, published in 1911. As an elementary guide to the examination of the blood it probably served a useful purpose in its original form and place; but American readers in search of something elementary on this subject are advised to obtain a book which describes the apparatus and methods in common use in this country. In this volume there is no mention of the instruments of von Fleischl, Thoma-Zeiss, Oliver, or Dare; Widal's test is not included.

A Handbook of Fevers. By J. CAMPBELL McCURE, M. D. (Glasgow). Physician to Out-patients, the French Hospital, London, and Physician to the Margaret Street Hospital for Consumption and Diseases of the Chest, London. Formerly Senior Resident Assistant Physician, Assistant Superintendent, and Resident Medical Officer in Charge of the Smallpox Hospital, Belvidere Fever Hospital, Glasgow. London: Shaw & Sons, 1914. Pp. viii-470.

As indicated by the title, this is a handbook for the use of students and practitioners; and it differs but little from the section dealing with the diseases in question in any standard work on the practice of medicine. The main feature of the present volume is the relatively large amount of space devoted to treatment, and the inclusion of details on home prophylaxis and public health administration. Detailed descriptions of pathological anatomy and bacteriology have been avoided; and the practical aspect of the various diseases has occupied the author's attention. The book should prove a useful companion to the ordinary works on practice, many of which are sadly deficient in the matter of treatment.

Interclinical Notes.

The detached way in which we have, all of us, always read about war is evident in a phrase in the *Dial* for October 1, 1914, referring to the doings in Europe as "the most appalling events in recorded history." Open Macaulay, or Creasy, or Gibbon, and read of any war in the light of what you have learned recently from the daily papers. You will find that you can now visualize the old conflicts in a new way. The probabilities are, in spite of charges and countercharges, that this is the most humane war ever waged. The perfection of machinery no longer requires the assistance of pestilence to maintain a respectable mortality; that is the main difference between this and other wars. War was always horrible, much worse than we can even guess from our contemporary dispute,

when accompanied by dirt, plague, raging drunkenness, rape, loot, cruelty to prisoners, the massacre of children. In warm weather, swarms of flies used to be so thick about the camps that they fell into food and drink as these were lifted from the table to the mouth. The accounts of old wars have always been written so as to make good reading; romance would creep in some two or three decades after the bloody business was over. Sixty years hence people will speak of this as the biggest of wars; they will not consider it particularly horrible.

* * *

There are articles in the *Nurse* for October, 1914, by physicians, nurses, even by one patient. An admirable paper is on industrial welfare nursing, the entire program of a large manufacturing company being given in interesting detail. Dr. Frederick C. Warnshuis, of Grand Rapids, describes the duties of the nurse during an operation for appendicitis. The capital recipes for food for the sick are continued. The war receives due attention. The beautiful and well chosen illustrations continue to be a feature.

* * *

"Ballistics is probably more advanced than bacteriology," says Waldemar Kaempfert, discussing new inventions in war in the *October Review of Reviews*; this writer thinks, too, that more money has been spent on improving war material than on the investigation of cancer. We are inclined to agree with him, although the fact is hardly to the credit of our alleged Christian, civilized, scientific, and economic advances in the last twenty centuries.

* * *

Fight, verses by Percy MacKaye, is a feature of the *Outlook* for October 7, 1914; it has stirring lines and tells of the gruesome death of the young gunner whose head struck Commander Macdonough after a cannon ball had carried it off.

* * *

We find ourselves able to gaze without exhaustion at the pictures in the *October Red Book* of ladies of the stage. We are partial to talent and experience in actresses, but no doubt we are dreadfully oldfashioned and ought to be content with the present type of stage girl who is taught a role like a parrot by some swearing stage manager and is able, above all, *faire valoir* her gowns. If we may be permitted a gentle classical joke, we are *laudator temporis actoris*.

* * *

Very striking in the *October Metropolitan* is the beautiful picture of the MacMonnies fountain at the entrance of our public library. The cover, too, is fine, with its girl's head by Penrhyn Stanislaw, who has indeed learned how to draw. One of the best things in the literature is John Read's portrait of a young Englishman on his way to join the army. The editor has his own views of the causes of the war, remarkable to us rather by their originality than by their verisimilitude. H. G. Wells is thoughtful, but more British than usual in his letter on the conflict. The stories, by the best among the contemporary fictionists, are excellent.

Meetings of Local Medical Societies.

MONDAY, October 19th.—New York Academy of Medicine (Section in Ophthalmology); Medical Association of the Greater City of New York; Medical Society of the County of Erie; Elmira Clinical Society.

TUESDAY, October 20th.—New York Academy of Medicine (Section in Medicine); Tompkins County Medical Society; Medical Society of the County of Monroe; Buffalo Academy of Medicine (Section in Obstetrics and Gynecology); Tri-Professional Medical Society of New York; Medical Society of the County of Kings; Binghamton Academy of Medicine; Syracuse Academy of Medicine; Ogdensburg Medical Association; Oswego Academy of Medicine.

WEDNESDAY, October 21st.—New York Academy of Medicine (Section in Genitourinary Diseases); Alumni Association of City Hospital; Schenectady Academy of Medicine; Women's Medical Association of New York City (New York Academy of Medicine); Medico-Legal Society, New York; Buffalo Medical Club;

Northwestern Medical and Surgical Society of New York.

THURSDAY, October 22d.—New York Academy of Medicine (Section in Obstetrics and Gynecology); Extern Society of Seney Hospital, Brooklyn; Medical Union, Buffalo; Hospital Graduates' Club, New York; New York Physicians' Association.

FRIDAY, October 23d.—New York Society of German Physicians; New York Clinical Society; Manhattan Medical Society; Society of Alumni of Sloane Hospital for Women; Brooklyn Society of Internal Medicine; Italian Medical Society of New York.

SATURDAY, October 24th.—New York Medical and Surgical Society; West End Medical Society; Lenox Medical and Surgical Society.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending October 7, 1914:

Bolton, Joseph, Assistant Surgeon. Relieved from duty at the Marine Hospital, Chicago, Ill., and directed to proceed to Washington, D. C., and report to the director of the hygienic laboratory for temporary duty; detailed on request of the Commission on Industrial Relations, to make a sanitary survey of industries in certain sections of the country. **Brown**, B. W., Surgeon. Granted three days' leave of absence from October 1, 1914. **Browne**, R. W., Acting Assistant Surgeon. Granted seven days' leave of absence from October 5, 1914. **Carter**, H. R., Senior Surgeon. Granted fifteen days' leave of absence from October 4, 1914. **Frost**, W. H., Passed Assistant Surgeon. Granted five days' leave of absence from October 4, 1914. **Grubbs**, S. B., Surgeon. Granted two days' leave of absence en route to station, under paragraph 193, Service Regulations. **Guiteras**, G. M., Surgeon. Granted ten days' leave of absence from October 1, 1914. **Hamilton**, H. J., Acting Assistant Surgeon. Granted eight days' leave of absence from October 6, 1914. **Irwin**, Fairfax, Senior Surgeon. Detailed to take part in the transactions of the First North Atlantic Conference on Tuberculosis to be held at Philadelphia, October 16, 1914. **Laughlin**, J. B., Assistant Surgeon. Detailed, at the request of the State Board of Health of Maryland, to attend the tenth Maryland Conference of Charities and Corrections at Easton, Md., October 20, 1914, and to present an address on rural sanitation surveys conducted by the Service. **McIntosh**, W. P., Surgeon. Granted five days' leave of absence from October 5, 1914. **Mullan**, E. H., Passed Assistant Surgeon. Detailed, at the request of the Vermont State Medical Society, to attend the meeting of that association at Rutland, Vt., and to present a paper on Public Health Aspects of Mental Deficiency. **Robinson**, D. E., Surgeon. Detailed to attend the Mississippi Valley Conference on Tuberculosis at St. Louis, Mo., October 6 to 8, 1914. **Schereschewsky**, J. W., Surgeon. Detailed to attend the meeting of the National Council for Industrial Safety to be held at Chicago, Ill., October 12 to 15, 1914, and to present a paper on Physical Examination of Workers. **Slaughter**, W. H., Assistant Surgeon. Granted seven days' leave of absence on account of sickness, from September 26, 1914. **Townsend**, J. G., Assistant Surgeon. Granted fourteen days' leave of absence from October 3, 1914. **Voegtlin**, Professor Carl. Upon the request of the Department of Agriculture, directed, when called upon by the United States District Attorney, to proceed to Philadelphia for the purpose of giving testimony at the trial of a case arising under the enforcement of the food and drugs act. **Waller**, C. E., Assistant Surgeon. Relieved from duty at the Marine Hospital, Baltimore, Md., and directed to proceed to Washington, D. C., and report to the director of the hygienic laboratory for temporary duty; detailed on request of the Commission on Industrial Relations, to make a sanitary survey of industries in certain sections of the country. **Woodward**, R. M., Surgeon. Detailed, at the request of the State

Board of Health of California, to attend the sixth annual conference of State, County, and Municipal Health Officers, to be held at Le Monte, Cal., October 12 to 16, 1914, for the purpose of presenting a paper on tuberculosis.

Resignations.

The resignation of Assistant Surgeon John Sandwall accepted by the President, effective September 20, 1914.

Casualty.

Acting Assistant Surgeon H. C. Wakefield died at St. Louis, Mo., October 6, 1914.

Board Convened.

Board of commissioned medical officers convened to meet at the bureau for the preparation of questions for the mental examination of candidates for the position of assistant surgeon at the examination to be held October 19, 1914. Detail for the Board: Assistant Surgeon General W. G. Stimpson, chairman; Assistant Surgeon General J. W. Trask, member; Senior Surgeon D. A. Carmichael, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending October 10, 1914:

Clark, F. E., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Ethan Allen, Vermont, and will proceed to his home; upon arrival will be relieved from active duty in that corps. **Cook, George W.**, Captain, Medical Corps. Granted three months' leave with permission to apply for an extension of one month. **Cummings, Claude W.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty in the reserve corps, and will proceed to Fort Dade, Florida, for duty. **Davidson, W. T.**, Major, Medical Corps. Relieved from duty at Fort Bliss, Texas, and will proceed to Fort Wadsworth, New York, for duty. **De Voe, R. C.**, Captain, Medical Corps. Granted one month's leave of absence with permission to apply for an extension of two months. **Dowdle, Edward**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Ontario, New York, and will proceed to his home after which he will stand relieved from further duty in the medical reserve corps. **Fletcher, H. Q.**, First Lieutenant, Medical Reserve Corps. Relieved from active duty at Fort Oglethorpe, Georgia, and on arrival at his home will stand relieved from active duty. **Hereford, John R.**, First Lieutenant, Medical Reserve Corps. Granted four months' leave of absence. **Meehan, John W.**, First Lieutenant, Medical Corps. On temporary duty at Fort Bliss, Texas, is relieved from duty at Fort Sam Houston and assigned to Fort Bliss. **Patterson, E. W.**, First Lieutenant, Medical Reserve Corps. Granted one month and fifteen days' leave of absence. **Southwick, H. H.**, First Lieutenant, Medical Reserve Corps. Has resigned his commission as an officer of the medical reserve corps, and the same has been accepted by the President. **Stallman, George P.**, First Lieutenant, Medical Reserve Corps. Relieved from duty in the Philippine Islands about February 15, 1915, and will then proceed to the United States. **Watkins, V. E.**, First Lieutenant, Medical Reserve Corps. Reports en route to Henry Barracks, Porto Rico, for station and duty.

Births, Marriages, and Deaths.

Married.

Bolster—Furbush.—In Lewiston, Me., on Saturday, October 3d, Dr. William Wheeler Bolster and Miss Maude L. Furbush. **Bowker—Larsen.**—In Mount Airy, Pa., on Monday, October 5th, Dr. Abraham W. Bowker and Miss Irene Larsen. **Cashman—Emmert.**—In New Oxford, Pa., on Friday, October 2d, Dr. B. Z. Cashman, of Pittsburgh, and Miss Mary G. Emmert. **Cunningham—Ingersoll.**—In New York, on Thursday, October 8th, Dr. John H. Cunningham, of Boston, and Miss Theresa van den Heuvel Ingersoll. **Derrick—Read.**—In Bellwood, Pa., on Sunday, September 27th, Mr. Charles Derrick and Dr. Alma Read. **Downing—**

Shea.—In Plainfield, Conn., on Tuesday, September 29th, Dr. Francis Downing, of Moosup, and Miss Rose Shea. **Farr—Beeching.**—In Holyoke, Mass., on Tuesday, October 6th, Dr. Irvin H. Farr and Miss Ruby M. Beeching. **Hunter—Bates.**—At Starr Farm Beach, Vermont, on Saturday, September 26th, Dr. J. A. Hunter, of Burlington, and Miss Mary E. Bates. **Jenkins—Gatewood.**—In Washington, D. C., on Thursday, October 8th, Dr. Harry E. Jenkins, United States Navy, and Miss Harriet W. Gatewood. **Kaine—Murphy.**—In Montreal, Canada, on Monday, September 28th, Dr. William J. Kaine and Miss Mary Murphy. **McDevitt—Sullivan.**—In McGregor, Iowa, on Wednesday, September 30th, Dr. Charles S. McDevitt and Miss Marie Sullivan. **Mead—Temple.**—In Dorchester, Mass., on Thursday, October 1st, Dr. Louis Guy Mead and Mrs. Belle Temple Priest. **Newman—Maynard.**—In Seven Cedars, Md., on Saturday, October 3d, Dr. Harold Hastings Newman, of Salisbury, N. C., and Miss Eleanor Summerfield Maynard. **St. John—Staupe.**—In Troy, N. Y., on Monday, October 5th, Dr. Warren Wallace St. John and Miss Grace Dorothea Staupe. **Shenberger—Smith.**—In Baltimore, Md., on Thursday, October 1st, Dr. W. J. Shenberger, of New Bridgeville, Pa., and Miss Ida Belle Smith. **Toppan—Linnell.**—In Boston, Mass., on Saturday, October 3d, Dr. Roland Wesley Toppan, of Newburyport, and Miss Gertrude Alice Linnell.

Died.

Bangs.—In New York, on Sunday, October 4th, Dr. Lemuel Bolton Bangs, aged seventy-two years. **Barton.**—In Worcester, Mass., on Wednesday, September 30th, Dr. J. Marcus Barton, aged sixty-nine years. **Bell.**—In Boston, Mass., on Thursday, October 1st, Dr. James Batchelder Bell, aged seventy-six years. **Belt.**—In Chicago, Ill., on Tuesday, September 29th, Dr. Harry D. Belt, aged forty years. **Bennett.**—In Mentone, Ind., on Sunday, September 27th, Dr. H. E. Bennett, aged fifty years. **Bruen.**—In Brooklyn, N. Y., on Thursday, October 1st, Dr. Elijah Leonard Bruen. **Carson.**—In Canandaigua, N. Y., on Tuesday, October 6th, Dr. Matthew R. Carson, aged seventy-eight years. **Chamberlain.**—In Hinsdale, Mass., on Monday, October 5th, Dr. G. W. Chamberlain, aged sixty-five years. **Downey.**—In Taunton, Mass., on Friday, October 2d, Dr. William H. Downey, aged forty-nine years. **Forsythe.**—In Monroe, La., on Tuesday, September 29th, Dr. Andrew A. Forsythe. **Gibson.**—In Woodsville, N. H., on Friday, October 2d, Dr. Charles R. Gibson, aged sixty-two years. **Guilbeau.**—In Breau Bridge, La., on Sunday, September 27th, Dr. H. P. Guilbeau, aged eighty-two years. **Hamilton.**—In Advance, Ind., on Monday, September 28th, Dr. John A. Hamilton, aged seventy-eight years. **Haywood.**—In Chicago, on Tuesday, September 29th, Dr. John Haywood. **Holland.**—In Statesboro, Ga., on Wednesday, September 30th, Dr. Madison M. Holland, aged fifty-four years. **Hulin.**—In Greenford, Ohio, on Tuesday, October 6th, Dr. O. W. Hulin, aged fifty years. **Mitchell.**—In Wallaceburg, Mich., on Saturday, October 3d, Dr. George Mitchell, aged seventy-eight years. **Morris.**—In Troy, N. Y., on Monday, October 5th, Dr. John W. Morris, aged fifty-five years. **Opie.**—In Washington, D. C., on Tuesday, October 6th, Dr. Thomas Opie, of Baltimore, aged seventy-four years. **Payne.**—In Sunnybrook, Md., on Thursday, October 1st, Dr. Josiah T. Payne, aged seventy-five years. **Reynolds.**—In Baltimore, Md., on Friday, October 2d, Dr. George B. Reynolds, aged sixty-five years. **Robertson.**—In Paducah, Ky., on Sunday, October 4th, Dr. J. D. Robertson, aged fifty-six years. **Sargent.**—In Webster, Mass., on Saturday, September 26th, Dr. Charles S. Sargent, aged fifty-eight years. **Smith.**—In Louisville, Ky., on Thursday, October 1st, Dr. David Thomas Smith, aged seventy-three years. **Turner.**—In Boston, Mass., on Tuesday, September 29th, Dr. Harriet Turner, of Indianapolis, Ind., aged forty-nine years. **Von Osinski.**—In La Porte, Ind., on Wednesday, September 30th, Dr. Joseph Von Osinski, aged forty-eight years. **Walker.**—In Boone, Ia., on Friday, September 25th, Dr. James C. Walker, aged twenty-six years. **Wyman.**—In Kitchings Mill, S. C., on Wednesday, September 30th, Dr. Benjamin F. Wyman, of Aiken, S. C., aged seventy-four years.

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Original Communications.

MUSCLE BOUND FEET.

BY RUSSELL A. HIBBS, M. D.,
New York.

Systematic walking is perhaps the form of exercise most beneficial to health, and certainly it is the one available to the greatest number of people of all ages. It is a fact, however, that many people, both young and old, are disinclined to walk, although they have been urged to do so by their physician and fully appreciate its value to health. It becomes of practical importance, therefore, to inquire into the causes of this disinclination.

Among the many causes there is one that occurs very frequently and has received too little attention, namely that of muscle bound feet. A muscle bound foot is primarily one in which dorsal flexion at the ankle joint is limited to an angle of ninety degrees or more, by a short calf muscle. To order a patient with this condition to walk a given distance each day, and on his failing to do so, as is generally the case, to consider him lazy and indifferent, is as unreasonable as it would be to consider a person with a muscular defect of the eyes unintelligent, because he did not read a certain amount each day.

Walking cannot be healthful unless it is performed normally and this is possible, other things being equal, only when the feet are normal in structure and are held in relation to the leg so that weight is properly distributed by the control of muscles normally balanced, contracting through normal arcs, in response to impulses originating in the central nervous system.

Dorsal flexion of the foot at the ankle joint should be to an angle of eighty or seventy degrees to the leg. This allows for the free swing of the tibia forward over the articular surface of the astragalus to the limit established by the change of the centre of gravity. This causes the distribution of the weight through the foot in a constantly changing direction, makes possible the proper rest periods of the calf muscle, and insures the proper action and development of the opposing muscles and of the intrinsic muscles of the foot.

When dorsal flexion is limited by a short calf to an angle of ninety degrees or more, the stride is shortened, the contraction of the calf is more frequent, and its rest periods are shortened. Or else, if the stride is not shortened, when the tibia reaches the limit of its swing forward over the articular surface of the astragalus established by the short calf, tension is made upon the muscle and it con-

tracts, elevating the heel. The muscle is held in a state of contraction for a longer period of time, and it also suffers somewhat from tension made upon it. Its contraction is made in response to that tension, rather than to an impulse originating in the central nervous system, excited by a change in the centre of gravity. The heel, being held elevated for so long a period, with the weight borne upon the distal ends of the metatarsal bones, adds the important element of foot strain.

While the primary defect of such a foot is a short calf muscle limiting dorsal flexion, the consequences of this condition, when existing for any considerable length of time, are other changes in the foot and also impairment of the nervous system.

The opposing muscles are weak, because the amount of work they do is measured by the degree of dorsal flexion, and this being limited, their development is impaired. This fact may be demonstrated in every case.

The weight bearing structures, intrinsic muscles, ligaments, and bones are affected, because the weight is not properly distributed in the foot through a centre of gravity which is constantly changing. With the swing forward of the tibia over the articular surface of the astragalus checked by the short calf, this cannot take place. Evidence of this is seen in the appearance of changes in relation of the foot to the leg, such as abduction, changes in relation of the tarsal bones to each other, impairment of arch, changes in relation of the metatarsal and phalangeal bones causing hammertoe and Morton's toe, the appearance of callosities over the distal ends of the metatarsal bones, and pain in the foot.

The circulation of the blood in the foot and leg is affected, because its perfect accomplishment depends to a very important degree upon normal freedom of the muscle action. Evidence of this disturbance is shown by a cold and clammy condition of the skin, excessive perspiration, feelings of heaviness and numbness, and a slight varicose condition of the veins of the calf. In many cases of flat foot, about which so much has been written, this muscle abnormality existed long before the appearance of the deformity and was an important factor in its cause.

The gait produced by feet in such a condition must of necessity have an unfavorable effect upon the nervous system, because there is an overproduction of those waste products of muscle action which cause fatigue and muscle tension and affect the nerve ends in the fibres of the calf muscles by the impairment of the circulation, and so give rise to foot strain. Evidence of this is given in the fact that all these patients suffer from excessive fatigue,

pains in the legs often referred to the back, nervousness, and mental lassitude. In many instances the nervous system is affected before any serious changes have taken place in the foot.

Such a condition of fatigue, whatever its chemical and physical process, furnishes fertile soil for the development of a great variety of neurotic symptoms. Among patients suffering from functional neurosis are many of this class, who are entirely relieved when this muscle abnormality is corrected.

A similar condition in the muscles about the eye has long been known to be the cause of disturbances of the nervous system, and oculists have adopted measures for its relief. The foot, in order to perform its function with the greatest ease, is required to exercise almost as fine muscle adjustment as the eye, and when unable to do so from muscular abnormality, it too affects the nervous system. This disturbance varies in character and amount with the individual, is more conspicuous in women than in men, and occurs during the period of most active life when the greatest demand is made upon efficiency. An almost equally vulnerable period is at about the time of puberty, especially in girls.

Walking is a very complicated mechanism and involves extensive muscle adjustments, not only of the muscles in immediate control of the foot, but of all muscles involved in the maintenance of posture. It is evident, therefore, that any change in the relation of the tibia to the astragalus and the foot, must affect posture and therefore bring upon all muscles exercised, an abnormal burden, producing ill effects which, though remote from the primary defect, are directly caused by it. It is unreasonable to expect walking under such circumstances to be pleasant and beneficial. The inability of persons so afflicted to walk properly is the acceptance of the lesser of two evils.

This condition has been described by many writers, among them Shaffer (1), as "nondeforming club foot." I do not believe, however, that its importance either upon the foot itself or the general health, has been sufficiently emphasized.

Its effect upon the rapidly developing boy or girl is more profound than has been appreciated, and may do permanent damage to the immature organism, which in later life, when the burden of maturity comes, will show unmistakable signs of inability to stand the strain. Its prevention is of the very greatest importance; development of the leg muscles in young children should be encouraged, first, by insisting upon their wearing proper shoes without heels, and, second, by giving those who show the slightest inequality in the development of their muscles, resistant exercises to the weak group.

A certain amount of relief is obtained from exercises and massage, while properly fitting plates often relieve foot strain and hold the foot in a better relation to the leg. High heeled shoes are more comfortable, and walking with a slightly bent knee is less fatiguing. It is impossible, however, to give permanent relief until the limit to dorsal flexion is removed and the normal muscle balance restored. This should be done early, before the changes in the foot have taken place and before the nervous system has been affected.

The removal of the limit to dorsal flexion must be

accomplished by some method which at the same time inhibits the function of the calf, after walking is resumed, long enough to allow the opposing anterior leg muscles to develop. Otherwise muscle balance will not be restored and no permanent good will be accomplished.

Lengthening the tendo Achillis fulfills these conditions perfectly. It removes at once the limit to dorsal flexion and at the same time inhibits the function of the calf for from two to three months in children and four to six months in adults, giving abundant time for the proper development of the opposing muscles and the intrinsic muscles of the foot, and for the complete restoration of normal muscle balance.

If, in operating upon the tendo Achillis, the continuity of the tendon is unbroken, its lengthening accurate, and its sheath preserved, there is absolutely no danger of any impairment of the strength of the tendon or the function of the muscle.

Many operations for lengthening the tendo Achillis have been devised which meet these requirements. The one I have used (3, 4) is shown in Figs. 1, 2, 3, and 4. The skin incision is made to the outside of the tendon, the sheath is split, and the tendon is lengthened, the amount depending upon the degree of ankle flexion desired. The sheath is closed by fine plain catgut, and the skin wound by ten day chromic gut. Plaster is applied with the foot at about ninety degrees dorsal flexion.

At the end of three weeks the patient is allowed to walk, and resistant exercises to the anterior muscle group are begun. In adults, ankle braces should be applied with a reverse catch, and worn for three or four weeks, in order to give them a sense of security and place no extra strain upon the calf. Walking gradually becomes more and more normal, until at the end of twelve weeks in children, and four to six months in adults, it is perfectly so.

There has been sufficient experience in the use of this operation for the past twelve years, to justify the unqualified statement that it does no damage whatever to the tendon or the muscle, and that in the cases under discussion, the degree of lengthening obtained is permanent.

Its application in this class of cases was begun among private patients in 1907, and since that date thirty-eight patients have been operated upon, with all of whom enough time has passed to estimate the result. This report is based upon the study of these cases alone, although a large number of cases have been done at the Orthopedic Hospital, with equally satisfactory results.

Among the earlier cases, conservative methods such as plates, exercises, etc., were tried for one year or more before operation, unless such methods had been tried already by other surgeons long enough to convince the patient that permanent relief could not be obtained. More recently the operation has been done without waiting to try conservative methods.

Eight of the patients were from ten to fifteen years of age; eight, from fifteen to twenty; six, from twenty to twenty-five; five, from twenty-five to thirty; nine, from thirty to forty; one at forty-one and one at forty-five years. Fourteen had dorsal flexion at the ankle joint to ninety degrees;

ten to ninety-five degrees; nine at 100 degrees, and five at 105 degrees.

There was a great variety in the symptoms; perhaps the two most constant were pains in the feet and lateral deformity, abduction. In only one case, in a woman of thirty-seven years, was there marked flat foot and this had existed for many years. All had an inflexible gait and showed lack of agility in their



FIG. 1.—Skin and tendon sheath retracted exposing tendon.



FIG. 2.—Tendon lengthened, continuity unbroken.

movements. Eleven of the patients complained of backache, and in twenty-five there was a history of "growing pains" in early life. Ten complained of pain in the knees, giving evidence of strain upon that joint, one of whom, a woman of twenty-five years, had frequent attacks of synovitis.

All of the patients had impairment of the circulation in the feet and legs, evidenced by profuse perspiration, cold and clammy condition of the skin, and sensations of heaviness. The capacity to walk was seriously impaired in every case, and all suffered excessive fatigue from walking and showed



FIG. 3.—Sheath closed over lengthened tendon.



FIG. 4.—Skin wound closed.

unmistakable evidence of disturbance of the nervous system; this was more marked between twenty-five and forty years of age, but was also detected among the younger patients.

The only symptom of which three patients complained was that of Morton's toe in one foot. One

of these, the son of a physician, refused to have both tendons lengthened, though urged to do so as a preventive measure. The foot operated on was completely relieved, and one year later symptoms appeared in the other foot and that tendon was lengthened. He has had no trouble since in either foot. Three years have passed since the last operation. Complete relief was also secured in the other patients who had this symptom. Is it not possible that this may be caused in most instances by the limit to dorsal flexion, and that if it was corrected, the removal of a metatarsal bone would not be necessary?

These thirty-eight patients have been entirely relieved from the symptoms of which they complained and have had restored to them the capacity to walk normally and do so with pleasure and great benefit to their general health, and none of them have required further treatment of any kind.

In comparing the results in these patients with those of a large number who have received only the routine conservative methods, the conclusion seems inevitable that only by operation can prompt and permanent relief be given.

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2. *Medical News*, April 21, 1900.
3. *Lancet*, November 3, 1900.
4. On Tendoplasty, *Hospitalstidende*, 3d series, lx, 50, 1891; i, 16-6.

130 EAST THIRTY-SIXTH STREET.

EVENTRATION OF THE DIAPHRAGM.

BY MORRIS MANGES, M. D.,

New York,

Professor of Clinical Medicine, University and Bellevue Hospital Medical College; Visiting Physician, Mount Sinai Hospital,

AND HARRY WESSLER, M. D.,

New York,

Assistant Radiographer, Mount Sinai Hospital.

Eventration of the diaphragm is a comparatively rare condition in which the diaphragm, owing to extreme atrophy, succumbs to the pressure of the stomach and the intestines beneath it and, together with them, is displaced into the thoracic cavity. Anatomically, and from the point of view of morbid physiology, this differs only from a true diaphragmatic hernia in that, in the former the atrophied remains of the diaphragm are interposed between the lungs and the intestines. In most cases the diaphragm seems to have entirely lost its function of contraction.

Up to a few years ago the diagnosis of eventration of the diaphragm was only rarely made during life. This was due to the fact that the abnormal presence of the intestinal viscera in the pleural cavity causes symptoms and physical signs which could be more easily interpreted by the assumption of more common conditions than this rare condition. The Röntgen ray, however, has made the thoracic cavity so accessible to examination that the diagnosis of abnormalities in the structure and the function of the diaphragm, especially of its left leaf, is becoming more and more frequent.

We wish to report the following two cases of eventration of the diaphragm, together with the Röntgen ray findings.

CASE I. (Hospital No. 141,817), admitted November 14, 1913. Dora L., aged thirty years, single; service of Doctor Manges. History: Four weeks ago, felt sudden severe pains in the left chest which were associated with slight fever and moderate mucoid expectoration. The pain was worse on deep breathing or coughing. No loss of weight, no chill or sweating. *Physical examination:* Well nourished healthy looking woman. Lungs: Left, anteriorly



FIG. 1.—Case of Dora L. The symptoms simulated those of pleurisy with effusion on left side with displacement of heart to right.

from the apex to the third rib, many coarse rales; similar signs in the axilla. Posteriorly, dullness or dull tympany from the angle of the scapula to the base. Over this area, markedly diminished voice and breathing. No egophony or succussion at the first examination; later on, not infrequently one could hear metallic splashing rales over the lower left chest, both anteriorly and posteriorly. The heart was moderately displaced to the right, and the sounds were best heard to the right of the sternum. Action slow; aortic second sound accentuated. Urine negative. White blood corpuscles 12,800, polynuclears 58 per cent., lymphocytes, 40 per cent. For a few days after admission the temperature was 99.6° F.

On admission, the diagnosis of pleurisy with effusion was made; aspiration, however, was negative. A few days later, the note was made that the signs of fluid persisted. At that time the examination of the chest showed the following: The circumference of the chest at the level twelve cm. from the episternal notch on the right side was forty-six cm., on the left side also forty-six cm. The circumference at the level of the ensiform was forty cm. on the right side, and forty-one on the left. Expansion on the left side was limited. Blood pressure was 120 mm. Hg.

Röntgen examination: The heart was displaced entirely into the right chest; the left leaf of the diaphragm had an abnormally high position, reaching up to the third rib anteriorly. Below it was the large distended stomach; the dextrocardia was due to displacement by the high diaphragm. The left lower lobe of the lung was atelectatic (Fig. 1). *Fluoroscopy:* Left leaf of the diaphragm was immobile even on deepest inspiration.

January 25, 1914: Patient returned to report. Since discharge she had had sticking pains in the left chest behind; they were almost constant during the day and were felt somewhat in the arms. The pains were worse whenever she had maintained one position for any length of time. The pain had entirely incapacitated her. She had a dry cough, dyspnea on exertion, and sometimes cyanosis. Her appetite was good and her bowels moved regularly. She had gained considerable weight. *Physical examination* showed dullness, almost flatness at the left base and evidence of a large spleen. *Fluoroscopy* showed the same appearance as before; diaphragm absolutely immobile. On coughing, it showed a slight paradoxical movement. Bismuth bolus went down easily; there was a slight dilatation of the lower esophagus, but no obstruction. The lower esophagus was displaced slightly to the right. The peristalsis of the stomach and the intestines was rapid. After

four and one half hours the stomach was empty and the bismuth was in the lower ileum and ascending colon. Faradization of the phrenic nerves during fluoroscopy showed that the right leaf of the diaphragm contracted, but no response could be obtained from the left leaf.

CASE II. Dina L. (Hospital No. 120,440), aged fifty-nine years, admitted May 23, 1912. History: Occasional winter cough. For the past few years had had cardiac palpitation which, however, did not trouble her much until about two months ago, when her symptoms became marked, with precordial distress and dyspnea on exertion. For twenty years she had had cramplike pains in both legs which woke her up in the night. Four months ago she began to have abdominal cramps, coming on soon after meals, with gaseous eructations and nausea. The pain occurred mostly in the epigastrium about one half hour after meals and radiated over the chest and back. No hematemesis. She had become weaker and had lost thirty pounds in weight. She was told that she had a dextrocardia and that most of her symptoms were attributable to this cause.

Physical examination: Pale senile woman; marked dorsal scoliosis. Chest expansion on the left side limited. Posteriorly, dullness from the apex to the spine of the scapula, resonance to the angle of the scapula, and flatness to the extreme base. The voice and breathing were diminished over the dull area. Cardiac dullness was absent on the left side. In its place there was an area of tympany. The apex was in the fourth space in the parasternal line; action regular, no murmurs. Liver dullness merged with that of the heart on the right side. Test meal on admission: 100 c. c. extracted; free acid 30; total acidity 57; no bile, blood, nor lactic acid present. On distending the colon with air, the left chest became tympanitic high up.

Blood examination: Hemoglobin, 54 per cent.; erythrocytes, 4,500,000; leucocytes, 9,900; polynuclears, 66 per cent.; large lymphocytes, 11 per cent.; small lymphocytes, 23 per cent. Red cells showed marked changes of secondary anemia. *Röntgen examination:* The heart was almost completely pushed over to the right side. This was due to a very high position of the diaphragm on the left side. Here the dome of the diaphragm was pointed and beneath it were seen the distended stomach and splenic flexure of the colon. The body of the stomach showed a constriction (Fig. 2). *Fluoroscopy:* The left diaphragm did not move on respiration. Ingested bismuth was seen to pass through the narrowed portion of the stomach above noted. The bismuth had left the stomach in one hour, except a small residue. The bismuth was arrested at the

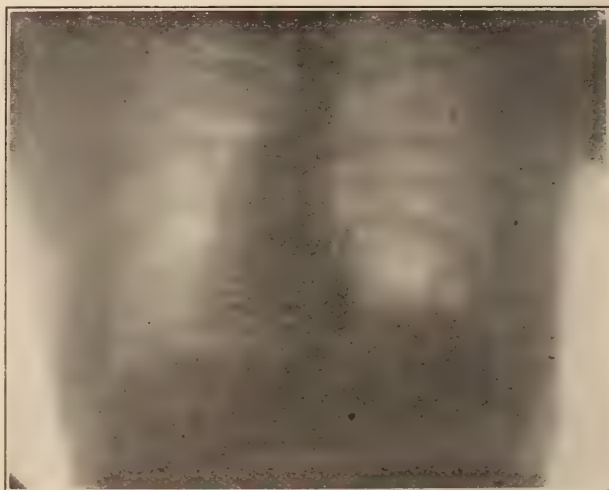


FIG. 2.—Case of Dina L. The symptoms were those of a tumor of splenic flexure and marked dextrocardia.

splenic flexure, none having passed seventy-two hours after the bismuth meal.

The cases here described present clinically two well defined groups of symptoms which, among others, may occur as the result of an abnormality in the structure and function of the diaphragm. These symptoms are referable on the one hand, to the res-

piratory and cardiovascular systems and on the other, to the gastrointestinal tract. Frequently these are combined in varying degrees of severity.

Case I illustrates a common symptom complex. Under the influence of trauma or unusual distention of the abdominal viscera with gas, the already weakened and stretched diaphragm is subjected to a further injury and the patient experiences a respiratory crisis very much like that which occurs in a sudden pneumothorax or in the onset of a pleurisy, viz., dyspnea, pain, cyanosis, and cough, symptoms which probably depend on the extreme displacement of the heart and bloodvessels and the resulting interference with the circulation. In their physical signs also, these attacks closely simulate pleurisy and pneumothorax; loud or dull tympany over the chest, immobility of the chest in respiration, succussion (due to the distended stomach) and dextrocardia. So frequent and striking is this association of symptoms, that not infrequently these cases are aspirated for fluid, a procedure not devoid of the danger of perforating the distended stomach. Such a mistaken diagnosis with aspiration of the chest occurred among others in the cases of Sailer and Rhein (1) and of Koninger and in one of our own cases (Case I). These crises are followed for a longer or shorter period by sticking pains in the back, and dyspnea and palpitation on exertion, until they are succeeded by another acute attack.

In the gastrointestinal type, owing to the chronic dilatation of the stomach and also to periodical partial obstruction of the splenic colon in the *cul-de-sac* of the atrophic diaphragm, the patient may suffer from dyspepsia and recurring attacks of intestinal obstruction. If these symptoms are combined with a loss of weight and a severe anemia, as occurred in our second case, it is easy to see how a suspicion of carcinoma may be entertained. In this case the gastrointestinal symptoms were preceded for some years by definite cardiac symptoms which were attributable to the extreme dextrocardia which was here present. (Fig. 2.)

Before leaving the subject of the symptoms of this condition, it would be well to direct attention to the important fact that some of these patients present absolutely no symptoms at all, the condition being discovered at autopsy. This is well shown in Motzfeld's (12) case. All the early cases, dating from those of Pyl, in 1793, Laennec, and others were of this kind. It has been a subject of contention, ever since the first case of eventration of the diaphragm was reported, whether in a given case the integrity of the diaphragm, however thinned out it may be, is maintained, or whether there is a real hiatus through its musculature. This would seem to be easy to determine röntgenologically, as it may be supposed that the thin line which represents the dome of the diaphragm, if distinctly visible, would exclude the possibility of a hernia. Thus Arnspenger (2) believes that the presence of a sharply defined curved line which moves on respiration above the *Magenblase* is proof of eventration. Unfortunately, however, for the differential diagnosis, the wall of the distended stomach produces exactly the same appearance, and it is hardly possible by mere inspection, to say whether this linear shadow is a composite of stomach wall and diaphragm

above it or whether it is the former alone.

It was hoped that the presence or absence of movement of the diaphragm would help to decide this question. Hildebrand and Hess (3) suggested that a movement of this shadow downward on inspiration would be a proof of diaphragmatic contraction and therefore of the integrity of this structure. That this is not necessarily so, follows from Koninger's (4) case, in which there was no movement of the diaphragm. Kienbock's (5) case, however, showed practically a normal range of mobility of the diaphragm. On the other hand, as pointed out by Beltz (6), even with a diaphragmatic hernia, the stomach may be pulled down in inspiration by its adhesion to the margins of the opening in the diaphragm, when the latter contracts.

Hertz (7) believes that a paradoxical movement of the diaphragm on respiration favors diagnosis of a hernia. This phenomenon, which consists in an upward movement of the diaphragmatic region on inspiration, occurs also in other conditions in which the contractile function of the diaphragm is interfered with, such as hydropneumothorax. In Case I this paradoxical phenomenon was present to a slight degree, but only on coughing.

Lotze (8), on passing a tube into the stomach and viewing it on the fluoroscopic screen, observed that the tube was bent upward, following the fundus of the viscus, and saw above the tube a contraction of what he believed to be the diaphragm. He therefore assumed that his case was one of eventration. This observation Hildebrand and Hess were unable to confirm. It will thus be seen that there is no positive method of differentiating the two conditions, especially as the symptoms and physical signs to which they give rise are much alike.

To return to our own cases: In Case I there is seen a distinct linear curved shadow surmounting the very much distended stomach, which one is tempted to believe must be the thinned out diaphragm. That it is much thinned out and atrophied, must be assumed from the entire absence of respiratory movement and from the paradoxical movement on coughing. In Case II the Röntgen examination reveals several points of interest which suggest the possibility of diaphragmatic hernia. The thin shadow which should represent the diaphragm has not the regular curvature which is seen in Case I, its apex being somewhat pointed. The stomach when outlined with bismuth shows a constriction at its lower pole which may be due to the pressure of the margins of the diaphragm. It will hardly be possible, however, to make a positive diagnosis in this case.

The etiology of eventration (or relaxation, as it has been called by Wieting) (10), is very obscure and has been the source of considerable speculation. The majority of writers regard it as a congenital condition, the arguments for which are very ably presented by Motzfeld (12). He lays stress on a number of congenital defects which were also present in his case, a condition which has also been observed in a number of other cases by Thoma, Benda, and Eppinger (11). It has also been observed in three newly born infants, a finding which would strongly emphasize the congenital origin.

Other writers regard trauma as the etiological

factor, and several cases of this kind have been reported. Another opinion which has been advanced is that it is the result of an atrophy of the left phrenic nerve, a condition which was found in the cases of Motzfeld (12) and Beltz. Motzfeld, however, urges that we should remember that the intercostal nerves also share in the innervation of the diaphragm and that the two phrenic nerves anastomose. He also cites the experiments of Hellin which showed that division of the phrenic nerve on one side was not always followed by a corresponding difference in the position of that half of the diaphragm.

Hoffman (9) believes that the early stages of this condition are frequently found in individuals with increased intraabdominal pressure from gastrointestinal disturbances, especially in cases of heart disease, and that it depends on a gradual atrophy of the diaphragm due to the pressure of a dilated stomach. In other words, what he calls "chronic idiopathic dilatation" of the stomach leads to a rudimentary eventration of the diaphragm. Koninginger does not favor this view. Together with Arnspurger (2) he considers this a condition of fatty degeneration of the diaphragm, perhaps in the sense of a pseudomuscular hypertrophy of congenital organ, in which trauma later plays some, not easily determinable role. Autopsy findings have disclosed a condition of extreme atrophy with fatty degeneration of the muscular fibres, so that the diaphragm has the appearance of a thin membrane. The condition has also been observed in poliomyelitis.

A few points of clinical importance in this condition are worthy of special emphasis. Eventration of the diaphragm, from the character of its symptoms and physical signs, is easily mistaken for other conditions. In the first place, every case of apparent dextrocardia should be closely scrutinized for the presence of a diaphragmatic anomaly. Case II, here reported, was clinically diagnosed as a dextrocardia, and a similar error was made in several cases recorded in the literature until the true condition was disclosed by Röntgen examination. Similarly, every case which has the clinical signs and symptoms of pneumothorax should be subjected to a radioscopic examination to avoid the possibility of error. It may be mentioned that occasionally diaphragmatic pleurisy and pneumonic lesions at the base of the lungs result in a unilateral paralysis of the diaphragm with a resulting high position and some of the symptoms of eventration. This condition is transitory, however, and with the subsidence of the pleuritic process the diaphragm recovers its contractile power and assumes its normal position.

TREATMENT.

From the point of view of treatment, the differential diagnosis between diaphragmatic hernia and eventration is of practical importance. The former condition is amenable to operative treatment, which may become urgent in the case of intestinal obstruction. The treatment of eventration, on the other hand, can only be palliative. It is not possible to do anything to restore the function of a completely atrophic diaphragm. On the other hand, it is evident that anything which will increase intraab-

dominal pressure will add to the difficulties of the already displaced diaphragm. Thus in Kienbock's case, the symptoms were always worse in the morning because of the pressure upward upon the diaphragm of the abdominal viscera during the night. Hertz has noted that associated with an increase in weight of the patient, with presumably an increase in the amount of intraabdominal fat, the symptoms were aggravated. This was evident in our first case. Owing to the inactive life which was forced on her by pain and discomfort, she has taken weight on rapidly with a coincident increase in her symptoms. It would therefore seem rational to put such patients on a diet in which the fattening elements of the food are restricted, and to avoid such foods which by their fermentation would give rise to flatulence.

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72 EAST SEVENTY-NINTH STREET.

122 WEST 118TH STREET.

TUBERCULOSIS OF THE CONJUNCTIVA.*

BY WILLIAM T. SHOEMAKER, M. D.,
Philadelphia.

CASE. G. R., man, aged twenty-nine years, patient of Dr. John B. Deaver, at the German Hospital. Father, mother, and two sisters well; two sisters died of tuberculosis. Personal previous history good. Was operated on for appendix abscess at the Polyclinic Hospital in June, 1913. Abscess was opened and drained, but the wound did not heal, fecal matter and pus discharging constantly.

November 22, 1913. Operated on by Doctor Deaver at the German Hospital. Peritoneum and intestines were found studded with small whitish tubercles. The appendix was removed and the stump cauterized and invaginated. Sputum examination at this time was negative. Patient was discharged December 3d, eleven days after operation, but returned December 22d with recurrence of fecal fistula. The operation this time consisted of the excision of six inches of the ileum, the serosa of which was covered with small white tubercles, and in places showed ulceration.

About this time he was referred to the eye department, where examination showed the left palpebral fissure narrowed, upper lid slightly swollen, conjunctiva of upper lid and fornix thickened and well covered with small shallow ulcers and yellowish infiltrates. The ulcers were sluggish, had irregular margins, and showed no tendency to bleed when mechanically irritated. Bulbar conjunctiva and that of lower lid were thickened and injected, but otherwise negative. The eye had a vision of 6 to 7.5; fundus examination negative. Right eye in every way normal; but little secretion. Recently a large perforation of the nasal septum was discovered. The preauricular gland, left side, was enlarged, freely movable, and painless; the submaxillary glands were slightly enlarged. The duration of eye symptoms was said to have been about two months. The patient has experienced very little ocular annoyance. There had been no pain, photophobia, nor disturbance, other than slight discomfort. Scrapings from the upper tarsal conjunctiva were sent to the laboratory, and reported free from organisms including the tubercle bacillus.

January 21, 1914, a small piece was cut from the tarsal conjunctiva, rubbed up in normal salt solution, and injected into the anterior chamber of a rabbit's eye with a blood

*Read before the Ophthalmic Section, College of Physicians, Philadelphia, February 19, 1914.

syringe. Tuberculous looking masses were noticed to start in rabbit's eye fourteen days later. February 11th (twenty-one days after inoculation) upon the advice of Doctor Shumway, the rabbit was killed and the specimen taken. The growth was then so rapid that it was feared that the eyeball would perforate.

The macroscopic appearances of the opened eyeball were those of tuberculosis. The iris was many times its normal thickness and its surface was roughened and covered by or replaced by characteristic exudate or nodular formations. The lens was pushed backward and exudation also extended into the vitreous.

Sections made later were examined by Doctor Shumway. The sections were very thick and badly stained and did not show unmistakable evidence of tuberculosis, but rather the changes of panophthalmitis. Unfortunately, they were of little value one way or the other.

The general treatment of this case has been under the direction of Doctor Deaver. The patient was given once weekly an injection of Koch's old tuberculin. The first dose was ten drops of a one in 20,000 magnesium solution. A two hourly chart was made for twenty-eight hours. If at the end of that time the temperature had not been above 99.6° F., the dose, the following week, was increased ten drops. When eighty drops was reached, a one in 1,000 solution was used, the next dose being nine drops. The change in solution was made to reduce the bulk of the injection.

Under this treatment the patient seems to have improved from a surgical standpoint; his wound, although not healed, is healing. I have noticed, no marked change in his conjunctival lesion; it is certainly no worse.

John W. H. Eyre, in the Hunterian Lecture for 1912 (*Lancet*, May 18, 1912) upon Tuberculosis of the Conjunctiva, defines the condition as an infective granuloma affecting the conjunctival tissue, whether bulbar or palpebral, due to the local multiplication of *Bacillus tuberculosis*, and to the action of the toxins it elaborates. The presence of the tubercle bacillus is held to be indispensable for the existence of tuberculous conjunctivitis, and its demonstration absolutely essential for a certain diagnosis. The importance of laboratory investigation, therefore, in all suspected cases, and in many cases thought to be other than tuberculous, is apparent, and I think too often overlooked. For this reason it seems probable that tuberculosis of the conjunctiva is perhaps not so rare as our general records show, many cases escaping detection and falling under one of many other diagnoses.

Looking at the statistics pertaining to frequency gathered by a number of observers, the diversity of opinion is remarkable. Stephenson (1902), for example, determined the frequency of tuberculous conjunctivitis to be one case in 1,500 of ocular disease, while Mules (1885) placed the relationship as one to 33,000. Between these extremes are ranged many other findings, most of them favoring a greater frequency. Eyre's investigations, which have been most carefully made and which certainly bear the stamp of accuracy, place the figures at one to 2,500.

Clinically, the well known classification of cases into four groups by Sattler (1891) with the addition of a fifth group suggested by Eyre, would still seem to be of practical convenience, although it must be understood that transition pictures or mixed pictures are sure to be seen, and it is not always easy to fit a given case of tuberculous con-

junctivitis exactly into one or another of the five groups. It might be said, moreover, that the conjunctiva does not receive tuberculosis in a manner particularly different from that of any other tissue, and here as elsewhere we have to deal with, nodules, ulceration, caseation, proliferation, grayish and yellowish coloration, etc.

The predominance of one or another tuberculous characteristic, and the exclusion or near exclusion of others would be all necessary to place a given case within one of the five varieties. In accordance also with the general tendency of tuberculosis to implicate near by glands in its ravages, tuberculosis of the conjunctiva is very frequently accompanied by enlargement of the *preauricular* and submaxillary glands. Pain, photophobia, lacrymation, secretion, and general discomfort, while all found in varying degrees, would not seem as a rule to reach a severity corresponding to the apparent physical disturbances in the conjunctiva. Pannus or some form of vascular keratitis and purulent dacryocystitis are also frequent complications.

The diagnosis of the affection might be said to be more troublesome than difficult. We have at hand the means for accurate and positive diagnosis; application is not made, however, in many cases that are of a suspicious or questionable character. The laboratory methods require time, and the various tests for tuberculosis in general, while they might demonstrate its presence somewhere, would have no exclusive bearing on the conjunctival lesion.

Statistics pertinent to sex, age, clinical variety, etc., are best shown from Eyre's analysis of 206 cases. Forty-four per cent. of his cases were in males and fifty-six per cent. in females, showing a very even distribution. While the age limits reach from under twelve months to seventy-six years, it is clearly shown that tuberculous conjunctivitis has a preference for early life. Fifty-seven cases occurred during the first ten years of life and eighty-seven during the second ten years. But thirty-one cases out of the 206 occurred after the age of thirty years.

Although there is no reason to suppose that one eye would be affected more often than the other, it is interesting to note that the disease was recorded in the right eye eighty-one times, in the left eye seventy-nine times, and in both eyes twenty-two times. The site of the lesion was found to be, upper lid sixty-two, lower lid thirty, bulbar conjunctiva thirty-one, and combinations eighty-three times. Eyre thinks from this that it is fair to presume that the primary infection takes place in the upper lid in the ratio of two to one.

Referring his cases to the five groups or varieties, forty-six belonged to Group I—characterized



FIG.—Tuberculosis of the conjunctiva.

by ulceration; twenty-five to Group II, characterized by miliary tubercles or nodules beneath the conjunctiva; eighty to Group III, containing the cases showing bright red hypertrophied papillae, granulations, and excrescences; forty-six to Group IV, which is lupus and always an extension of the same process from nearby skin or mucous membrane, and nine to Group V, characterized by a pedunculated or polypoid tumor.

The infection may originate from within or from without, but it is probable that in most cases it is from without, and in that sense primary. The mere fact that we are dealing with a tuberculous subject with well established foci elsewhere, for example, as in my case, is not proof nor even satisfactory evidence that the conjunctival infection was blood carried. We have in such an individual one of proved susceptibility, one laden with tubercle bacilli, inside and out, and one who must necessarily transfer these bacilli directly to any and all parts of his body, including the eye. The conjunctiva, when fully covered by epithelium, is known to be very resistant or even immune to the tubercle bacillus, but the slightest abrasion or traumatism renders access easy. It is in this way, as has been pointed out by others, that tuberculosis of the conjunctiva is most likely to occur, and tuberculous patients should therefore be constantly warned against rubbing their eyes with their infected fingers. The endogenous theory cannot, however, be disproved in these cases, especially as it is in every way rational. Villard was unable to find tuberculous foci elsewhere in sixty per cent. of his cases, and believes that the disease is always ectogenous in origin.

TREATMENT.

The treatment of tuberculous conjunctivitis includes everything ever used for tuberculosis, general or local. Tuberculin, x ray, and radium are the newer remedies and have all given favorable results in the hands of their advocates. Cauterization, curettage, excision, and local applications of many kinds have also been of use. Certain cases can be cured, but the disease must be regarded as serious and the prognosis not favorable.

Of the greatest importance and value is the tuberculin treatment, a full description of which has been given in a recent contribution by A. E. Davis (*Annals of Ophthalmology*, January, 1914). Doctor Davis discusses every phase of the question so well that those interested should consult the original.

109 SOUTH TWENTIETH STREET.

Spontaneous Subarachnoid Hemorrhage.—

Three cases are reported by S. Leopold, of Philadelphia (*Journal A. M. A.*, October 17, 1914). One patient suffered from tuberculous meningitis secondary to general miliary tuberculosis of lungs, liver, kidney, and brain, and another from syphilitic meningitis. Leopold says that aside from pachymeningitis hemorrhagica interna and traumatic pial hemorrhage, there has been little recognition of spontaneous subarachnoid hemorrhage. Lumbar puncture has been of therapeutic value in some cases, and is of especial value in the diagnosis.

NEOPLASMS OF THE BLADDER.*

With Remarks on Operative Treatment.

By FRANCIS R. HAGNER, M. D., F. A. C. S.,
Washington,

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Attending Genitourinary Surgeon, Garfield Memorial Hospital and George Washington University Hospital.

It might be well to say, first, a few words concerning the so called nonmalignant neoplasms of the bladder. Papilloma is the most common type of benign tumor; the other less frequent forms are fibroma, myoma and cysts. The papillomata that show no tendency to infiltrate the bladder wall; and microscopically show no evidence of malignancy, are considered by some authorities to be benign growths.

I am sure, however, that we should combat this idea and so make fewer mistakes than if we consider them benign. A large proportion of these tumors do infiltrate the bladder wall, and lead to metastasis. Some that are apparently benign in the beginning tend later to infiltrate the bladder wall; some that do not show any tendency to infiltrate, tend to multiply and destroy life by hemorrhage, sepsis, and interference with the renal function. I feel that if the term, benign tumors of the bladder, was eradicated, it would be a great advantage, as it gives too many men unfamiliar with them the impression that there is a class of bladder tumors clinically benign, whereas all tumors of the bladder are clinically malignant. Unless they are removed by some operative means, they will either directly or indirectly cause the death of the patient. Cysts of the bladder, fibromata, and myomata are so rare as to require no more than mention. The operative treatment of the papilloma is divided into excision by open operation and intravesical operation. The open operations in multiple papillomata have not been very satisfactory, as metastases are so apt to occur along the whole line of incision, very similar to keloid seen in the negro. Nitze's results in the intravesical operation on these growths gave a smaller percentage of recurrences than those operated on by the open method. I believe this to be especially true in the multiple papillomata.

There are a few cases reported of suprapubic removal, the base cauterized by the Oudin current, that have given favorable results. Unquestionably the majority of genitourinary surgeons are using either excision with an operating cystoscope followed by cauterization, or else the high frequency cauterization by the Oudin current. We have had several of these cases, and while they have not extended over a period sufficient to make accurate conclusions, and while small recurrences have been noted in two of the patients, they have been readily removed by another application of the current. The work of Doctor Buerger, Doctor Beer, and Doctor Keyes along this line is well known. No one is yet able to speak positively on the value of this treatment; but all agree at this time that it seems to offer better chances of success than any of our earlier treatments. It is imperative to examine these cases cystoscopically at regular intervals, and remove at once any evidence of recurrence.

*Read at New York Academy of Medicine, October, 1913.

The malignant tumors of the bladder are divided into sarcomata and carcinomata. Sarcoma is less common than carcinoma. In quite an experience with malignant disease of the bladder we have had only two cases of small round cell sarcoma. Au-

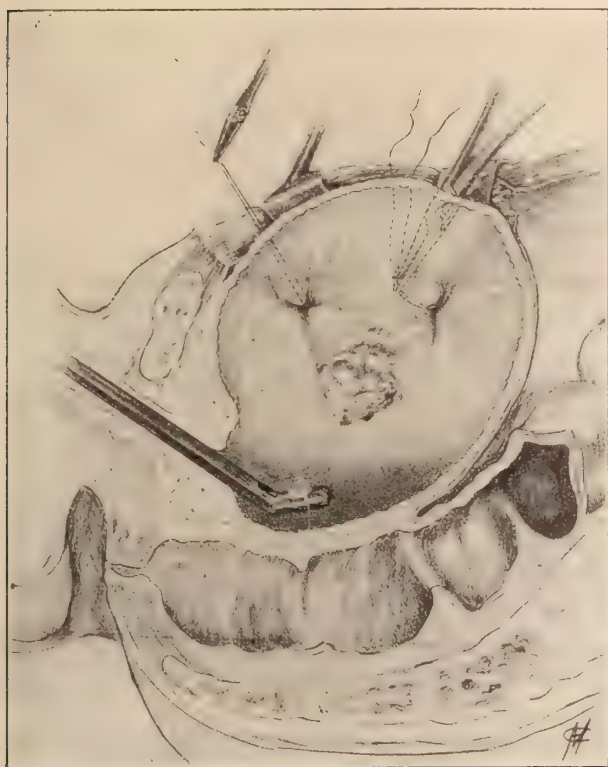


FIG. 1.—Sutures being placed under visual inspection through the cystoscope. (Cancer of right lateral wall, Case v.)

thorities seem to agree that sarcomata are much more malignant than the carcinomata; one of our patients died four months after excision of the tumor including one third of the bladder, from local and general metastasis, the local recurrence beginning before the patient left the hospital in the healing portion of the vesical wall. The second patient is alive, but has a recurrence.

The bladder is one of the most unfortunate locations for carcinoma, as it presents many difficulties both as regards radical and palliative measures of treatment. As to the frequency of malignant tumors of the bladder in relation to those in other parts of the body, some authors give 3.9 per cent. and others 7.6 per cent., so there is some variance in personal experience by different observers. I have been fortunate or unfortunate in seeing a number of these distressing cases.

There are two varieties, one where the growth is primary and the other secondary through metastasis from adjacent organs. We will consider only the primary form. Carcinomatous disease of the bladder may unquestionably last for some time without metastasis, but even this fact does not lessen the gravity of the situation and the only hope for a successful outcome is early diagnosis. It might be advisable briefly to mention the symptoms of vesical carcinoma. I purposely did not take up the symp-

toms of nonmalignant growths, as the symptoms of the malignant are identical.

Hematuria is the cardinal symptom, but is often not present until the case is far advanced, especially if the tumor is away from the vesical outlet. The hemorrhage has distinct characteristics, being generally abundant, of long duration, and occurring irrespective of injury, violent efforts, or straining, obstinate in yielding to remedies, and finally disappearing for as little apparent reason as it took place. It may recur in a few days or not recur for several months. As a general rule, carcinomatous tumors give more *persistent bleeding* than the so called nonmalignant types of bladder tumor. But in the papilloma the bleeding, when it occurs, is more profuse. The hemorrhage is terminal, resulting from bladder contraction.

Pain is a most inconstant symptom; it may be entirely absent, but later on it usually becomes severe and constant. Tumors distant from the urethral orifice produce less pain than those at the orifice. Reflex pains due to pressure on the nerves are very common in this condition, radiating to the thighs, anus, perineum, and hypogastrium, but are usually a late symptom. The pain in the bladder is nearly always due to the accompanying cystitis and is always present sooner or later. The tumor mass

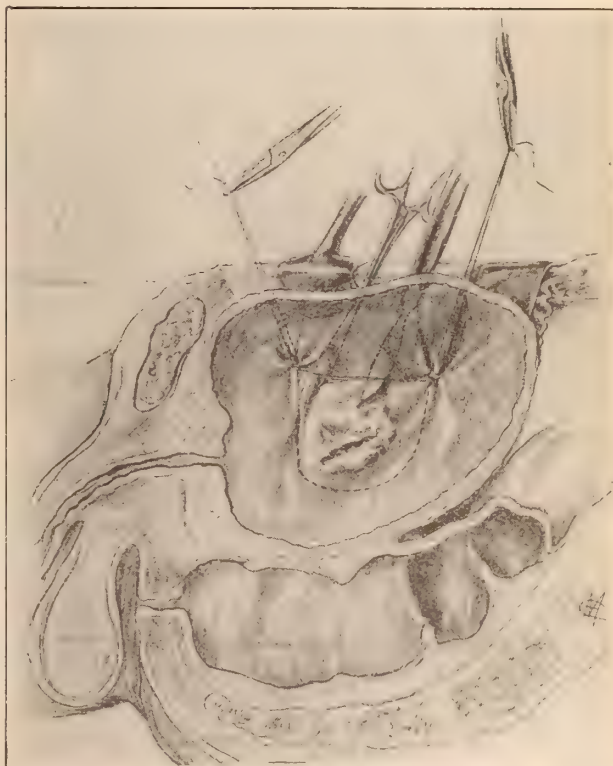


FIG. 2.—Removal of section of bladder containing the growth. (Cancer of right lateral wall, Case v.)

may be so large as to act as a foreign body and cause pain.

Fragments of the tumor appear in the urine. If the growth is so situated as to interfere with the ureteral outlet, hydronephrosis will develop. Just such a case has recently been seen with Doctor

Cuthbert. I had previously read two papers on this subject and described the operation that has been employed in these cases. I have had three additional cases since the last report, one involving the vertex and the others the left lateral wall and fundus. Although the vertex of the bladder is supposedly a comparatively rare site for new growths, I cannot help but feel from my personal experience that they occur more frequently than is usually described. Statistics show that the lower third of the bladder is the site of two thirds of vesical tumors; if this is true, the operation that I have used in these cases is applicable in one third of all malignant tumors of the bladder. One of two facts is certainly true; either bladder tumors are more frequent, or else our methods of diagnosis at this time are more accurate.

I have seen more cases of bladder tumor in the past three years than in an entire previous professional experience of eighteen years. One would think it very easy to diagnose a tumor of the fundus of the bladder on cystoscopic examination, but I feel sure, in one of my cases with a broad sessile growth, the condition would have been overlooked had I not been suspicious of its presence and hence searched with care for the neoplasm.

Surgical treatment in carcinoma is divided into palliative and radical.

Palliative treatment.—1. The Oudin current seems to cause tumors to grow less rapidly and does relieve hemorrhage.

2. Suprapubic cystotomy and removal of the growth without extirpating the bladder wall, followed by cauterization, is unsatisfactory and the tumor always recurs. A few cures have been reported by this method where the operation has been followed by treatment with radium.

3. Suprapubic cystotomy is used for drainage only in inoperable cases, relieving pain and tenesmus, giving relief similar to artificial anus in cancer of the bowel.

4. Double nephrotomy is done with ligation of ureter or drainage in the flank by ureterostomy for relief of tenesmus accompanying urination.

Radical surgical treatment.—1. Total extirpation of the bladder.

2. Excision of the bladder wall containing tumor mass, when the base of the bladder is involved, best done by intraperitoneal operation. By this method much better exposure of the bladder base is obtained, it being usually necessary to remove the ureter of the affected side and transplant it to a healthy portion of the bladder.

3. Cases that I am especially interested in are those involving the fundus or lateral wall of the bladder.

All my cases except the first have been operated in as described in the *Annals of Surgery* for November, 1910. My inability to remove the friable mass in Case 1, without breaking the tumor mass, suggested to me the method of removal that was resorted to in the subsequent cases. In our first case, the patient had a very large flabby bladder, and although the bladder wall was retracted as soon as

the incision was made, the wall collapsed, and it was found to be impossible to determine the site for the incision around tumor mass without inserting the finger in the viscus; although this was done as carefully as possible, the tumor, being very friable, began to break up. I believe it is usually conceded that one of the disadvantages which attend the methods generally employed for removal of new growths for this viscus, is the production of trauma to the tumor mass during its removal. It is possible, however, with proper care to remove tumors from the fundus and lateral walls of the bladder without the slightest trauma to the tumor mass by the method used in these cases.

The operation is impracticable for tumors of the bladder base. The following is a description of the operation employed: The bladder is irrigated, and if bleeding, adrenaline, one to 10,000, is instilled and allowed to remain five minutes. The bladder is then distended with salt solution, and a Nitze cystoscope is introduced. This is held in place by an assistant while a suprapubic incision down to the bladder wall is made. The prevesical fat is well separated and the tissues are well drawn back by wide lateral retractors so as to give a good exposure of the bladder wall. I thought at this stage it might be possible by illuminating the bladder with the cystoscope to outline the tumor mass by the transmitted light; although the iridescence was caused by the illumination of the fluid, the outline of the tumor mass could be made out. The growth is then inspected through the cystoscope, the left hand holding the cystoscope; with the right a threaded needle is pressed on the fundus of the bladder, and the dimpling caused thereby is readily seen through the cystoscope. The needle is carried first to the left of the growth at a sufficient distance to give a margin of healthy bladder wall. It is then plunged into the bladder and the suture drawn through, being held taut by an assistant. The same procedure is employed at the right of the growth and at the lower border.

An incision is made through the bladder wall around the inner side of the three traction sutures, the portion of the bladder wall to be removed being clamped as the incision is advanced. The bladder wall containing the growth is lifted up by the clamp and held by an assistant. The fluid left in the bladder is removed by a large syringe through the suprapubic wound to prevent its entrance into the peritoneal cavity, and the cavity of the bladder is packed with gauze.

If the parietal peritoneum is to be removed (and I feel sure, if it is adherent to the bladder wall, that it should be), the incision in the bladder wall is then carried upward into the peritoneal cavity and the portion of the peritoneum covering the growth, is removed. The bladder and peritoneal wounds are then closed by two rows of chromic gut sutures, a suprapubic drain being left in the bladder, although in my last case the bladder was completely closed and drained by a retention catheter through the urethra. If the lateral wall is the seat of the growth, it may not be necessary to go into the peritoneal cavity; as in my case with the growth in this place, the peritoneum was easily stripped off the

bladder wall, while on the other hand, if the tumor is in the fundus of the bladder near the median line or back toward the posterior wall, it is safer to carry the incision upward directly into the peritoneal cavity and remove the peritoneum covering the bladder over the site of the growth. It is very easy to do this, as the loose folds of the parietal peritoneum in this locality allow of easy approximation. From my experience in my last case, it would seem perfectly safe to close the bladder wound completely, if the patient can stand the retention catheter. For report of previous cases, see *Annals of Surgery*, November, 1912.

CASE V. Capt. D., aged seventy-seven years, operated on twenty years ago for stricture and extravasation of urine. January 25, 1912, I operated for a recurrent stricture involving the urethra from meatus to cut off muscle, through which only a filiform bougie could be passed. He left the hospital, February 19, 1912, in good condition, although he had five ounces of residual urine and definite prostatic enlargement. His history suggested that the urine was purulent for many years. After the operation the purulent condition of his urine continued, but in a less degree, and the patient voided his urine every four hours. He had had no previous history of bleeding, but, March 14th, forty-four days after operation for stricture, he presented himself reporting blood in his urine; his bladder was irrigated and the fluid returned stained with blood. Two days later he was cystoscoped at Garfield Hospital and a growth, five cm. in diameter, was noted at the junction of the fundus and the left lateral wall. A diagnosis of carcinoma was made. As the patient had marked arteriosclerosis, a phthalein test was made and we obtained thirty-five per cent. in one hour. He was operated upon March 18, 1912. With nitrous oxide and oxygen anesthesia and infiltration of one to 400 novocaine into skin and subcutaneous tissue, the operation was performed as previously described. As the growth extended into the lateral wall of the bladder, but two suture points could be obtained by viewing with the cystoscope, the lateral wall being well freed from the surrounding tissue before the incision was made. This operation differed from the others in that I closed the bladder wound completely, first with a row of fine chromicised gut interrupted sutures, and then reinforced it with mattress sutures, the first layer extending to the mucous membrane, but not through it. The skin wound was partially closed, gauze drains being carried down to the bladder sutures properly to drain in case of bladder leakage. A No. 24 French catheter was inserted into the bladder through the urethra.

I believe many bladders we do not close, can be closed, providing the patient has a urethra that can stand continuous bladder drainage. My principal reason for closing the bladder was the fact of urinary fistula which might result, due to the residual urine from his prostatic obstruction. It might be said that his prostate should have been removed, but as he had had one fairly serious operation, and another very serious operation in less than two months, this did not seem advisable. His convalescence was uninterrupted, the continuous catheterization being kept up for ten days; his bladder wound healed perfectly and there was never any suprapubic leakage. His highest temperature was 101° F. and highest pulse 100.

At present he is in excellent condition, has five ounces residual urine, which is clear, although it contains microscopic pus, but no blood. He passes his urine once during the sleeping hours and every three or four hours during the day.

I have included in this series a case (Case VII) that was operated in for a tumor of the fundus of the bladder nine years ago. This growth was under the mucous membrane and attached to the fundus of the bladder to the right of the median line. It was pedunculated and encapsulated. Microscopic examination showed adenofibroma undergoing malignant change. This patient is well and in good

health today. Doctor Welch, of Johns Hopkins, saw this tumor and thought it probably originated from the urachus.

I have recently seen a man fifty-five years of age with a carcinoma in the fundus and right lateral wall of the bladder. This man was in an advanced stage, metastasis having taken place in the prevesical space and extended down into the pelvis. So advanced was it that it was possible to palpate the tumor mass through the abdominal wall. As the patient was suffering so frightfully from tenesmus, a suprapubic operation was done for drainage.

Of my eight cases of cancer involving the fundus or lateral walls, three have been operated in by the method here described; the patients are all alive and well; one operated upon, March 19, 1910, one November 11, 1910, and the last one March 18, 1912. As far as I have been able to ascertain, the method adopted in attacking these growths has not been tried before. This operation is applicable to the upper two thirds of the bladder. It is not difficult to see, through the cystoscope, the dimpling of the bladder wall when pressed upon, and as soon as the threaded needle is passed into the bladder and traction is made on the suture, its position is readily noted. It has certainly made the operative treatment much more satisfactory than guessing at the point of location of the tumor, making the incision, having the bladder wall collapse, and finding the sutures are either too near or too far from the growth, and having to introduce the finger into the bladder to make out this line of incision and have the growth break up. I feel sure that the traumatism to the growth during its removal is one of the weakest features in the operative treatment of tumors of the bladder, and there is no question that by this method, unless there is a very contracted bladder, the operation is not difficult for one accustomed to using the cystoscope.

Of the eight patients reported whose growths were in the fundus of the lateral wall of the bladder, one, not operated on by this method, lived one year and died of metastasis to the throat; one not operated on on account of metastasis being present, died four days after I saw him; one operated on, the operation being abandoned on account of great extension outside of bladder wall, died of intestinal paralysis, ten days after operation; one operated on eight years ago, not by this method, is alive and well; an adenofibroma is undergoing malignant changes; three patients operated on by the method just described, are living, with no sign of recurrence at this time; one three years seven months ago; one two years eleven months ago; and the third one year and seven months ago. The only hope for a patient suffering from vesical neoplasm is surgical intervention, and the success depends upon early diagnosis.

In conclusion, I feel that every patient who presents blood in the urine, unless there is a definite known cause for its appearance, should be examined at once and the source of the hemorrhage ascertained. If this rule is followed, I believe we shall not see so many hopeless cases of late vesical neoplasm.

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END RESULTS OF CRIMINAL ABORTION

With Comments on Its Present Status.

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CASE REPORTS.

CASE I. L. F., aged twenty-eight years, domestic, single. Menstrual history negative; last period was delayed for two days. *Present history:* Considering herself pregnant, the patient consulted a physician with the view to having her supposed condition interrupted. The doctor thereupon inserted a stiff silk bougie, measuring nine and three quarters inches in length (Fig. 1) into her uterus and packed the vagina with gauze. He then instructed the patient to remove the bougie and the gauze twenty-four hours later. Immediately after this operation, the patient began to feel abdominal cramps; she took to bed and patiently awaited the expiration of the prescribed period. On the following day, she removed the gauze, but the hard catheter did not come away with the packing. Her physician was sent for; he examined the patient, but could find no catheter. A consulting abortionist was then called in, who suggested a curettage. This was promptly done, but it did not help to recover the lost instrument.

I was then asked to see the patient. A vaginal examination revealed a small, hard nonpregnant uterus, in a normal position, and the presence of a rodlike substance in the left fornix. A diagnosis of a foreign body in the peritoneal cavity was made, and an operation advised.

Operation. On September 6, 1912, I performed a laparotomy. A small amount of serosanguineous fluid was found in the pelvic cavity. The omentum was curled up around the silk bougie, which by this time lay in the left hypochondriac and lumbar regions. The omentum was unwrapped and the catheter removed. The uterus showed a small rent on the posterior surface of the fundus; there was no bleeding from the tear, so no attempt at sewing was made. The abdomen was closed in layer sutures and a rubber tissue drain was inserted at the lower angle. The drain was removed after twenty-four hours, and the patient made a smooth recovery.

CASE II. G. G., aged twenty-two years, married, para I. *Menstrual history:* She began to menstruate at fifteen years, regular, moderate in amount, and painless. Last period occurred six weeks ago. *Present history:* After an amenorrhea of six weeks, she was curetted at her home, to interrupt her pregnancy. Soon after emerging from anesthesia, she began to complain of severe abdominal pains. For two days the attending abortionist employed all the means at his command to allay these pains, but without success. The family physician, Dr. M. Schwarz, was then sent for. He diagnosed the case as one of peritoneal inflammation, and asked me to see the patient. A vaginal examination at this time proved futile, for the tenderness and rigidity of the lower abdominal wall were so marked as to preclude any satisfactory palpation of the pelvic contents. All that could be felt at this time was a soft patulous external os uteri, bleeding and partly occluded with clots. I ordered the patient removed to the hospital. Soon after her admission, the abortionist called me up on the telephone informing me that he suspected his patient to be suffering from a ruptured tubal gestation sac, for he had found the uterus empty when curetting.

First operation. On July 14, 1913, with the patient under anesthesia and in a lithotomy position, I reexamined her. This disclosed a gravid uterus, of six weeks' duration, so easily admitting the index finger, and some indefinite fullness in the posterior cul-de-sac. After emptying the uterus of the entire products of conception, I reinserted the index finger for the detection of any secundines, and discovered a rent about two cm. in length, in the posterior uterine wall above the level of the internal os (Fig. 2A). The tear extended directly into the peritoneal cavity. A posterior vaginal celiotomy was now performed, and a moderate amount of serosanguineous fluid and old blood clots were evacuated from the posterior fornix. An iodoform gauze drain was inserted through the incision up to about the level of the fundus, and another into the uterine cavity. The uterine packing was removed on the following day,

while the pelvic drains were partly removed, first on the third day, then gradually on the succeeding days, until the sixth day, when all the remaining gauze was removed. The patient slowly recovered, and after a stay of two weeks in the hospital, was discharged apparently cured, excepting that she complained of pains in the left lower quadrant. There were, however, at this time no clinical evidences of a serious nature to warrant a prolongation of her stay in the hospital.

Second operation. A few days after her return home, the patient began to suffer acutely from recurring attacks of abdominal cramplike pains. These attacks gradually increased in severity and frequency, and were accompanied by nausea. On August 7, 1913, i. e., three weeks after her first operation, I saw the patient again at her home, and at this time she presented all the classical signs and symptoms of intestinal obstruction. On the same day I performed a laparotomy and found the following pathological conditions: Part of the ileum, for a distance of four and a half inches, was free from mesenteric attachment, gangrenous, obstructed and adherent by its free border to the left lateral pelvic wall, near the brim (Fig. 3A). Through the rent in the mesentery (Fig. 3B), several coils of intestine prolapsed and became tightly invaginated (Fig. 3C), thus forming a double intestinal obstruction, the former complete, the latter only partial. The incarcerated loops of intestine were released from the mesenteric constriction, the gangrenous portion was resected, followed by enterorrhaphy and closure of the mesenteric tear. The uterine tear was now completely healed. The patient made a perfect recovery and did well.

The injuries inflicted in this case by the abortionist were a uterine perforation, and the tearing away of a loop of intestine from its mesenteric attachment. The reason why the trauma to the small intestine was not recognized at once, becomes apparent when the nature of the injury is considered. Experience has taught us that tearing of the mesentery from a loop of intestine does not cause the immediate death of that portion, and the less the extent of the injury, the longer the interval between the time of the infliction of the trauma and complete necrosis of the part involved. In this case five weeks elapsed from the time that the mesentery was torn off, to the time when symptoms of acute obstruction became fully established.

CASE III. A. B., aged twenty-eight years, married ten years. Had had three children, the last one eight months before. *Menstrual history,* normal, the last period five weeks before. *Present history:* On March 11, 1914, considering herself pregnant about three weeks, she went to her family physician, entreating him to interrupt the pregnancy. Her plea was based on the deplorable economic condition in which she found herself at that time. Her husband, a carpenter, had met with an accident about two months previously, entailing the loss of his left hand, thus rendering him incapable of pursuing his trade. Their paltry savings had been dwindling fast, and the addition of another member to the family would hasten their approach to a state of penury. Moved by this tale of woe, the physician curetted the patient in his office. March 14, 1914, I saw the patient in her house. She complained of pain in the lower abdomen, nausea, sore throat, and sleeplessness.

Physical examination: Pulse 120 to 130, respiration 26, temperature 103.4° F. Heart and lungs were negative; a few follicles were present on the right tonsil. Abdomen, tympanitic, tender over the lower half, but not rigid; enlarged, uniform, movable uterus; the cervix soft and patulous. There was a slight sanguineous discharge. Both fornices were apparently free. Annexa could not be palpated, owing to resistance of patient.

A diagnosis of pelvic peritonitis, and also of follicular tonsillitis was made, laying stress on the latter, for the physician assured me that the patient had had a rise in temperature before the curettage. An expectant plan of treatment was decided upon. March 15, 1914, I saw the patient again. The throat condition cleared up, but the peritoneal symptoms were more pronounced. The nausea

increased, and vomiting occurred a few times. The bowels moved with enemata and flatus was expelled. The high temperature continued and the tympanites progressed. At this time I explored the uterus most carefully, without anesthesia, and found it to be empty. Vaginal examination again proved unsatisfactory. March 16th, symptoms of intestinal obstruction became most pronounced. The patient was transferred to the hospital, and I performed a laparotomy. The condition proved to be an acute general peritonitis, with a volvulus of the sigmoid. Soon after the untwisting of the enormously distended bowel, there was a loud escape of flatus per rectum with a copious discharge of feces. The source of the infection proved to be the pelvic organs, which were covered with a greenish yellow exudate, and free pus was escaping from the fimbriated end of the right tube. The abdomen was closed with interrupted sutures, and drains were inserted into the flanks and the posterior *cul-de-sac*. All known therapeutic aids were employed, but without avail; the patient died twelve hours after the operation. Post mortem examination of the generative organs established the diagnosis of an acute salpingitis with a little involvement of the uterine cavity.

The curettage done in the physician's office was the cause of this most virulent infection; it travelled with consuming rapidity into the tubes, thence into the peritoneal cavity, leaving the uterus almost unscathed, thus producing an acute peritonitis, volvulus, and death.

COMMENTS.

The death rate from criminal abortion in hospital practice may be conservatively estimated as 33.3 per cent. Exact figures cannot be obtained, for the vital statistics are inadequate to give us reliable information on this subject, inasmuch as death certificates record the terminal disease and not the primary cause as the etiological factor of death.

Granting, however, that the death rate is not higher than one third of the total number, in a disease that is absolutely preventable, would we tolerate a similar mortality in any other preventable



FIG. 1.—Hard silk bougie, 9/16 inches in length.

sickness, without being roused to more vigorous and concerted effort?

Why then, when hundreds of young and useful lives are annually swept to destruction and death by the tide of criminal abortion that has inundated our city, do we physicians and society at large view this ghastly spectacle with indifference, I might say complacency?

These charges of dereliction hurled at the medical profession and the community as a whole, are true and sustainable. At present, the practice of criminal abortion is no longer relegated to the midwife and the unlicensed practitioner. Graduates of reputable colleges have adopted it as a specialty. The perpetrators of this crime no longer speak of its performance in hushed tones, but with pride and bravado relate their operations to their timid colleagues, whose patronage they openly solicit and with whom they divide the spoils. Criminal abortions are now being performed in all parts of the city, among all classes of society, and the dire results that frequently follow in its wake are just as gruesome in the palace as in the hovel.

Why does this condition exist? Have not our legislators enacted the most stringent laws against

the illegal interruption of pregnancy? Does not the church denounce in the most vehement terms the enormity of the sin? Do not our ethical leaders and moral teachers employ all forms of educational endeavor to curb this evil? Yet, in spite of all these efforts, legal, religious, ethical, and moral, the number of induced abortions is constantly increasing, and its victims are legion.

Before attempting to answer this complex sociological question, I will offer a critical résumé of a paper on Criminal Abortion by William R. Nicholson (1), for it represents the consensus of the medical profession at large. Doctor Nicholson's opinion coincides with the prevalent ethical view, that interruption of pregnancy, in the absence of pathological indications, constitutes a crime. He upbraids in the most scathing terms "these panderers to human lust" for plying their nefarious trade, and with fiery eloquence like the prophets of old, he denounces "these debased murderers, for defying the laws of God and man." These diatribes, while they may furnish entertaining literary pabulum, do not strike at the root of this evil, nor do his suggestions and remedies bring us any nearer to the solution of this grave social question. Let us follow his line of reasoning, and see whither will it lead.

Should all criminal abortions be reported to the officers of the law? "No," says Doctor Nicholson, "for the doctor is not a detective, and so long as the reporting of criminal abortion is not obligatory, he should not do it." I fail to see sincerity of purpose in such advice. For who is better posted on these matters than the ethical surgeon who sees these cases in consultation or in the hospital service? From whom shall the information come, if not from the ethical members of the profession? Shall they remain quiet, follow the line of least resistance, simply because "there is no legal penalty for silence," or shall they rise above selfish motives, and run every criminal to the ground? The attitude in vogue at present, when the ethical consultant is only too ready and willing to meet the professional abortionist in consultation, and admit his cases to the hospital, which, whether the patient is saved from death or not, serves to clear the culprit from guilt and relieves him of anxiety—so long as this passive attitude is pursued by our consultants, the practice of criminal abortion must gain in momentum.

At one point in his discourse, Doctor Nicholson hints at legislative measures that would make the report of such cases obligatory, but he holds that for the present it is premature and fanciful, as the community will not support them.

What should be our attitude toward the abortionist? "Do not associate with him" is the advice offered. How puerile and naive does it sound! Does Doctor Nicholson really expect that by shun-

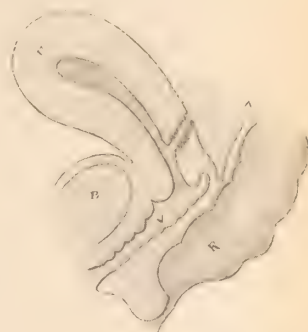


FIG. 2.—A, point of perforation above the level of the internal os, through the posterior uterine wall; B, bladder; U, uterus; V, vagina; R, rectum.

ning these "hired butchers" they will experience any moral pangs, and turn to the straight path? Can we hope that by so mild a remedy as social ostracism "these marauders" who commit feticide and infanticide by the thousands, and quite frequently homicide, will stop their wholesale assassinations, and try to earn a legitimate livelihood? Remedies of this nature display on the part of their advocate, either a lack of psychological knowledge, or a desire to hide our frailties behind a veil of metonymy and childish makeshifts. Avoid the company of the abortionist, is the warning sounded, but see his cases, accept a fee for consultation or operation on his victims, help him out of his difficulties, shield him, do not report him to the police because you will reveal professional secrets; you may do all this, as long as you do not admit him to your inner medical and social circles. What a platitude of hypocrisy and inconsistency.

Should the medical profession attempt to secure

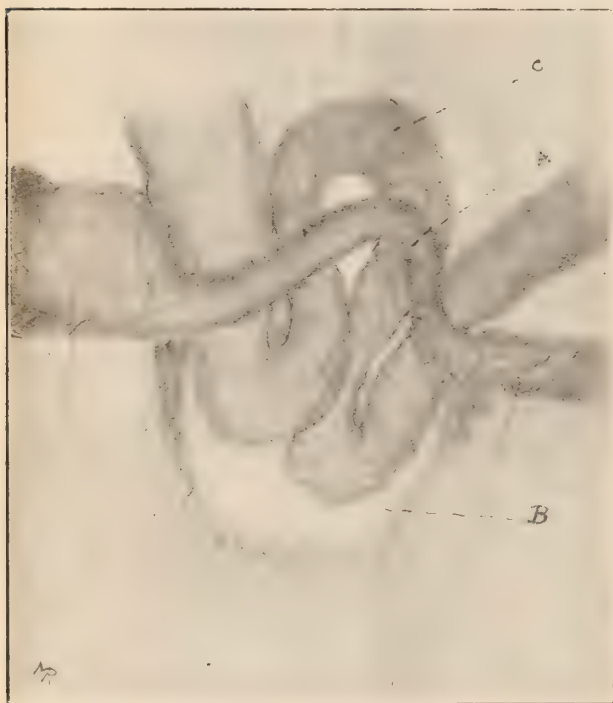


FIG. 3.—A, loop of gangrene obstructed ileum; B, tear in mesentery; C, coils of intestine invaginated in the mesenteric tear.

the conviction of the professional abortionist? Doctor Nicholson is opposed to this as well as to reporting criminal abortions. "We are not detectives or policemen; the detecting of crime is a matter for the police," he says, and with similar generalization sweeps this question aside and passes on to offer what he considers a most effective remedy, "to create a proper medical and public conscience in this matter." Conscience, education, moral advancement, social uplift, etc.; what a convenient network they form to cover society's inward nakedness!

If Doctor Nicholson deems the detection of crime and its report beyond the medical sphere, why then does he want to burden us with such onerous duties as education, ethical culture, and moral improvement? We physicians are mentors of the body and

not of the soul. When we are confronted with a patient suffering from a uterine perforation, from torn intestines, or from a general peritonitis, as the result of criminal abortion, we do not stop to investigate the social stratum from which the victim has been recruited, whether she is the wife of a laborer, or of a banker, a factory girl or a college graduate; we do not delve into the causes that led the victim to this tragedy, but proceed to render the best medical assistance at our command, and try to save life.

The conservative element in the profession, who prefer to follow the trodden path, would consider their task done if the victim has received the best that their medical knowledge is capable of offering and remain at peace with their conscience. This, however, is not the proper vantage ground from which to view this question. Medicine is progressing along much broader lines, prevention is taking precedence over cure, and the same motive should activate all our efforts. The saving from death of a victim of criminal abortion, or making the departure of the helpless one easier is not the highest aim of our ambitions.

We cannot consider the question of criminal abortion as a distinct and separate link in the chain of social iniquities. To separate medical endeavor from other social forces that tend to ameliorate this evil, is an erroneous idea, and as long as we persist in our old fashioned methods of allowing the police, the clergy, and the medical profession to act independently, nothing tangible will result. Let us now consider whether the present means at our disposal are capable of achieving anything definite.

Are the existing laws efficient and applicable? Dr. O. H. Schultze (2) says: "The law in regard to the proof of infanticide states, that the child must be fully born—fully born, mind you—before infanticide can be committed. If the head is out, you can tie a string around its neck and choke it, and you don't commit infanticide. You may receive it into a tub of water before it is fully born, and you don't commit infanticide." Are such laws based upon rational grounds? Are they humane? Are they applicable? What a wide range of latitude it offers the offenders to pursue their traffic unmolested. Not only are such laws stupid and ridiculous, but they are inapplicable, for conviction under them is a most difficult task.

Listen to what Mr. Vandiver (3), counsel for the County Medical Society, has to say on the relevancy of these laws: "During the last ten years we managed to convict and sentence three abortionists; all three of these gentlemen, however, such was their experience and influence, were pardoned by the Governor. In the case of one abortionist, the jury acquitted him; their view being that the abortion was highly successful, that successful abortion was a good thing, and that they did not want to interfere with it at all."

Analyze this citation carefully, and you must conclude that the present laws governing criminal abortion are inadequate. Mind you, in ten years only three abortionists were convicted, when the city is teeming with these "pestiferous vermin." That the present laws do not express the thought and feelings of the community on this question, is evidenced by

the fact that the highest executive officer of the State pardoned the offenders, and that the jury approved or at least acquiesced in such practices.

Is it not, therefore, high time for the medical profession to take a more circumspect view of this social problem, and begin to understand that this phenomenon is not a coincidence, but that its roots strike much deeper than the level to which we are wont to descend? That far broader causes than mere sexual indiscretions lie at its bottom, namely social and economic inequalities that are becoming more and more acute under the present socio-economic system. We ought to realize that laws are the creation of men and that they must necessarily undergo changes to suit the mutations of time and progress. It is sheer folly to adhere stubbornly to old and obsolete dogmas that are the creation of preceding generations. Is it not high time for society at large to cease seeing things as they ought to be, and rather to see them as they are, and to stop passing counterfeits as universal currency?

Doctor Norris (4) displayed true moral courage when he said: "As the attitude of our profession changes, the therapeutic point of view will widen, I believe, as years go by. We shall come to look upon the termination of pregnancy not solely to save life; there will arise situations where greater experience will teach the honest physician that it is justifiable to terminate pregnancy for some causes which we do not tolerate today. It is a question, therefore, I think, of advanced and advancing knowledge; what we cannot avail ourselves of today may be standard tomorrow." Doctor Norris has certainly sounded the proper note, but, bound by the fetters of custom and tradition, he hesitated to state his wishes without equivocation. Why wait for the future? Why not act in the living present? Has not the Moloch, in the guise of the criminal abortionist, had his fill as yet? Are not the deafening cries of the motherless orphans, who have been prematurely robbed of maternal love, piercing enough, that we must falter in our determination to ask for the *legalization of the early interruption of pregnancy*?

Our European colleagues have taken this stand already; we must fall in line. For then, and then only, will the holocaust of criminal abortions cease. For then, and then only, will the professional abortionist be banished from the midst of us. The poor woman who, through force of circumstances, finds herself incapable of caring for additional children, will find the hospital doors ready for her as well as for any other deserving patient, where, under aseptic precaution and necessary skill, she will get proper attention. The rich woman will not fear to approach the ethical surgeon who, swayed by the same motives that govern all his actions, will use proper discrimination, moral suasion whenever possible, and, as a last resort, at least render his patient proper aid, scientific services, safe from chronic invalidism or death.

Impelled by the horrible scenes witnessed in my own surgical practice as well as in that of others, as a consequence of criminal abortion, I felt it my duty to state my views on this question freely and fearlessly. I trust that the profession will interpret them honestly, judiciously, and broadly.

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2. SCHULTZE, O. H.: *Ibidem*, p. 1025.
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4. NORRIS, R. C.: *Ibidem*, p. 1034.

1261 MADISON AVENUE.

A NEW BED BATHTUB.

BY E. A. GALLEGHER,
New York.

A bed bathtub has been invented for the reduction of temperature as in typhoid fever cases, to be used instead of the portable bathtub which is in general use in typhoid and sunstroke cases, delirium tremens, nephritic cases, scarlet fever, paralysis, bed-ridden cases, rheumatism, severe burns, or where a full saline bath is ordered. The tub may also be used for any medicated bath, also for vapor baths and a hot bath following, should the doctor wish to order it.

This tub can be hung up in the bathroom, thus occupying a small amount of space, and will relieve the nurse of lifting the patient, and save the patient



FIG.—Gallegher's bed bathtub.

the inconvenience of being moved about and handled unnecessarily; it also saves the nurse's time. The tub is semicircular, made of light tin, and can be carried very conveniently by the nurse or attendant. It is placed at the patient's back and he rolls in on the side. When the bath is completed, the water is drained off and the tub is turned on the side, thus allowing the patient to roll out on the bath sheet which is spread over the bed; the tub is removed and the patient is covered up.

The tub will be a useful article for the bathing of scarlet fever cases, enabling patients to have their bath in bed, instead of getting up and going to the bathroom, which many people consider unwise, especially if the heart is weak.

199 MONROE STREET.

Protecting the Hand during Rectal Examinations.—According to the *American Journal of Surgery* for October, 1914, the hand of the surgeon may be protected during a rectal examination by passing the index finger through a small opening in a square of gauze, then pulling down over the finger an ordinary rubber cot which meets the gauze, thereby protecting both finger and hand.

IMPLANTATION OF THE GENERATIVE GLANDS AND ITS THERAPEUTIC POSSIBILITIES.*

Successful Autoimplantation of a Testis from a Subject Dead Twenty-four Hours. Other Successful Implantations of Testes and Ovaries from Dead Subjects. Experimental Implantations in Various Conditions, and Cross Implantations of Testes and Ovaries Taken from Dead Subjects.

BY G. FRANK LYDSTON, M. D.,
Chicago,

Formerly Professor of Genitourinary Diseases and Syphilology,
Medical Department, State University of Illinois.

(Continued from page 753.)

APPARENT LOCAL RESULTS OF THE EXPERIMENTAL AUTOIMPLANTATION.

That this mass was for many weeks composed of living, functioning testicular tissue is, to my mind, not an open question. Dead tissue of such loose structure and soft consistence as are the tubuli seminiferi, devoid of the normal fibrous envelopment—the tunica albuginea—and connected by an open wound with the surface of the skin, could not logically be expected to remain *in situ*, much less to become encysted by connective tissue, but would have broken down and come away, either in mass or as débris. Nor would the sinus have healed so long as necrotic tissue was present at its tissue terminus. If the mass was purely inflammatory, it should not have become circumscribed, freely movable on its cord attachment, and relatively lasting, but should have disappeared *pari passu* with the absorption of exudate in the surrounding inflammatory area. The persistence of the tissue mass at the site of implantation, together with the continuance of the apparent physiological results, appear to be conclusive, an opinion which has been held by all who have noted the progress of the case.

As to whether the implanted tissue will eventually be entirely destroyed and replaced by connective tissue is an open question. I venture the opinion that it will not. If the implanted tissue finally should disappear, the temporary nature of the implantation result might logically be explained by faulty technic, embracing too free decortication, which, as elsewhere stated, in future can be avoided. The testis and ovary, if not completely decorticated, should be more likely to endure permanently after implantation, even though considerable atrophy occurs. In this respect they probably differ from the thyroid and other glandular tissues.

If trophic nerve supply is essential to structural integrity, then more or less atrophy of implanted gland tissue should be expected, whatever technic is employed, unless it is conceded that regeneration of such nerve supply may occur.

That apparently complete destruction of the generative portion of gland tissue would necessarily nullify the physiological effects of the implantation is by no means certain. With hardly perceptible tumor, the Leydig cells might still remain and function, producing the all important hormone. They seemingly proliferate and may increase, in amount and activity, the production of internal se-

cretion. On the other hand, they might eventually be so changed by blood, tissue, and trophic influences as to become inert, as regards their internal secretory activity.⁶

In brief, whether or not there is eventually apparent disappearance of the gland tissue after a successful implantation, the method theoretically should be therapeutically useful and its benefits permanent: First, because the interstitial gland tissue may remain and function, producing hormone; second, because the hormone may have done its work of regeneration, the conditions for which we operated having been so profoundly modified by nutritional changes that they do not recur, with consequently no indication for continuing the remedy. If complete atrophy eventually is the fate of implanted testes and ovaries, irrespective of whether the entire gland or pieces are used, and sufficient benefit has not resulted, we still may have recourse to successive implantations of fragments of glands, repeating the "treatment" as often as may seem necessary.⁷

SUGGESTIONS FOR IMPROVEMENTS IN TECHNIC.

The difficulties under which I labored in my autoexperiment require no further comment. That not only the sex gland implantation, but also the technic of the process was necessarily experimental is self evident. In my future work the procedure will be modified by leaving intact all the tunica propria of the testis, save from two to four narrow, longitudinal surfaces, about two or three mm. in breadth, running the entire length of the gland. These narrow bands of decortication will provide for nutrition by the tissue juices of the implantation bed during the formation of vascular adhesions and new blood supply. Vascular adhesions naturally may be expected to form at the points of decortication. The limited area of decortication will not subsequently permit of an invasion of connective tissue from the surrounding structures sufficient to endanger the delicate glandular elements of the implanted organ. The portion of the tunica albuginea still remaining will afford ample protection for the gland tissues beneath it, and probably will soon regenerate and cover such portions of the decorticated area as are not occupied by new bloodvessels.

Incidentally, the tunica albuginea of the testis and ovary probably plays an important part in the trophic or nutritive selective function of the gland, and possibly in the formation of hormone. Thus if the tunic alone remains and the gland tissue proper atrophies, all may not be lost, so far as permanent therapeutic results are concerned.

Under favorable conditions, local anesthesia is sufficient for implantation operations. In the in-

⁶Fresh triturations of gland tissue even may be used in the form of an emulsion, injecting the fluid almost anywhere beneath the skin. Excepting implantation, this would seem to be the most rational method of administering hormone.

⁷The danger of the phenomena characteristic of anaphylaxis naturally suggests itself in connection with successive implantations and testicular emulsion treatment. The author has implanted the testes of cocks repeatedly in the same subject, and even in female fowls without evil results. Implantation in fowls is a severe test of protein dosing. If the testis of the human being was as large in proportion to the body as that of a lusty cock, the gland would weigh several pounds; this aside from the relatively greater activity of the glands of the fowl. The author has also experimented upon guineapigs, upon himself and upon a number of other human subjects with large doses of human brain emulsion, given beneath the skin and intramuscularly, without injury.

sane, general anesthesia is likely to be required, and I have thus far employed it. Asepsis should be most rigid both in securing the glands and their implantation. I am now removing them from the dead body without permitting my hands to come in contact with them. The glands should be removed from the body as soon as possible after death. The slightest degree of decomposition will insure failure. Obviously haste in removing the glands is not so urgently necessary in cold as in warm weather, nor is it so necessary immediately to implant the glands.

The glands should be placed in sterile normal salt solution, or, preferably, in Ringer's solution, immediately on removal from the body, and under favorable conditions implanted within twenty-four hours. As Carrel has shown, tissues may be kept frozen for several weeks and still retain their vitality. This fact perhaps in future can be taken advantage of in preserving sex glands for implantation. In one of my cases (Case IV) the ovary was kept in a refrigerator for a week. In all the cases which followed it, refrigeration was employed for from two to five days, but the results were not encouraging.

An aseptically prepared gland, when frozen, can undergo no change save a certain degree of "autolysis" which will prevent its functioning. Even complete autolysis would not make dangerous the implantation of an aseptic gland. The autolyzed tissue would be likely to be merely appropriated as nutriment by the living tissues of the implantation bed. It is worthy of note in connection herewith that my former associate, Dr. Carl Michel, has experimentally demonstrated that gland tissue kept at a temperature of 37° C. for about twelve hours, loses its functional activities—"functional autolysis." This, he states, is due to relative overfunctioning in the absence of nutriment. Other forms of autolysis he terms: (a) physical; (b) putrefactive.

The loss of activity of the gland in "functional" autolysis is probably due, not so much to a lack of nutriment as to biochemical products of the gland tissue itself, these products (both internal and external secretion) being inhibitory to the vitality of the tissues which produce them. This involves a familiar principle in biology, particularly in pathogenic germ biology.

Excreted into and modified by the blood after implantation, before autolysis has occurred, the gland products (secretion) returning to the gland, are stimulant to its function and nutritive to its cells.

Doctor Michel suggested that tissues designed for implantation should be kept in Ringer's solution at a temperature not below 0° C., and not longer than two weeks, the object being merely to inhibit the biochemical function of the cell enzymes without destroying either them or the cells that produce the ferment.

Doctor Michel is probably correct in his conclusions, although he has overlooked a most important point in his reasoning, viz., freezing possibly may destroy the delicate cells of Leydig and the ovarian interstitial cells of Bouin, without necessarily destroying the rest of the gland. Thus it

is not improbable that glands which have been frozen may sometimes apparently survive implantation and yet not function, especially from the internal secretory standpoint. The aim of implantation is not to insert what must inevitably become a functionless mass of connective tissue and useless generative gland cells into the body of the recipient. The failure of the implantation of glands which were merely "refrigerated" while suggestive, of course does not prove that glands which are completely frozen may not be successfully used.

I am still inclined to believe that the epididymis should be removed where the object is merely gland implantation for experimental or for therapeutic purposes to secure the benefits of internal secretion. While the epididymis probably produces hormone, it is here of no particular service, and by its mere bulk and the mechanical irritation it produces, greatly enhances the danger of failure of the implantation. Again, the removal of the epididymis affords a surface favorable to adhesion and nutrition, without extensive decortication and exposure of the delicate tubuli seminiferi.

The results of anastomosis of the implanted testicle thus far have not been very encouraging. Very little work, however, has been done in this direction on the human subject, and it seems to be a legitimate field for experimentation. Anastomosis of testes from closely related subjects—especially from the living to the living—at least is hopeful, despite the great difficulties attending anastomosis of the spermatic vessels.

When, for any reason, it is desirable to attempt to preserve the generative sex function of the implanted gland, the epididymis and a portion of the vas may be preserved for anastomosis, a procedure which, mechanically at least, is perfectly feasible—and successful in simple anastomosis of the duct in the living subject—by a method devised by myself. This consists of coupling the severed ends of the vas by a strand of heavy silkworm gut introduced into the lumen of the distal portion of the tube and passed down to the epididymis, the other end of the gut being passed well up into the proximal end of the vas and through its wall, and made to emerge through a puncture in the skin above the upper angle of the operation incision. The ends of the vas are brought together on the gut coupling or splint, and covered with the fascia of the cord, much as a plumber wipes a joint. The wound in the scrotum is now closed with fine catgut or horse-hair sutures. On the tenth day, the strand of silkworm gut is withdrawn. This method of anastomosis can be applied without disturbing the cord or testis of the recipient of the implanted gland, further than to expose and divide the vas deferens for anastomosis, as shown by an experimental case of my own.

The obstacles to anastomosis of the small vessels of the cord appear to me to be at present insuperable. That more or less successful anastomosis of a testicle immediately after its removal from the living body is practicable in a certain proportion of cases, is probable. The importance of this is easy of comprehension. There are countries where there are no legal obstacles to persons disposing of portions of their bodies as they see fit. Possibly our

own laws may one day be amended so as to enable us safely to use gland material from the living that is voluntarily submitted to us by its possessor. Meanwhile, if, as is possible, anastomosis of testes taken from dead bodies should prove to be even moderately successful, some wonderful work is likely to be accomplished.⁸

That the chances of failure of implantation are greater where anastomosis is performed goes without the saying, as experiments have not been encouraging and relatively free incision and exposure of the site of operation is necessary, and more tissue of a lesser degree of vitality is implanted than where our object is merely to secure the benefits of internal secretion. If, however, the gland itself should survive, the anastomosis is not likely to fail. Here again arises the question whether Carrel's results in kidney transplantation in the lower animals are equally important as bearing upon sex gland transplantation in human beings.⁹ Obviously, rest in bed for some days should be enjoined in implantations, and for a more prolonged period when anastomosis is performed.

The site selected for implantation is an important consideration, and should be decided on the merits of the individual case. It may be that the sex glands will finally be shown to be quite as successfully implanted in one part of the body as another, but at present writing I venture to suggest that there are points of election. In the male, the site should preferably be the neighborhood of the testis and spermatic cord. The tunica vaginalis will invest the implanted gland on one side, and thereby give it in part a natural covering. The gland tissue probably will adhere more readily to the tunica vaginalis than to the other tissues, and there will be very little connective tissue at the point of adhesion, subsequently by its contraction to menace the integrity of the implanted gland. Future experience may show the advisability of folding and stitching the tunica over the gland. This probably would be wise where only a portion of testis is implanted. I would suggest, also, that where only a portion of the gland—this also applies to the ovary—is implanted, the cut edges of the tunica albuginea should be sutured together to protect the delicate gland tissue from connective tissue invasion. Whether or not there is a special "selective" trophic or blood nutritive element in the environment afforded the implanted tissue by the proximity of its bed to the testicle, is an open question.

Future experience may change my view, but at present it seems doubtful if it would be wise to

⁸It should be remembered that "considerable atrophy" of the testis may occur, without either the generative or the hormone producing function of the gland remnant being necessarily destroyed.

⁹The author feels that he cannot too often insist that failure in transplantation of an excretory organ has little bearing on that of a double secretory organ like the testicle or ovary. Doctor Carrel seems to believe that the results of his experiments should estop organ transplantation altogether, judging by his recent paper before the American Surgical Association. He apparently loses sight of the hormone therapy angle of organ transplantation. I regret that he did not discuss this, more especially as I had corresponded with him about my own experiments, several weeks before. To have mentioned my experiment perhaps would have been only fair to the general scientific bearings of organ transplantation. I further insist that while the preservation of the generative function of the transplanted ovary is not to be expected—save possibly in testicle anastomosis under the most favorable conditions—and that of the testis possibly not at all, sex gland implantation still offers great therapeutic possibilities. As to the local possibilities, I would refer in this connection to the remarkable results obtained in Case vi of my series.

implant the gland into the cavity of the tunica vaginalis. The resulting mechanical irritation, conjoined with trauma of the sac, might produce so much exudation and swelling as to cause severe pain and even endanger the recipient's own testicle. Aseptic extravaginal implantation in no way endangers the subject's testicle.

The second best implantation site doubtless is the pelvic properitoneal space, as will later be suggested for the ovary.

As third choice of location I suggest the mons veneris, the pubis being shaved and the incision made transversely just below the upper margin of the pubic hair. The length of incision, of course, will vary with the amount of fat, an incision one inch in length being ample in spare subjects. By the downward insertion and opening of a pair of forceps or blunt scissors, a pocket may by dry dissection easily be made for the gland. This pocket should extend downward to just above the pubic symphysis. In this location, after the hair again has covered the part, neither the scar nor the small tumor which will result—if the implantation is successful—will cause comment by others. The cavity of Retzius is also safe and accessible. The gland should be implanted high up, or well over to one side to insure peritoneal contact. The axilla appears to be another eligible location, the incision being made well away from the centre of the axilla and the bottom of the pocket made to correspond with about the centre.

One important difference between male and female must here be noted. The former is normally dominated by the psychic influence of a testis that can be seen and felt. He is always conscious of its presence. The reverse is true of the female and the ovary. The psychic benefit of the consciousness of a demonstrable testis, especially in the scrotum, must not be forgotten in the case of the male. It will be by no means a negligible quantity in external ovarian implantations in the female. As to what extent exposure to traumatism may militate against the success of implantations in exposed sites is a matter for future determination. It is, however, worthy of consideration.

In ovarian implantation of glands from the dead subject, which is quite as practicable as similar testicular implantation, and for which the necessary glands of proper quality are much easier to secure, the order of choice of sites for operation appears to me to be as follows:

1. The properitoneal space.
2. The cul-de-sac of Douglas (extraperitoneally).
3. The labium majus, the incision being made high up and the part "pocketed" downward, as in the case of the scrotum.
4. Beneath the mammary gland.
5. The pubic region, as in testicular implantation in the male, better, perhaps, the cavity of Retzius where observation of the implanted tissue is not desired.
6. The rectus muscle.

The peritoneum forms the normal environment for the ovary, and if half or more of the surface of the implanted organ is made to rest permanently on the peritoneum—which by adhesion in successful cases will form a protective and nutritive invest-

ment for the gland—the chances for success will be greatly increased.

An eligible point is the ilioinguinal region, well out toward the anterior superior spine of the ilium. After exposure of the peritoneum, a pocket should be made anteriorly to it, downward into the pelvis.

The cul-de-sac of Douglas is an available and logical site for implantation. A small vaginal incision should be made posterior to the uterus, the peritoneum being carefully pushed up with the finger, thus making a pocket for the reception of the implantation gland.

The labium majus is a particularly eligible site, because of the proximity of the canal of Nuck, which is a peritoneal derivative and the analogue of the tunica vaginalis in the male.

I will reiterate that a point in favor of "exposed" sites of implantation in some cases is the psychic effect of objective evidences of success on the mind of the patient, which sometimes is so desirable. Incidentally, the surgeon can determine whether or not the implantation is successful.

The methods of Tuffier and of Martin of implantation within the pelvis and rectus muscle of ovarian tissue from living donors, is a procedure entirely different from that under discussion. Heterointraperitoneal implantation within the pelvis is unnecessary and has an element of danger. For experimental purposes especially, it is usually best to implant the gland in a part accessible to observation, and from which, if desired, it can be subsequently removed. To imitate the natural environment as closely as possible, I suggest the experiment of partially wrapping the testis in a graft from the tunica vaginalis or peritoneum, and the ovary in "appendage" peritoneum, whenever the implantation site is more or less remote from the normal ovarian or testicular environment; in brief, where the environment would otherwise be alien, or possibly even hostile, it can possibly be made temporarily akin, or at least friendly. Should the membranous lining of the implantation pocket, as is probable, be absorbed, it will have served its purpose of a matrix for the growth of a thin protective layer of connective tissue. I suggest a similar technic in thyroid implantations, also that implantation in the normal habitat of the thyroid is more logical than elsewhere. Where the tissue has no capsule, or the capsule is insufficient, fascia may be used as a protective "capsule"; theoretically, a piece of peritoneum should be ideal.

Ordinary connective tissue is a deadly foe of glandular, brain, and nerve tissue, as shown by its effects in cirrhosis of the liver, interstitial nephritis, and various diseases of the cerebrospinal axis. So far as possible, therefore, we should protect the implanted gland from invasion by it. It is well to remember that the environment of the ovary is such that it should be removed from the dead body relatively earlier than the testicle. The close proximity of the bowel is favorable to early pelvic decomposition.

In implantation in either sex, care should be taken: First, to make as limited an incision as is compatible with the insertion of the gland. As the gland is soft, and the skin and fascia elastic, a very small incision will suffice. Second, to insure that

the dissection of the pocket shall be as dry as practicable and to traumatize the tissues as little as possible. Third, to avoid injuring the delicate gland tissue during its preparation and implantation. It should not be regarded as dead insensitive tissue that may be recklessly mauled, but as living tissue to be carefully handled. Fourth, to use the finest chromic gut—or better, perhaps, iodized gut—and insert no more sutures than are actually necessary to a perfect closure. The pursestring suture for the fascia is ideal. Fifth, at all times to avoid rough manipulation of the implanted gland during healing, and especially to manipulate it as infrequently and as gently as possible, while adhesions and vascular supply are forming.

The problem of the quantity of gland necessary for implantation is a most important one. If the major premises outlined—or suggested—in this paper are correct, this problem practically involves the question of the proper dose of internal sex gland secretion in various conditions and in individual cases. If a fair average of successes should prove to be practicable, an entire testicle body is preferable. In general, however, probably one half of a testis is sufficient to give definite physiological results, and is surer to be preserved than a whole gland. In the case of the ovary, however, I am inclined to believe it better to implant an entire ovary, even though a small portion of the gland is seemingly sufficient to preserve the secondary sex characteristics and often even to prevent the nervous wreckage incidental to oophorectomy.

If the implantation is successful, the dose of internal secretion, however large or small it may be, is continuous. It is for this reason that a relatively small portion of implanted sex gland tissue is likely to be efficacious. Even though implantation should prove successful, definite results should probably not be hoped for before six or eight weeks after the implantation, at which time establishment of circulation in the gland—if it survives—may reasonably be expected.¹⁰ In general, it is probable that such results as may occur will be noted earlier in testis than in ovary implantation, and in the case of the testis, earlier where the gland has been decorticated, although complete decortication endangers permanent success. The establishment of a sufficient vascular supply is essential, not only to the life of the gland, but to the necessary supply of materials from the blood for the elaboration of internal secretion, and to the entrance of the latter into the blood.

The story of sex gland internal secretion therapy can be simply told. *The hormone is a cell stimulant, nutrient, and regenerator.* The application of the principle is, of physiological necessity, far reaching. It may in a measure serve to reconcile Bichat's humoral pathology and the cellular pathology of Virchow and prove them to be equally logical, but only half truths. A more highly developed neuropathology will probably be the connecting link between them. The germ, however, will not grow less important in etiology, but, as time goes on, undoubtedly will be aggrandized as a causal factor of disease. In brief, the microorganism will be more clearly understood as merely the agency through

¹⁰From the results of my own experimental work I infer that results may be expected at a much earlier period.

which most pathological machinery is set in motion.

Should implantation ever become an established therapeutic procedure, as it seems logical to predict that it will be, it will doubtless be found that the required dose of internal sex gland secretion will be governed by: 1. The age and general bodily vigor of the recipient of the gland. 2. The age and presumed general and sexual vigor of the dead subject from which the gland was taken. 3. The disease and the stage of disease for the cure of which implantation is done. The cause of death of the donor is of vital importance. The safest subject is one dead of violence. Subsequent experience may show the safety of using glands removed from subjects dead of various diseases, notably nephritis and disease of the heart. Let us hope for this, as selection restricted to subjects dead of violence greatly limits the possible supply of eligible material. Subjects dead of infectious diseases, or affected by malignant disease, whether or not it is the cause of death, and those of a known cancerous heredity especially, are to be avoided. Aside from their dangerous character, testes removed from subjects dead of general infection undergo softening and decomposition with astonishing rapidity. In general, subjects dead of either acute or chronic infectious disease are not promising sources of sex gland supply, for two reasons: 1. The possible danger to the recipient; 2, the lack of vitality of and the rapidity with which autolysis occurs in the glands from the donor. The future alone can show how far we may safely take liberties in this direction. I fancy that we can safely take none.

It should be borne in mind, however, that the conditions in which gland implantation is indicated are often such that even considerable risk would be justified. On the average, the dangers of infection cannot equal in gravity those of the formidable surgical operations that we daily perform, and implantation *per se* is not dangerous to life. Perfectly normal and entire testes and ovaries are not absolutely essential. Fragments of normal portions of gland tissue taken from sex organs may be utilized, where neither the subject nor the gland is affected by malignant disease, tuberculosis, acute or chronic infection—purulent or other. When the recipient of the gland is known to be syphilitic, syphilis in the donor may be disregarded. It possibly may even add to the value of the gland. The uninfected glands of patients dead of tuberculosis are likely to be especially valuable, if the applicability of the method to the treatment of tuberculosis should be proved. Theoretically, tuberculosis should be found to be an inviting field for sex gland therapy. The only theory of treatment of the disease that has stood the test of time is that of nutrition, first, last, and all the time. The inference regarding the indications for sex gland implantation is obvious.

In any general bacterial infection of chronic type there is systemic reaction of ordinary glandular, internal, and lymphatic secretion. The lymphatics, in the attempt to filter the toxic substances and the internal secretory glands, stimulated to hyperactivity, act in combination with the other defensive factors to overcome the infection. Sex glands taken from an individual who has developed a relative immunity to the infection by means of his natural

physiological resistance, and thereby decreased the relative virulence of the infecting organism, theoretically should possess, *ceteris paribus*, special therapeutic potency. Transplanted to an individual suffering from the same disease, the hormone of such glands should increase cell resistance and stimulate to greater activity the physiological nutritive defensive cycle, thereby aiding in overcoming the infection.

In treating experimentally tuberculosis by sex gland implantation, we therefore may use glands taken from subjects dead of that disease. There probably is little or no danger of local infection if the glands are macroscopically sound. The ovary, especially, should be safe, for it rarely is affected by tuberculosis, and even in the testis primary tuberculosis is rare. The hormone from the internal secretion of the implanted gland might be less in quantity and inferior in quality to one from a normal subject, yet potent enough to restore the balance of nutritive defense against the tubercle bacillus.

The excessive sexual activity noted in many victims of tuberculosis is here worthy of consideration. Is there a relative excess of gland activity with excess hormone thrown out as a defense, with coincidental sexual excitation, or is the tubercle toxin itself a psychosexual stimulant? I would suggest that the Fauser-Abderhalden test might show some interesting results in this field.

In cases of complete castration in either sex, a double implantation is likely to secure the best results. Obviously, even admitting that a single gland is therapeutically sufficient, double implantation gives one hundred per cent. better chances of success. If impotence and sterility in the male, it would seem rational to implant an entire gland, not only from the viewpoint of the dose of internal secretion, but also because of the more profound psychic effect thereby attained. A successful anastomosis possibly might restore the procreative glandular secretory function. In certain cases of sterility in the female, where the secondary sex characteristics are not marked, or the general vitality is low and there are no mechanical pelvic impediments from malformation or disease, a large dose of ovarian internal secretion possibly may stimulate the recipient's ovaries and induce fertility. This also applies to certain males in whom spermatozoa are formed, but in whom they are small in number and feeble in vitality.

The age of the subject from which the sex glands are taken for implantation is of great importance. Subjects from about the age of puberty to twenty-five, or perhaps even thirty years of age, are best, as at this time sex gland function is very active. The younger the subject—below eighteen or twenty years—the less the danger of encountering syphilis, and the more active the propensity for growth after implantation. Obviously, the danger of syphilis is relatively less at a given age in the female than in the male. Glands from subjects much younger than pubescents eventually may be found to be of especial value in meeting particular indications, more especially as pubescence is not really necessary for the production of hormone.

Again, we possibly may secure good results from the implantation of glands taken from subjects of

relatively advanced age. Testes from donors of even the recipient's own age at least may prove effective. Advanced age is associated, not only with a senile quality of internal secretion, but also with a relatively deficient quantity. The successful implantation of a single generative gland would logically increase the supply of internal secretion by one third, with proportionate benefit to the recipient. The foregoing remarks apply especially to the male, in whom the procreative period—and probably also the internal sex gland secretory period—lasts much longer than in the female. In dementia præcox and allied conditions, a healthy gland taken from a subject at any age below middle life possibly may be effective, if, indeed, sex gland implantation should hereafter prove to be effective at all in such cases.

Racial distinctions possibly need not be drawn in procuring implantation material, unless anastomosis is proposed. Theoretically, sex gland activity is likely to be greater in certain donors than in others, merely because of racial qualities. There is even a serious question in my mind, however, as to whether the tissue and blood elements of the recipient of the anastomosed gland would not eventually overcome any racial potentialities that might exist in the spermatozoa secreted by the implanted gland. This I found experimentally to be true of skin epithelium in cross grafting skin in negro and white, in 1880, a result verified by other experimenters. It is possible, moreover, that even the potential individual and family characteristics inherent to the anastomosed sex gland would be similarly overcome.

Tuffier asserts that transplantation of the ovary from white to black and vice versa fails of success. My experience in this regard is limited to a single case. On March 18, 1914, I implanted in the axilla of a woman aged sixty-seven years, afflicted with senile dementia, an ovary from a mulatto woman of forty years, dead eight hours of disease of the heart. Although greatly shrunken, the implanted gland apparently is still living.

That the Wassermann test should be employed where practicable goes without the saying. It must be remembered, however, that no more than a single test can be made on a dead body, and the test alone cannot be relied upon to eliminate the danger of infection. If it is shown later that freezing of the sex glands does not seriously impair the chances of success in implantation, there will be no necessity for urgent haste in implanting the gland, the work can be done with deliberation, and a Wassermann always will be practicable.

The danger of syphilis is minimized by the probability that *Treponema pallidum* lives but a few hours after the death of the host. Freezing probably kills the protozoon within an hour or two. If, therefore, frozen, or even refrigerated, glands should be shown to be satisfactory for implantation, the danger of syphilis would be practically nil.

In passing, I would suggest that, from the hormone therapy standpoint, it would be interesting to study the results of cross implantation of the sex glands of male and female. The experiment, at least, is practicable. I report herewith (Case VI)

a case in which I implanted a testicle in a senile female dement.¹¹

As to any essential difference between the male and female sex gland hormones in their influence on sex development, I have this to say: The primary sex characteristics are probably laid down in the initial combination of the male and female generative gland secretions—i. e., ovule and spermatozoon—and are inevitable phenomena in embryological development. The hormone, apparently, merely determines by its activities the secondary sex characteristics. Once these have developed, it may be a matter of indifference whether the body cells, even those of the sex glands themselves, are fed with male or female hormone. Accepting this hypothesis, the ovarian hormone should be therapeutically effective in the adult male, and vice versa. Possibly the male hormone is more powerful and likely to be more effective than even the ovarian, in the sex gland therapy of the adult female.

The persistence of typical sex characteristics, sexual power and desire in animals castrated late, after the internal secretion has done its work—e. g., geldings—is here again worthy of note.

APPARENT PHYSIOLOGICAL EFFECTS OF TESTICULAR GLAND IMPLANTATION.

With due regard to the difficulty of excluding the psychic element in therapeutic experiments, particularly as regards subjective phenomena, whether the experiments are of the autovariety or the heterovariety, I will present the apparent results of my own self experiment. Apropos of the possible "psychic" element in my observations, several facts should be remembered: First, my experiment primarily was designed merely to decide the question of the feasibility of successful implantation of sex glands from a dead subject; second, the local discomfort, a certain degree of apprehension, and the inconvenience resulting from the operation were such as tended, during the early postoperative period, to offset undue optimism based upon subjective sensations; third, the apparent results were such as are logically compatible with our knowledge of internal secretions, particularly of the sex glands; fourth, the implantation *per se* practically was a success, even though the gland proper through faulty technic, or other cause, or inevitable biological handicaps, should not permanently endure; fifth, subsequent observations (Cases II and VII) verified the conclusions to which my autoexperiment led me, so far as the effects of the sex hormone on nutrition were concerned.

The phenomena I shall here record were, so to speak, by results. I present them for what they are worth, hoping to make more comprehensive observations in future work.

The transient exhilaration usually experienced from cocaine did not follow the use of the mixture of novocaine, quinine, and urea hydrochloride. Despite considerable pain and some natural apprehension as to local results, there began at the end

¹¹Since the foregoing experiments were made my attention has been called to Steinach's unsuccessful experiments of ovarian implantation in castrated male animals. Steinach makes no comments on the hormone therapy usages of such experiments. (*Jahrbuch, 6 für sexuelle Zwischenstufen*, January, 1914.)

of twenty-four hours a marked exhilaration and buoyancy of spirits, lasting for about twenty-four hours, at which time considerable swelling of the operation field and adjacent parts had developed. Possibly the stimulation experienced was merely delayed action of the local anesthesia. I am of opinion, however, that it was due to the absorption of secretions from the semidecorticated gland, which absorption temporarily ceased synchronous with the development of inflammatory exudate about the implanted tissue, or because of temporary exhaustion of the supply, the gland not having as yet begun to function. This I will term the "initial dose" of hormone.

On the seventh day after the operation, I again became conscious of stimulation and buoyancy so marked that I took an undue amount of exercise, attending the theatre in the evening. It was on the day following that increase of local discomfort led to an attempt to remove the implanted gland. Following the traumatism incidental to removing half the gland, the sense of stimulation disappeared, to return on or about the tenth day. I suggest that the second period of stimulation was synchronous with the beginning of the establishment of vascular adhesions and consequent functioning of the gland, with absorption of internal secretion, i. e., what I will term the "secondary or physiological dose" of hormone. This was checked by the traumatic reaction induced in the implantation bed, but recurred as soon as this began to subside, and was marked for several weeks, being gradually replaced by what might be termed a normal consciousness of unusual physical and mental vigor.

While the sense of stimulation was at its height, ability to endure physical and mental labor with much less than the usual amount of rest and sleep was noted. This has gradually lessened, *pari passu* with shrinkage of the implanted tissue, but both physical and mental efficiency are still far greater than before the implantation.

Blood pressure seems to have been greatly modified. December 28, 1913, it was recorded at the Chicago Laboratory by Dr. Ralph Webster. It registered 140, which was essentially what it registered on numerous other occasions. February 1 and 10, 1914, it was taken by Doctor Michel, and registered 120. On February 18th Doctor Webster recorded it as 120. Doctor Michel recorded it again as 125 on February 23d and 28th. Doctor Dagg, at the Chicago Laboratory, recorded it as 125 on February 25th. Doctor Michel and Dr. John McKinloch, March 7th, recorded it as 120. Doctor Michel recorded it as 125, Doctor Dagg and Doctor Croy, as 128, March 24th, and Doctor Webster as 128 on September 5th. Two different instruments were used.

I present the foregoing record without comment, save to remark that the reduced blood pressure has been associated with increased mental and physical vigor, and was taken in each instance when I was working under "a full head of steam."

There was a distinctly perceptible change in the bloodvessels. A moderately varicose condition of the veins of the legs and arms markedly improved. The temporal arteries, which had been decidedly and disquietingly prominent, became in-

dubitably smaller, and their walls softer. *Pari passu* with shrinkage of the implanted tissue and diminution of hormone dose, the vessels have become more prominent, but by no means so prominent as before the experiment. There has been no change for the past two months.

A decided change in the heart action has been noted in a certain direction; I have been troubled for some years by frequent attacks of cardiac irritability, probably due to overindulgence in smoking, combined with mental overwork and the worry incidental to the exigencies of practice. Often palpitation on retiring prevented sleep for several hours. This symptom entirely disappeared and has not recurred.

While the dose of internal secretion was at its height, a very peculiar symptom was noted; my glasses seemed to be "misfits." I paid little attention to this, however, having no suspicion that the ocular disturbance bore any relation to the results of the experiment. As the same interesting phenomenon occurred in the case of ovarian transplantation shortly to be presented, I have concluded to record it here. The explanation of the symptom would seem to be a stimulation of the muscles of accommodation. The condition is still slightly noticeable in my own case. A test of accommodation by Dr. J. E. Colburn, May 14, 1914, showed it to be practically the same as at his last examination, nearly four years ago. There has been, if anything, a slight increase in the range of accommodation.

There has been an improvement in the circulation of the skin, so marked as to excite comment by persons who had no knowledge of the experiment. Incidentally, resistance to cold appears to be increased. The hemoglobin record, which had ranged from ninety to ninety-five for some years, since the implantation has been 100 plus. As no test had been made for some time prior to the experiment, this deserves no special emphasis, yet it might not be amiss to call attention to Case VII.

The effect of the implantation on the sexual function was merely what might have been expected from local irritation in any normal individual at the same period of life. As to what might result in cases of impaired sex function, no deductions can be drawn from this particular experiment, save that the psychic effect of reflex stimulation and the increase of tone should be markedly beneficial. Case III is more to the point.

As to what might result from a dose of internal secretion larger than that afforded by the portion of gland still remaining *in situ*, in a person whose mental faculties are not under stress and preoccupation, a definite opinion would be premature, but a decidedly stimulating or perhaps permanently tonic effect should logically be expected, judging by the report of my second case of testicular implantation shortly to be recorded (Case III), and judging by our knowledge of the relation of general well being to sex vigor, and the marked improvement in physical and mental efficiency resulting from a moderate dose in my own experimental case.

Supplemented—where indicated by the mechanical vascular conditions—by resection of the vena

dorsalis penis, as modified by myself, successful sex gland transplantation should not often fail to relieve impotence where serious brain or cord disease does not exist.

There has been an increase of ten pounds in weight, which may or may not be significant.

Brown-Séquard noted a pronounced stimulation of the function of the bowel following the self administration of his animal extract. As a victim of a rather constipated habit, I regret that my own experiment was not attended by a similar result.

The most remarkable apparent result of the implantation is the following: In 1898, following a septic wound and an attack of grippe, followed by appendicitis, for which I was operated on, September 10, 1899, by my friend, Dr. Robert T. Morris, of New York, I acquired an epithelial nephritis. From this I recovered under the care of my friend and colleague, Dr. William E. Quine. Since that time, however, I had been somewhat annoyed by marked edema of the lower extremities appearing at the end of the day, and often persisting during the entire twenty-four hours. This gave me considerable anxiety for some years, but as my general health became excellent, the kidney difficulty disappeared, and there were no heart complications, I ceased to concern myself about it. There also had existed, for fifteen years or more, a marked keratosis of the soles of the feet, which, combined with an eczematous condition of the flexures of the toes, gave me much annoyance. At one time I consulted my friend, Dr. Joseph Zeisler, regarding it. Nothing seemed to benefit the condition, and I finally abandoned the idea of curing it, contenting myself with the occasional application of palliative ointments. About four weeks after the implantation experiment, the skin of my feet had become normal, with an unusually healthy color. Doctor Zeisler examined them on February 27, 1914, and remarked that the skin was as soft and flexible as that of a young person. No remedial applications of any kind had been made for several months. Possibly it may be contended that the improvement in the condition described was nothing but a coincidence, but it certainly must be admitted that it is not incompatible with the probable effects on nutrition of internal sex gland secretion. (Note also Case VII.) Granting for the sake of argument, that the change in the skin really was due to the internal secretion of the implanted gland—and this I feel positive is the true explanation—what may we not expect from the action of internal secretion on the bloodvessels? Indeed, judging from what probably resulted in my own vessels—and from a small dose—and in Case II, should a definite action of sex hormone on the bloodvessels be proved, victory over senile changes may not be an enthusiast's dream, and old age may come to be regarded as in a sense a curable "disease."

September 5th, 1914, the keratosis has not returned, and the skin is still normal, save at the borders of the soles, where in certain limited areas it is dry and slightly eczematous. Following a recent attack of digestive disturbance of several weeks' duration, there has been a slight recurrence of edema of the legs.

From my experience in my own case I was in-

clined to believe that psoriasis and kindred diseases were due to perversion of internal secretion. The results of sex gland implantation in Case VII have impelled me to the firm conviction that this theory of their etiology is well grounded. As to the possibility of the cure of certain chronic diseases of the skin, the general principle is self evident, and no comment is necessary.

I regret to say that no careful observations of the effects of the implantation on the heart and respiration were made during the progress of the experiment. cursory observation of the pulse showed a beat temporarily rather higher than my normal average, but this may have been purely neurotic and is merely worth casual note.

(To be continued.)

A CURETTE FOR THE ENDOTYMPANUM.

To Be Used in Treatment of Chronic Suppuration of the Middle Ear.

BY EDWARD L. MEIERHOF, M. D.,
New York.

As a contribution to the equipment for the treatment of tympanic disease, especially the epitympanic and hypotympanic spaces and the Eustachian tube, I wish to offer a curette which has given me most excellent results. The idea was borrowed from Dr. F. Skeel's instrument, which he used with success in shredding out the sac of a Meibomian cyst. I have adapted this instrument to the treatment of middle ear suppuration.

The curette is a serrated cup on a flexible shaft, and is made in two sizes; the larger for the removal of polypi and prominent granulation masses, and the smaller for the tube and crevices. With this instrument the operator can enter the Eustachian tube, the epitympanum, the hypotympanum, and



FIG.—Middle ear curette.

work over the promontory without fear of injuring the round or oval fenestra. When working with it, the operator must be able to see very definitely what it does, while groping in the dark is inexcusable.

The curette is held lightly between the thumb and forefinger, and its bowl is applied very gently so as to shred over the diseased parts. The ease with which these curettes can be employed, and the results that follow, will be found very gratifying. As no violence in the way of pressure, etc., is required, the reaction is not severe. Occasionally the operation will have to be repeated, but in most instances a single curettage suffices.

In removing polypi this curette enables one to dispense with the snare, an instrument which, by the way, I regard as a very hazardous one, and believe that at times meningitis has been induced by the evulsion of polypi with it.

Aftertreatment with dry wipes of cotton on toothpicks, or dipped in alcohol or nitrate of silver, either in solution or fused on a probe, may be necessary. Anesthesia is obtained by introducing into the tym-

panic cavity, a toothpick armed with cotton wet with adrenaline one to 1,000, followed by dissolving several grains of flaked cocaine on the toothpick wad. After fifteen minutes' contact, one can proceed to operate without discomfort to the patient.

I have used this in the case of children ten years of age, but for younger children general anesthesia may be required. With this instrument I have been able to work through perforations, but when the same are not large enough to permit of free entrance, they can be widened by making a right angled flap in the membrana tympani and laying back the flap.

Thus far I have treated, with this curette, fifty cases of chronic suppurative otitis with very gratifying results.

1140 MADISON AVENUE.

SYPHILIS IN COLORED CANAL LABORERS.*

A Résumé of 500 Consecutive Medical Cases.

BY WALTER G. BAETZ, M. D.,
Canal Zone,

Physician, Ancon Hospital.

The reason I offer for my temerity in discussing such a hackneyed topic as syphilis is twofold. In the first place, syphilis is such a protean infection that in some of its manifestations it frequently goes unrecognized. Secondly, this infection is undoubtedly increasing in the Canal Zone, while the non-venereal infections are reduced to a minimum and are under control. This granted, the medical, economic, and sociological interest in the often discussed disease will be heightened sufficiently to merit a return to the subject.

The 500 consecutive cases upon which this paper is based were admitted to the adult, male negro, medical wards of Ancon Hospital from December, 1911, to October, 1913, a period of twenty-three months. Many cases of the primary disease are admitted to the surgical wards. Men who are suffering from eye, ear, nose, and throat symptoms principally are usually treated in that department. Neither are here included. These conditions narrow the discussion down to so called medical cases. Taking into consideration, furthermore, the fact that latent and obscure cases are daily overlooked, it can readily be seen that an estimate of the incidence of syphilis among our negro laborers is out of question. There was a total of 8,226 patients admitted to the male negro medical wards during the period in which these 500 cases were treated. This shows that six per cent. of our admissions are known to be syphilitic. Of the total 500 cases, 366 came to the hospital to be treated solely for syphilis or its direct sequelæ. This means that 4.4 per cent. of our admissions are for syphilis alone. Considering that malaria is the cause of

the majority of our admissions, this percentage is decidedly high.

If all these cases had been examined by one man, with the purpose in view of presenting a study of the disease in the Canal Zone, the accuracy and resulting value would have been much enhanced. This is not the case. The physical examinations of the patients were made by numerous physicians in the discharge of their routine ward duties. The notes made, consequently, reflect the chief reasons advanced for the established diagnosis, rather than an itemized account of the patients' total physical abnormalities. Though this is detrimental to scientific tabulation of the different manifestations of the disease as it exists, it is hoped that the very absence of detailed statistics will be of some value to the diagnostician whose time is limited, and whose duty it is to arrive at a diagnosis rapidly, that he may proceed to treatment. In the building of this canal, the stress of work has usually necessitated a rapid diagnosis and an intensive treatment, so as to return the laborer to his work as soon as possible.

A question frequently asked by members of the profession visiting the tropics is: Do you see all of the diseases we have in the temperate zones and, if so, do these diseases in the tropical climate and native run the usual course of their prototypes in temperate climates? The answer of those with experience in tropical medicine has always been that some of the diseases of temperate climes are practically unknown in the tropical native, and that others show peculiar variations. A secondary question that in many respects still awaits a satisfactory answer is, whether this is due to climate, locality, race, or mode of living. Among over 20,000 medical admissions to this hospital, of tropical male negroes, or those of negro blood, the writer has failed to find a case of acute articular rheumatism, scarlatina, or tabes dorsalis. Only one case of dementia paralytica was noted in a Colombian negro of Indian type. Diabetes mellitus is exceedingly rare. Acute and chronic nonsyphilitic valvulitis is decidedly uncommon compared with its frequency in northern hospitals. The absence of acute articular rheumatism and scarlatina offers a good reason for the scarcity of nonsyphilitic valvulitis; but even in the thousands of cases of lobar pneumonia among our laborers, acute valvulitis is comparatively infrequent. Uremic convulsions are rare, while chronic nephritis of all types is especially common. One of the aims of this paper will be an attempt to show that certain syphilitic manifestations, in addition to the absence of tabes dorsalis and the rarity of paresis, are much more prevalent than among Caucasians in their northern abodes. A number of years ago, a paper giving detailed statistics concerning the frequency of different syphilitic manifestations in Southern negroes, was published by Surgeon Henry Carter, of the Public Health Service. I regret that I have not a copy at hand for reference and pertinent quotation.

THE PATIENTS' HISTORY AND REASON FOR ADMISSION.

The history of previous and present illness that can be obtained from our negroes is practically worthless. In their readiness to deny previous or

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existing venereal disease, they are the equal if not the superior of the white man. Pain and disfigurement bring most of them to the hospital. This has a tendency to restrict the picture of the disease as we see it in the wards to certain types. A macular syphilide will be entirely overlooked or ignored by the patient because it seldom occurs on the face, while a papulopustular eruption, commonly seen there, will bring the sufferer to the physician post haste. In a tabulation of the 366 patients of this series who applied for treatment solely because of the syphilitic infection, pain, particularly nocturnal, was the chief complaint of 277 of them. The larger joints were the site of this pain in 136 cases. Pain in the bones was the second most common location, being present in forty-seven patients. Only twenty-seven patients mentioned a rash. The remainder complained of more or less diagnostic symptoms, but they were relatively few in number.

PHYSICAL SIGNS AND OBSERVATIONS.

Table showing the relative frequency of syphilitic manifestations noted in 500 consecutive medical cases of syphilis in negroes.

	Cases.	Per cent.
1. Adenopathy	440	88
2. Genital chancre or scar	326	65
3. Arthritis, periostitis, exostoses.....	301	60
4. Cerebrospinal lesions	182	36
5. Skin lesions	140	28
6. Cardiovascular lesions	50	10
7. Gummata and visceral infiltrations.....	25	5

Glandular enlargement was found in 440 or eighty-eight per cent. of the series. This was the most frequently present sign pointing toward syphilis. There is no question that this percentage is too high to be correct as far as the syphilitic infection is concerned. A variety of tinea cruris (Dhobie itch) is well nigh universal among our patients, and with its frequently present complication of mild mixed infection, is responsible for much of the inguinal, axillary, and cervical glandular enlargement. Other more or less purulent, nonsyphilitic infections of the genitalia also cause much inguinal glandular enlargement and induration, depreciating this sign greatly. The value of adenopathy depends upon its presence in more than a single group of glands, the absence of non-specific skin infections, and the stage and activity of the disease. It was uncommon not to find general adenopathy during the inflammatory, constitutional stages of the disease.

In the physical diagnosis of syphilis in the male, great stress has always been laid on the presence of the initial lesion, or a scar as the result. As previously mentioned, this series contains but few cases in the primary stage, such cases being treated by the surgical division. Among the total 500 patients an initial lesion was found in thirty-eight. Genital scar and scars were present in 288. This gave a presumptive evidence of syphilis in 326 cases or 65.2 per cent. of the total number. The error here of course is that every genital lesion is not a chancre and that a genital scar is even more apt to result from a chancroid than from a chancre. On the other hand, it is well known to be impossible to rule out syphilitic infection in the presence of any break in the genital integument existing at the time of, or occurring during sexual intercourse. The diagnostician who still attempts to differentiate chancre and chancroid by their physical ap-

pearance alone, is sadly behind the times; also, it is not as rare as might be thought, to find a case of well defined secondary syphilis at the time of its first eruption, in which, as far as can be determined, a macroscopical chancre has never been present.

The third group of lesions, in frequency, was the syphilitic changes found in the bones and joints. The involvement of these anatomical structures in our tropical negro is far in excess of that which occurs in the Caucasian in or out of tropical latitudes. The number of cases in which the infection involved bones or joints was 301, over sixty per cent. of the total 500 cases. Exostoses of the tibia were found in 131 cases. Acute and subacute syphilitic arthritis and bursitis were present in eighty-eight cases. Acute periostitis of the sternum and tibia was found in thirty-two cases, while the same condition was noted in the sternum alone twenty-four times and in the tibia alone in eighteen cases. Acute periostitis of other bones made up the remainder of eight cases. Excepting only the secondary lesions of the skin, this involvement of the osseous and articular structures was our one best sign in the diagnosis of syphilis. It is in this type of cases that syphilis has been most frequently mistaken for some other disease. Acute articular rheumatism has often been diagnosed where the true condition was a syphilitic arthritis and bursitis. The analgesic effects of large doses of salicylic acid salts have no doubt been an additional misleading factor. Another common error was to mistake syphilitic arthritis for metastatic gonorrheal infection.¹ Acute periostitis of the sternum or a syphilitic inflammation of its articulations is not infrequently termed pleurisy, intercostal neuralgia, pleurodynia, neuritis, and the like.

The lesions of the nervous system follow those of the osseous and articular structures in order of frequency. It is here that a most remarkable difference is seen in the behavior of a syphilitic lesion in our negro in comparison with that of the Caucasian. There was no case of tabes dorsalis or dementia paralytica found in this series. Furthermore, the records show only one case of the latter and a suspect of the former in over 20,000 medical admissions to this hospital. It is reported that this exemption of the native also exists in Egypt and certain parts of Asia, where syphilis in its other forms abounds. Abnormalities pointing to syphilis in the cerebrospinal system were present in 182 cases or 36.4 per cent. of the total. They were increased knee reflexes, 95; diminished or absent knee reflexes, 30; unequal knee reflexes, 5; cerebral hemorrhage or softening, 13; palsies of cranial nerves, 12; ataxia and staggering gait, 7; epileptoid seizures, 6; others, mainly paresthesias and anesthetics, 14. It is in cases presenting these lesions that most other evidences of syphilis were not uncommonly erased by nature's fight against the old infection. Anti-syphilitic treatment at times, or a positive Wassermann test in many, was often the only means to confirm the clinical diagnosis. It is probable that

¹Baetz, Walter, One Hundred Cases of Acute Arthritis Among Negro Laborers on the Panama Canal, *Journal A. M. A.*, April 5, 1913.

a considerable number of cases diagnosed as beri-beri in some parts of the tropics are in reality manifestations of syphilis of the nervous system, not uncommonly in patients with a liberal admixture of chronic alcoholism.

Fifth in frequency were the skin lesions. They were present in 140 cases or twenty-eight per cent. of the total. In the secondary stage they comprised: Papular syphilide, 19; papulopustular, 14; maculopapular, 4; pustular, 4; macular, 2; serpiginosquamous, 2; not classified, 13. In the tertiary stage there were charted ulcers in twenty-three and suspicious scars in fifty-nine cases. The reason for the infrequency of the usually common macular roseola and the seeming absence of the erythematous syphilide, has been previously stated. The presence of only twenty-three ulcerative lesions among 500 cases, corroborates clinical experience, in that these lesions are not as common as one would expect in a class of syphilitic patients whose treatment is inadequate and whose mode of living would predispose them to these severer types of the infection. It is probable that allowance must be made for those patients whose ulcerations are so extensive that they are admitted as surgical cases.

The lesions of the vascular system were sixth in order of frequency, and comprised aortitis, 10; aortic regurgitation, 25; thoracic aneurysm, 15. This is a total of fifty cases or ten per cent. of the total. It is in this group that our negro pays a heavy toll on his syphilitic infection. While his endocardium seems to resist the implantation of other infectious organisms much more than that of the Caucasian, *Treponema pallidum* finds in his aorta and the aortic valves a favorite nidus. This is not infrequently demonstrated by our pathologist, Dr. H. C. Clark, in cases that had not been suspected of syphilitic infection during life. It is a well known fact that most adult negroes admitted to the wards of this hospital, show a thicker and harder radial artery than whites of the same age and sex. How much of a role syphilis plays in causing this fibrosis and the resulting chronic nephritis with cardiac hypertrophy and dilatation, would be interesting to know. The cases of cerebral hemorrhage and variously caused softenings listed with the lesions of the nervous system, could very properly be added to this group, as they are primarily a result of syphilitic disease of the vascular system.

Gummata of the internal organs are often difficult to find by physical examinations. It is thought that twenty-five cases, or five per cent., does not nearly approximate the total number actually present. It must also be kept in mind that interstitial syphilitic inflammation of an organ can with little certainty be differentiated clinically from a true gummatous infiltration. This is especially true of the liver. In this group, these cases have been considered under the general heading of gummata. There were diagnosed as gumma of the liver, 12; of the testicle, 7; of the skin, 2; and of the elbow joint, sternum, chest wall, and brain, each one.

As previously stated, the syphilitic lesions of the eye, ear, nose, and throat are usually treated in that special department, and are not incorporated in this series. The fact then, that we found throat lesions

of syphilis in only five per cent. and eye lesions in only three per cent., is of no statistical value. The ear lesions were so few in number that they were not tabulated. Generally speaking it may be said that lesions of the mucous membranes are not nearly so common in negroes as in the whites. Our English tropical negro does not use tobacco as much as the Caucasian. The habit of chewing tobacco hardly exists among them. This may be one of the reasons why we do not encounter mucous patches and syphilitic angina more often in our secondary cases.

Occasionally one still hears of syphilis being eliminated in making a diagnosis by exclusion, because of the presence of fever. A morning and evening temperature chart having been kept in all our cases, it was noted with interest that of the 366 cases of syphilis without other coincident diseases 114 showed some elevation of temperature. This amounts to over thirty-one per cent. Slight temperature was present in 37; intermittent in 36; high continuous in 17; occasional spikes in 14; and remittent in 10 cases. The temperatures due to iodism and mercurialism are carefully excluded from this tabulation.

The question as to what extent an acute syphilitic infection affects the kidney structure, is still an undecided one. Our observations in the uncomplicated cases were too inadequate to draw definite conclusions. The same may be said of nephritis due to mercury. There is little room for doubt that chronic arteriosclerotic nephritis is commonly the result of syphilitic infection.

In the tropics there is ample room for argument as to whether given cases presenting tertiary bone lesions, fungating, granulomatous, or serpiginous skin eruptions are syphilis, or its sister disease, yaws. That a serpiginous, healing yaws eruption can readily be mistaken for syphilis, has been recently shown in a case report by Dr. H. C. Clark.² We have been able to find only eight cases of yaws in the period covered by this paper. In two of them the lesions were serpiginous and the diagnosis somewhat doubtful, prior to examination extending beyond inspection. None of the cases encountered showed any of the usual concomitant signs of syphilis, with the exception of one patient who presented both, the absolutely characteristic, yellow crusted, granulomatous eruption of yaws and a typical Hunterian chancre with marked general adenopathy. The patient gave a definite history of having had the yaws eruption three weeks before the development of the chancre. As is characteristic of the yaws granulomata, *Treponema pertenue* was found plentifully in the serum obtained from the skin lesions. In fact, the ease with which any tyro can find the specific *treponema* in yaws lesions is almost as characteristic as the eruption itself. The rapidity and the intensity with which *Treponema pertenue* can be stained with a polychrome stain, is of some value in differentiating this organism from *Treponema pallidum*. Morphologically speaking, with a magnification of 1,000 diameters, no difference could be found by us in the two organisms on

²Clark, H. C., A Case of Ringworm Yaws in a Barbadian Negro. *Journal of Cutaneous Diseases, Including Syphilis*, January, 1914.

our cases. The Wassermann complement fixation test will not differentiate syphilis from yaws. It is still a mooted question whether there is such a condition as "primary" and "secondary" yaws. The writer is inclined toward the opinion of an English surgeon, stationed in the West Indies, who once told him that "tertiary" yaws is usually a more charitable but less accurate diagnosis than tertiary syphilis.

BACTERIOLOGICAL AND SEROLOGICAL DIAGNOSIS.

A number of papers have been published since the discovery of *Treponema pallidum*, bearing on the diagnostic value of demonstrating this organism. The methods usually advocated are dark ground illumination and intense staining procedures. While it is true that we have been able to confirm the clinical diagnosis in a number of cases by finding *Treponema pallidum* in the primary lesion, even before the Wassermann test had become positive, and in the skin eruption of secondary cases with a positive serum test, it is also true that this has been the exception and not the rule. In justice to the compilers of large numbers of cases in which this organism was often successfully demonstrated, it must be said that we attempted the bacteriological diagnosis in only a small number of cases. The search in these was so disappointing and time consuming, that it was given up as a practical means of diagnosis. If it were possible to demonstrate *Treponema pallidum* in secondary syphilides as readily as *Treponema pertenue* in yaws eruptions, the bacteriological diagnosis of secondary syphilis would become of prime importance for the busy diagnostician.

The advent of the Wassermann test as a diagnostic measure in syphilis was the vindication of many an internist who used to be called "a crank on syphilis." Not only has this test proved syphilis in many a case in which the physical diagnosis was doubtful; it has gone further than that and detected syphilis in some cases where it was not even suspected by well versed diagnosticians. In the light of present knowledge, a doubtful case can hardly be considered complete in its examination until the result of Wassermann's complement fixation test is known. For the performance and the interpretation of this test in 466 cases of our series, we are greatly indebted to Dr. Lewis B. Bates, bacteriologist of the board of health laboratories. The Noguchi modification was used³ and was positive in 385 of the total 466 cases. This gives a positive result in 82.6 per cent. of our cases, irrespective of the stage of the disease and any previous treatment.

The table herewith, composed of cases that could

be divided into distinct groups, shows the positive percentage in each group.

In the chancre stage, a negative Wassermann should always be followed by a repetition of the test. During the later stages of the chancre, this test is probably always positive. The above recorded negative test was undoubtedly taken too early in the disease, and was not repeated. Two others which were negative on first trial, became positive when repeated in a week's time. The high percentage of positives attained in acute and sub-acute syphilitic arthritis and bursitis, tends to prove that this common lesion in the negro belongs to the secondary manifestations of the disease. The rather high positive returns in gummata may partly be explained by the fact that all of this group were examined during acute exacerbations of the disease. As previously mentioned, some of these cases may have been syphilitic interstitial hepatitis, respectively orchitis, instead of true gumma. An allowance may be due to the test for the possibility of previous treatment in some of the negative cases presenting a secondary rash. Following the acute periostitis group, the test loses considerably in efficiency as the noninflammatory stages of the disease and its sequelæ are approached. This is to be expected. The group designated "aortic disease" is composed entirely of cases that presented systolic, diastolic, or double organic murmurs of the aortic orifice. The cerebrospinal group does not contain any cases whose only signs of central nervous system involvement were abnormalities of the deep reflexes. It does comprise a number of cases in which the main feature was a palsy or paralysis of one or more cranial nerves.

TREATMENT.

In the treatment of our negroes for syphilis, we are seriously handicapped by the patients' ignorance. Coming to the hospital solely for pain and disfigurement, they refuse to take any further treatment after these annoyances are conquered by the first effect of medication. This is particularly true after salvarsan injection and is one of its drawbacks. There being no authority to prevent a syphilitic patient's release against the advice of his physician, the discharge must be given on demand. Our main endeavor therefore has been to use an intensive treatment up to the point of salivation, in the short period of time under observation. The average stay in the hospital of our uncomplicated cases of syphilis has been 20.7 days for each. If we exclude from this the advanced stages of the disease as aneurysm, aortic disease, gumma, cerebrospinal cases, etc., the treatment given must usually be crowded into a period of from ten to fifteen days. In most cases mixed treatment is given, consisting of protoiodide of mercury by mouth, in conjunction with a saturated solution of potassium iodide. In addition to this, blue ointment (fifty per cent.) is dispensed in one dram doses daily, for inunction. The patient is given a mouth wash, consisting of tincture of iodine one dram to the pint of water, and he is instructed to keep his gums well cleansed by massaging them with his fingers. At meals his dishes are kept separate from the others. The protoiodide is given

The Wassermann Test in 365 Cases of 10 Distinct Groups of Syphilitic Disease.

Group of cases.	Number examined.	Positive.	Negative.	Per-centage.
1. Chancre	27	26	1	96.3
2. Arthritis and bursitis. .	73	70	3	95.9
3. Gummata	17	16	1	94.1
4. Secondary eruption . .	43	39	4	90.7
5. Acute periostitis	43	36	6	85.7
6. Exostoses	62	47	15	75.8
7. Aneurysms	13	9	4	69.2
8. Cerebrospinal	50	34	16	68.0
9. Aortic disease	32	19	13	59.4
10. Palate destruction . .	6	3	3	50.0

³Bates, L. B., The Wassermann Test in the Tropics. *Archives of Internal Medicine*, 10, pp. 470-477, November, 1912.

in one sixth grain doses three times daily after meals, and is increased one sixth grain per diem until a maximum of two grains is given daily. Potassium iodide is given in an initial dose of five minims, increasing five minims each dose until a maximum of 150 minims daily is reached on the fourth day. While the protoiodide of mercury is given three times daily after meals, the potassium iodide is given before meals, well diluted in a vehicle of essence of pepsin. In these maximum doses the medication is continued without further increase until the patient shows signs of mercurialism or iodism. This usually takes place after the tenth day. Of late we have been increasing the iodide of potassium only five minims a day instead of each dose, so as to be able to keep up the mercury somewhat longer. In florid and malignant cases we have furthermore made use of salvarsan intravenously, both old and new, in sixty-three cases. Of these, six received repeated injections. Mercury and iodides were given in all cases receiving salvarsan injections. The specific and rapid action of salvarsan is too well known to require much mention. In two cases of malignant syphilis showing a continuous high temperature, the salvarsan injection was followed by a crisis in the fever and other symptoms, that was equal to the effects of quinine in malaria. Nevertheless it must be remembered that the use of as powerful an agent as salvarsan is not unlikely to prove dangerous at times in certain cases. Clinical observation of treated cases will in the next few years do much to point out the contraindications of this most valuable drug more definitely than has been possible so far. In one of our cases serious doubt may be entertained as to whether or not the cerebrospinal symptoms which followed its use, may not have been partially due to the salvarsan itself.

CASE I. The patient was a Barbadian negro, aged twenty-six years. He was admitted December 11, 1912, with a Hunterian chancre, general adenopathy, a papulopustular syphilide, and an acute iritis of the right eye. The Wassermann test was positive on December 12th. The following day he was given 0.5 gram of old salvarsan intravenously. A sharp reaction with a temperature of 104° F. followed. In twelve hours the temperature was normal again. The patient was put on mixed treatment, and all symptoms of the disease rapidly disappeared. Nineteen days after treatment the patient decided that he was well and the demanded discharge had to be given. On February 14, 1913, he was readmitted, complaining of headache, vomiting, vertigo, and inability to enunciate properly. Examination revealed a bilateral facial palsy, staggering gait, slight Romberg, dilated pupils which were irregular and reacted sluggishly to light, divergent strabismus, and markedly increased knee jerks. This time the Wassermann test was negative. The patient requested a repetition of the salvarsan treatment, which was given in the same dose and manner as the first time. Mixed treatment was then carried out to salivation, but the patient's condition remained the same. Becoming discouraged, he asked to be invalided home to his native country. This wish was granted on the fortieth day following his second admission.

CASE II. A negro, aged twenty-four years, was admitted January 26, 1912. Physical examination showed chancre, general adenopathy, acute sternal periostitis, and increased knee jerks. The Wassermann test was positive. Mixed treatment only was given for twelve days, at the end of which time discharge was requested, the patient feeling well. He was readmitted, May 8, 1912, with general adenopathy, acute periostitis of the sternum, acute arthritis of the larger joints, and active knee jerks. The

Wassermann test was again positive. This time he was given mixed treatment for ten days. Feeling well at the end of this period, he again demanded discharge. On August 30, 1913, he was admitted for the third and last time. This time he was in a stuporous condition. The palpable glands were markedly enlarged and hard, a right sided facial palsy was present, a healing rupial ulcer encircled the right ear, ataxia was marked, the pupils were dilated, reacted to light sluggishly, the left being larger than the right, and the knee jerks were increased. A Wassermann test of the blood serum and one of the spinal fluid were both positive. Mixed treatment alone was once more employed, but the patient died in coma, with a temperature that had gradually risen to 105° F. on the eleventh day. The necropsy, by Dr. H. C. Clark, confirmed the clinical diagnosis of cerebrospinal syphilis. Gummata of the basal ganglia, right and left, gummata of the left parietal bone, chronic pachymeningitis, and obliterating arteritis of the left middle meningeal artery were the chief findings. The case represents a cerebrospinal death from syphilis within somewhat over twenty months following infection, in which no salvarsan was used.

Twenty-seven of our patients were admitted twice during the twenty-three months and two were admitted three times. Of these, the previously quoted case was the only one to receive salvarsan at the time of first admission.

PROGNOSIS.

That an actual cure by therapy will ever be obtained in our class of ignorant and careless patients, with our present knowledge and under present conditions, is extremely unlikely. Rare instances may occur where the early and repeated use of salvarsan eradicates the infection. The patients who recover otherwise, in the sense of an extermination of the infecting organism, do so by the grace of Nature's continuous battle against the invader. The price paid for such a cure is a high one, and only too frequently the victory is a forerunner of death resulting from the aftereffects of the long struggle. The prevention of infection seems at present to be the only hope of curbing the inroads this disease is making among our laborers. Under present conditions our infected patients will return to the wards periodically for the amelioration of their acute symptoms. The permanently disabled will remain behind as inmates of the chronic wards until removed by death, while those relieved will return to their habitations to perpetuate and increase the disease.

SOCIOLOGICAL CONSIDERATIONS.

From a social viewpoint alone, it may at first sight seem of little consequence to the Caucasian how much the negro is infected with syphilis. One has to think of the large number of mixed breeds of all shades in the Americas, to realize at once that the descendants of a strain of *treponema* in the body of a full blood negro are often transferred by successive infections through all grades and shades of human beings, to the fairest representatives of the white race. This is probably even more true in the home than in the foreign possessions of the United States, yet most of us can without much effort recall examples coming under our observation here in Panama, of the transmission of the infection from the colored to the white race. As numerous sociologists have pointed out, the negro will always remain a fertile supply depot for venereal infections.

The less he is cared for, the more will he retaliate by increasing the supply.'

ECONOMICS.

No one who knows the history of the building of this canal will underestimate the value of the negro race for this class of work in tropical jungles. It is not of so much importance, economically speaking, that 366 of our negro laborers earned nothing and produced nothing for a time of 7,595 days because of syphilitic infection, during a period of twenty-three months and that their care necessitated additional expense. The really serious loss is to be found, first, in their resulting lowered resistance to other diseases; secondly, in their lowered efficiency before and after admission to the hospital; thirdly, in the curtailing of their natural span of life; fourthly, in the resulting diminution of their birth rate; fifthly, in the fact that a certain number of them will eventually become public charges in asylums, hospitals, and jails; and, sixthly, in their unlimited propensity to spread infection.

HORSE ASTHMA.

By J. G. MISSILDINE, M. D.,
Parsons, Kansas.

Horse asthma, or better, horse hypersensitive-ness, is a phenomenon characterized by rhinitis, conjunctivitis, and, in marked cases, more or less edema and redness of the pharynx and larynx, together with typical asthmatic attacks, occurring in certain individuals who have been near horses.

The recognition of the condition is, as a rule, not difficult, in fact, the patient usually makes the diagnosis himself. However, it has been my lot to see at least two cases in children where it was unsuspected. Children who are subject to the phenomenon are apt to go several years without the cause of the trouble being in any way associated with the horse, but rather with the more familiar causes of vasomotor rhinitis, as hay fever or rose colds.

The diagnosis may be easily confirmed in the office by a very simple method. A one to ten dilution of horse serum in normal salt solution is freshly prepared, and one or two drops are instilled into the eye. Within a short time the ocular and palpebral conjunctiva becomes injected, the patient complains of itching and the identical sensations experienced after having ridden behind a horse. Very slight reactions were present in dilutions up to one to 700.

Horse serum dilutions in normal salt solution, one to ten, applied to an abrasion of the skin of the arm, yielded an area slightly edematous directly over the abraded surface and an erythematous area surrounding it for a distance of about three cm. There is itching about the site, most marked the following morning and gradually decreasing, the reaction being absent after the third day. Normal salt solution over a like abraded surface is used for the control.

Another method, which I cannot commend, is that of spraying a small amount of the diluted serum upon the Schneiderian membrane. The patient on whom I used this method, was imme-

diately seized with a paroxysm of violent sneezing, which lasted for ten minutes and was followed with a typical asthmatic attack.

I have succeeded in producing immunity in the two cases treated by decimal dilutions of horse serum in physiological salt solution, given hypodermically at first, and intravenously after the dose became too bulky to put under the skin.

Both cases presented the typical symptoms after being near horses, viz., conjunctivitis, rhinitis, and sometimes slight and sometimes urgent asthmatic attacks, according to the period of exposure, weather conditions, etc. Dry weather seems to add to the severity, probably because the secretions from the horse's skin were free to be blown through the air.

TREATMENT.

The treatment used in each case was as follows: One tenth of a c. c. of a one to 1,000 solution of normal horse serum in saline solution, was given hypodermically. No reaction followed in either case. In three days 0.2 c. c. was given, with a very slight reaction in one of the cases. Five tenths of one c. c. caused a slight amount of erythema about the site of injection and mild nasal and eye symptoms. The subsequent doses were given at four day intervals. One c. c. caused very slight symptoms.

A dilution of one to 100 was next used as before, with slight variations. The reactions were trivial. The next of the series (one to ten) was then used with very little reaction, a small red area about the needle hole, which itched for a day or two, and sometimes mild nasal and eye symptoms. Undiluted serum was finally given in doses of 0.1 c. c., 0.5 c. c., one c. c., and two c. c., ending the treatment with five c. c. given in one of the veins of the forearm. Absolutely no reaction could be made out after the final dose. Two months have passed since the last patient was treated, and she assures me that she has not experienced a single symptom, and that she has taken frequent drives with a horse to convince herself that the trouble would not recur.

If further work along this line proves as successful as this apparently has, I have no doubt that it will have a practical application in those cases where there is an abnormal intolerance for the immune serum taken from the horse, and at the same time be of value in freeing patients from the troublesome attacks from which they suffer after being near horses.

Abstracts and Reviews.

METHODS OF ANTITYPHOID IMMUNIZATION.*

By PROFESSOR FREDERICK P. GAY,
University of California.

Although antityphoid immunization as practised at present, particularly in our army, has given brilliant results so far as protection is concerned, there is need for new experimental work on the subject. In the first place we are not certain, in the present

*Summary of a lecture delivered before the Harvey Society at the Academy of Medicine, New York, October 10, 1914.

state of our knowledge, which of the many preparations is the best so far as production of immunity and duration of immunity are concerned. There is a considerable variation in doses advocated, and it has not been determined what is the most suitable dose. Lastly, we are still uncertain as to the most desirable intervals between repetitions of the doses now given.

Our present methods are only moderately protective, giving, it is estimated, only five to six times the normal degree of immunity. The duration of the immunity has never been definitely determined, and at present we have no reliable method by which we can determine definitely whether or not an immunized person still retains his immunity. The immunity conferred seems to be of relatively short duration, probably lasting little more than two or three years. Finally, it seems desirable to improve our methods, if possible, so as to avoid the frequent occurrence of unpleasant symptoms at the time of the injections.

Before passing to our experimental work, which was designed to throw some light upon these several questions, it might be well to give a brief recapitulation of the methods of preparing the vaccines which have been advocated since Wright first applied the method to man. There have been more than twenty different modifications in the technic, but these readily fall into four general classes. First, the use of cultures which have been killed by various methods, the whole dead bacteria then being injected. Heating the moist culture to from 50° to 60° C.; drying the cultures and then subjecting them to heat up to 120° C.; exposure to a low temperature for a long time; exposure to ether, shaking with galactose, and sterilization by means of the ultraviolet rays have all been advocated with claims for each method as being superior to the others. Second, the use of extracts of the bacteria has been advocated. These have been prepared by means of the Buchner press; by freezing the bacteria and grinding them; by permitting them to autolyze; by grinding in a moist condition and using the filtrate; by extracting with dilute hydrochloric acid, and by extracting the soluble toxins from the cultures and organisms. Third, the use of living cultures has been recommended. Castellani believed that these produced a more lasting immunity than was obtained by the other methods. An avirulent strain of bacilli is employed and the organisms are often partially destroyed by heat. The reaction produced in this method is usually severe, and it is scarcely suitable for extended use. Fourth and last, is the use of cultures which have been sensitized by contact with immune serum which is completely removed before the injection. Both killed and living organisms are used in this method. Its advantages over the other methods are: It produces no symptoms on injection of the vaccine; it causes a transitory passive immunity during the inoculations; this is followed by an effective active immunity; and the protection secured is of a higher degree than obtained by other methods.

The subject of immunization was in this chaotic state when we undertook our experimental work to investigate the value of the several methods. Our first requirement for investigation was some trust-

worthy means of testing immunity in animals. By a fortunate chance we selected the production of the carrier state in rabbits as offering the best analogy to the immunity which might be expected in man. Our work has confirmed the suitability of this method. By using massive doses of living cultures to produce the carrier state, we were able to determine the production of a high grade of immunity in the treated animals. Working with several methods of preparing the vaccines, we found that the most satisfactory employed killed organisms. In our experimental work we killed the organisms with absolute alcohol, centrifugated the culture, dried it, and ground the organisms, which we then used in weighed amounts. We found that there were about 8,000 million organisms in each mgm. of this preparation.

In this method of killing and precipitating with absolute alcohol, the precipitated culture separated into two layers; the upper was found to contain toxins and when tested on animals failed to produce immunity, although it was capable of stimulating the production of specific agglutinins. The lower layer was found to consist of the bacterial bodies freed largely from the toxins. This, when injected into rabbits, gave rise to a high grade of immunity. It was further found that this sediment, when compared with the whole culture, gave a higher grade of immunity than the latter. It seemed as though the whole culture contained some substance which had an inhibitory action on the development of immunity. Working further along these lines, we found that the sediment from sensitized cultures precipitated by absolute alcohol gave even better immunity than that from unsensitized cultures. Some figures will illustrate the relative protective powers of this preparation. The immunity is expressed by the percentage of rabbits which failed to become carriers on the injection of half cultures of virulent organisms. After inoculation with whole unsensitized precipitated cultures (supernatant fluid and sediment) there were thirty-three per cent. of resistant animals; the sediment alone gave about sixty per cent.; whole sensitized cultures sixty-six per cent.; and the sediment alone from sensitized cultures seventy-five per cent. of resistant animals. In a second series the use of living sensitized bacilli (according to Besredka) protected twenty-five per cent. of the animals, while our sensitized sediment protected 62.5 per cent. We have come to the conclusion that the highest grade of immunity can be obtained by using the sediment of sensitized cultures killed and precipitated by absolute alcohol. We have made a further modification, however, which offers still better results. It consists in the use of such a sediment made from several different strains of organisms obtained from the locality in which it is to be used, thus giving the highest possible grade of protection so far obtainable.

Having arrived at a method by which we could obtain the maximum of protection, we sought to determine the reaction caused by the injection of our preparation into man, and our results were gratifying in the absence of severe symptoms. The army figures give eighty-three per cent. of mild reactions, consisting of fever up to 100° F., slight general malaise, and slight local reaction. In private

practice, the ordinary vaccines used for inoculation give a similarly high proportion of reactions, including a small number of severe ones. Our preparation, given to students, produced slight malaise in 1.8 per cent. of cases, a rise of temperature not exceeding 99° F. in 4.5 per cent., and slight localized pain at the site of injection in fourteen per cent.

In addition to the development of a perfected preparation for the production of immunity, we have sought for a means of determining whether or not the injected individual has acquired immunity, and of determining when this immunity has worn off. This consists in performing a skin test similar to the von Pirquet tuberculin test. For this purpose an evaporated culture of typhoid bacilli grown in five per cent. glycerin bouillon is used and the control consists of the same bouillon incubated without bacilli. We found that forty out of forty-one persons who had previously had typhoid fever gave a positive skin test. Another patient who had had an infection with paratyphoid A also gave the test, while those who had had paratyphoid B infection reacted negatively. Eighty-six per cent. of controls gave a negative reaction, and upon investigation we were led to the conclusion that the fourteen per cent. of positive reactions in the controls were due to an undiagnosed abortive infection with typhoid or paratyphoid A. Using this test in immunized persons we were able to determine that a small proportion of these held their immunity for only a few months, while in the remainder the immunity did not begin to wane until about two years after immunization. It is hardly necessary to state that we confirmed the specificity of the skin test by animal experiments.

A further interesting point, not hitherto observed, was discovered when we attempted to find what became of the living organisms which we injected into immunized animals. We had found that their blood was sterile after about eighteen hours, and by frequent observation we discovered that beginning about twelve hours after injection there was a marked hyperleucocytosis, rising often to nearly 200,000 per c. mm. This, we found, was intimately connected with immunity, and with the cure of infection. It was found to be quite specific, not resulting in animals immunized to typhoid when other organisms were injected.

We might briefly summarize our work by stating that we believe that we have determined the best way of preparing the vaccine; that we have elaborated a trustworthy test for immunity; and that we have shown the occurrence and value of a specific hyperleucocytosis in immune animals.

Therapeutic Notes.

A Suggestion in the Radical Treatment of Hernia.—W. B. De Garmo, in the *Pacific Medical Journal* for February, 1914, lays stress on a detail in Bassini's operation for inguinal hernia which he considers of the utmost importance in securing satisfactory results. In closing the deep part of the inguinal canal, the internal oblique and transver-

salis muscles, as is well known, are drawn down and their lower border is stitched to Poupart's ligament. In many instances the tension on these sutures is so great that in a few days they cut through the muscles and the latter are permitted to retract to their former position. The tension referred to is due to the firm union of the outer surface of the internal oblique with the inner surface of the aponeurosis of the external oblique. The detail of technic which the author recommends to overcome this tension completely is as follows: After the aponeurosis over the canal is split, a finger should be passed between this structure and the internal oblique, stripping them apart well toward the median line and as far above the internal ring as the finger will reach. The internal oblique is then free to drop down to Poupart's ligament, and in the subsequent process of healing will be held in this position by new adhesions between the muscles referred to.

Treatment of Acne.—A writer in *Monde médical* for November 25, 1913, advises that in acne rosacea one resort to crisscross linear scarifications, made very close together and partly in a direction perpendicular to the dilated vessels. This treatment should be followed by spraying with sterile water and may be repeated at weekly intervals as long as seems necessary.

In acne vulgaris Brocq recommends the following lotion:

℞ Sulphuris præcipitati, ... ʒvi (25 grams);
Alcoholis, ... ʒii (60 grams);
Camphoræ, ... ʒiiss (6 grams);
Aquæ rosæ, ... ʒviiss (200 grams);
Aquæ sterilisatæ, ... ʒvii (215 grams).
M. Sig.: Shake before using.

This should be applied every evening to the affected surfaces with a camel's hair brush and the residue removed in the morning with hot water and sulphur soap. Where a tendency to dermatitis appears, the treatment should be temporarily discontinued.

The following ointment is also suitable for acne:

℞ Betanaphtholis, ... gr. xv (1 gram);
Zinci oxidi, ... gr. xxx (2 grams);
Sulphuris præcipitati, gr. xxx to lxxx (2 to 5 grams);
Adipis lanæ hydrosi, ... gr. lxxx (5 grams);
Olei amygdalæ dulcis, ... ʒc (7 grams);
Olei lavandulæ florum, ... q. s.
M. et ft. unguentum.

Diuretic Properties of Lavender.—L. Morpurgo, in *Quinzaine thérapeutique* for May 10, 1914, is credited with calling attention to the possible utility of lavender as a diuretic. Being given to drink by mistake an infusion of this drug instead of one made with fennel, he was troubled with abundant diuresis the following night, and was soon enabled, by exclusion, to trace this to its actual cause. The effects of a hot infusion of 5 drams (20 grams) of lavender in 6 ounces (200 grams) of water were thereupon tested in a number of patients presenting, from various causes, a diminished urinary flow, with almost constant free diuretic response. The increase in the output of urine in twenty-four hours ranged from 1.66 to 16 ounces (50 to 500 grams).

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THE ERADICATION OF MALARIA.

Is it stupidity, selfishness, or avarice unintelligible in the circumstances, that prevents the average American citizen from spending a negligible amount of time and money in a crusade against malaria? The abolition of this disease, which apparently would be only a matter of months if a little public spirit could be aroused, would give handsome returns in health and wealth, put vast areas of now uninhabitable land into the real estate business, and confer a priceless euphoria upon thousands who now shiver periodically in abject misery beside laying up for themselves enlarged livers and spleens, and dooming another generation, if not to extinction, at least to miserable invalidism. Stiles, of the Public Health Service, in *Reprint No. 217* of the Public Health Reports, complains that the average American has a very irresponsible conscience when it comes to the expenditure of either personal effort or personal money to better the conditions in his own backyard, and, in the mass, he greets with unpopularity the few persistent persons who have accomplished some advancement in the public health. According to Stiles, it is therefore up to the municipality to undertake the cleansing of mosquito ridden premises by imposing fines for neglect,

thus touching the citizen in a more tender spot than his intellect, to which appeal has so far been almost in vain. The public health investigators have found breeding places for mosquitoes in tin cans, bottles, paint pots, kegs, barrels, and boxes, old iron safes and stoves, fire buckets, open surface wells, drainable standing water, obstructed street gutters and gutters beside railroad tracks, marshes, and even in rowboats drawn up from the water. Bottles can be broken or shipped away; the same can be done with kegs and boxes, while paint pots can be punctured and tin cans rolled out flat. The citizen who fails to take the little trouble necessary to destroy these sources of disease, is a natural born orator, according to Stiles, when it comes to criticizing a railroad for its hygienic shortcomings. The studies in neglect in the pamphlet under consideration were made exclusively in eastern North Carolina, but that region may be taken as typical of almost every malarial district in the United States, while, from another viewpoint, it is typical also of the popular attitude toward all infections. While it would be lamentable to interfere with our blessed personal liberty in other matters, still, owing to the small respect paid by disease to persons, it might be well to merge the individual in the community when confronting conditions that are in the long run much more fatal than war.

THE NEW BRITISH PHARMACOPŒIA.

On January 1, 1915, the British Pharmacopœia of 1898 will be superseded by the British Imperial Pharmacopœia of 1914, the first copy of which was placed on public view in London on October 1st. The new work differs from the old in several important respects; as the introduction of the word "Imperial" in the title indicates, it is intended for guidance, not only in the United Kingdom, but throughout the British Empire. In 1900, an attempt was made to provide pharmacopœial standards for use in the British colonies by the publication of an Indian and Colonial addendum, the contents of which have been revised and incorporated in the new imperial volume. The total list of drugs and preparations named is smaller than the combined number in the Pharmacopœia of 1898 and the addendum, 168 articles having been omitted, and only forty-three introduced. The recommendations of the Brussels conference for the unification of the formulæ of potent remedies have been followed, except in particular instances and in the matter of using weights for liquids as well as for solids. The metric system of weights and measures has been used throughout, though in stating doses the equiv-

alent in Imperial measure or weight is given. It is interesting to recall that as long ago as 1867 the British Pharmacopœia introduced the metric system as an alternative system in volumetric analysis. The metric weights and measures were used as alternatives for the Imperial weights and measures throughout the volume of 1898. In the present revision the Imperial weights and measures are used as alternatives in the statement of doses only.

We regret to note that the term "mil" is used in lieu of millilitre. This term is of American origin, having been first used, we believe, by Professor Oscar Oldberg in his *Unofficial Pharmacopœia*, which was published in 1881. The term has been used in a few British publications, but we do not think that the editors of the Pharmacopœia were warranted in substituting this for the already well established cubic centimetre. Moreover, the term mil is used as a unit in the measurement of the diameter of wire, meaning one thousandth of an inch. In those pharmacopœias in which the maximum dose is given it is the rule to require physicians who order larger doses to make clear the fact that they are aware that the dose is larger than the official maximum dose. In the new volume, however, it is expressly stated that "it is the duty of the pharmacist or dispenser to satisfy himself that the prescriber's intention has been correctly interpreted" when the prescription calls for an abnormal dose. Save in the particulars mentioned and the increased attention given to the questions of standardization and analysis the volume is characteristically conservative, adhering to the general lines followed in the pharmacopœia of 1898.

ANOTHER HERO OF PEACE.

There has been occasion many times to record in these columns the deaths of medical officers of the United States Public Health Service while performing the dangerous duties entrusted to their corps. The first to lay down his life after the service received its new name was Surgeon T. B. McClintic, who died from Rocky Mountain fever while engaged in brilliant work for its suppression. Most of the fatalities among the officers of this service have been caused by the infections which they spend their lives in fighting, but a life has recently been given in another one of its widely varied fields of medical work. Assistant Surgeon Luther W. Jenkins was drowned in Alaska, October 10, 1914, with a boat's crew from the revenue cutter *Manning* while attempting to take a patient to the ship for treatment. The *Manning* had received

word from the lighthouse at Cape Sarichef that an employee of the station was in urgent need of medical treatment. Although a terrific sea was running, a boat was launched and Doctor Jenkins unhesitatingly undertook the task of reaching the patient. A landing was made with great difficulty at the lighthouse and it was found necessary to take the patient to the *Manning* for treatment in the ship's sick bay. On the return to the ship, a great sea capsized the little boat and all in it were drowned in the fierce tides which sweep Unalga Pass.

During these times when the achievements of peace are overshadowed by those of war, it is worth while to comment upon at least one of the lessons to be learned from the heroic deaths of this young officer and these brave sailors. If the errand of the *Manning's* boat had been to plant a mine or cut a cable in time of war, an account of the exploit would have been flashed to many other lands, but as their mission was only to go to the relief of one of their fellow men, the tragedy became an inconspicuous item in the news of the day and editors did not feel moved to invite attention to it. In this they undoubtedly acted in accordance with sound appreciation of news values, but militarism is due far more to the distortion of vision which makes us overlook such instances of devotion in peace while we acclaim the exploits of war, than it is to the ambitions of kings and emperors. We have been urged lately to try to devise "substitutes for war" which will have something of war's heroic appeal and afford opportunities for the supreme self sacrifice which war demands. What better illustration need we have of the opportunities in peace for heroism and self sacrifice, than this incident on the Alaska coast which passed almost unnoticed?

This doctor and these sailors lived up to the finest traditions of their callings. The fact that the doctor bore the President's commission and the sailors were enlisted in a military service has little significance, for both the Public Health Service and the Revenue Cutter Service have this distinction—that, while performing military duty in time of war, they have a mission in time of peace which involves more risk than any military duties and has for its object, always, the service of fellow men. An article published recently in the *Survey* gives a most interesting account of the little known work of the Revenue Cutter Service. If the stories of the Public Health Service which are locked away in official files were known, we should be a little more ready to admit that some substitutes for war lie close at hand if we choose to give them the recognition which we now reserve for the worst pursuit man's ingenuity has devised.

MENTAL DISEASE AND DEFECT IN UNITED STATES TROOPS.

The care of the health of armies has led to remarkable discoveries for the health of nations. Yellow fever received its quietus through the efforts of army physicians, and many other tropical diseases, beside malaria, might have lurked for eons in their jungles had not army physicians "got their range" with the microscope and put them to rout. Bulletin No. 5 (Captain Edgar King, *Mental Disease and Defects in United States Troops*) of a valuable series has just been issued by the Department of War of the United States as a result of observations upon patients with mental diseases admitted during one year, either from military prisons or directly from the army, to the Government Hospital for the Insane at Washington. Mental diseases formed twenty per cent. of the total discharged for disability from disease or external cause, and dementia præcox was the most frequent, running as high as fifty-six per cent. in that year and forty-seven per cent. in other years.

The army offers an excellent place in which to observe men mentally afflicted while in the early stages of their disease, and as it lies in the power of the Government promptly to remove them from society for treatment, and to keep them from passing on their hereditary taint, the rank and file of the army may be made the medium of an object lesson to show what can be done to improve a nation's mental health, exactly as the Canal Zone offered an opportunity to show how a tropical jungle could be turned into a health resort by efficient sanitation.

The early diagnosis of mental diseases, as well as the segregation of the seed bearers of the inheritable forms, has been considered almost impossible, because of difficulty in recognizing the need of medical care. It is true that the ability to make exact diagnosis of mental diseases has hitherto necessitated the work of a lifetime, for the reason that the present generation of physicians, who have specialized on this subject, is the first to have worked out careful methods of observation, and to interpret apparently unintelligible clues. The opinion of the different States is wavering between the extremes of tender and expensive care for its deficient population and the most drastic measures of reducing the number of unborn defectives. Educational and legislative measures are both under discussion. Here is a chance for the Government to demonstrate some practical method of classifying and handling cases according to their menace to the future, as well as to the present generation.

Bulletin No. 5, however, confines itself to the question of early diagnosis. It is practically a detective handbook, written in clear, straightforward

English, by which the doctor and officer of the army may learn to recognize mental defects in men who at first sight seem to be merely stupid or stubborn, flighty or conceited, or in some way not susceptible to discipline. There are very clear sketches of dementia præcox, manic depressive psychosis, paranoid mental states, general paresis, and syphilis of the nervous system. These are illustrated by case histories, showing typical acts and conversation, pointing out the delusions and hallucinations that characterize the diseases, and showing how the patients react to discipline, so that it would not be difficult for the careful and progressive army doctor to differentiate between the man who is mentally sick and one who is frankly careless or insubordinate.

Such a clear, definite picture of the common mental ailments, that in their early stages appear so much like exaggerations of temperament or peculiarities of religion or upbringing, will be valuable, not only to the army doctor, for whom it is written, but to college professors, socialist leaders, and men who labor to understand and to control large bodies of laborers. There is an enormous waste to the community in this inability to recognize the mentally deficient worker before he becomes openly stranded in poverty or crime. There are many who could be treated and cured, many who could be saved in a change of environment, and many whom the Government should take under its care, even in these early stages, for the sake of protecting future generations. Early diagnosis is the first step; and Bulletin No. 5 is the most practical help in this direction that has yet been offered.

THE FIRST WOUNDS IN THE WAR.

For some time we have been waiting for accounts at first hand of wounds made during the present war and described with competency of knowledge. Authentic reports are beginning to come; one in the *Medizinische Klinik* for September 27th, is brief and agrees with our own articles (*JOURNAL*, August 15th, page 330; September 19th, page 577). At the military hospitals of Munich, fractures as soon as found are pictured with the Röntgen ray. It is the rule in the field to bandage all rifle wounds with the first aid dressing and then leave them undisturbed. Wounds of the soft tissues, made by bullets of the infantry, are mostly of "entirely harmless character." The point of entrance as well as the point of exit were in all cases free from reaction; the point of entrance was usually "extraordinarily small, the exit much larger." Essentially worse are wounds made by grenades. They are not numerous, but they are marked by laceration of the flesh and splintering of bone. Nor are wounds made by rifle bullets always simple. Shattered bones, broad and jagged lacerations of

the soft parts are seen in all degrees; from an entrance wound of moderate area and an exit not much wider we come to heavy crushing of the flesh and almost complete destruction of a limb. Even with infantry arms such extensive injuries are far from uncommon. Here, it is clear, are two views; one shows us wounds clean and small; the other wounds of almost preternatural horror. It is desirable to assess with some approach to accuracy the share of rifle bullets and shells in each type of wound. Unfortunately there is no way of gauging the two at present.

NEGLECTED GUNSHOT WOUNDS.

In discussing wounds in the present campaign, G. H. Makins, consulting surgeon to the British forces, takes up in the *Lancet* for October 10, 1914, the serious condition of certain wounds in men who have lain out a long time and suffered during transport. A spreading gaseous cellulitis develops which rapidly extends the whole length of the limb to the trunk. The parts above and below become rapidly involved by a soft doughy edema first evident along the line of the main lymphatic trunks, and spreading eventually through the entire thickness of the limb. The tissues are often crepitant, and a dark reddish discoloration appears over the dependent parts. Meanwhile abundant sanious pus and bubbles of very stinking gas escape from the wound itself. The resulting gangrene is difficult to treat by amputation, as the flaps rapidly assume the condition of the gangrenous part removed. When temporized with the gangrene shows a tendency to localize itself, mummification begins, and if free enough exit for the discharge can be provided a chance of a later operation is gained. Gangrene of this character is responsible for a very considerable mortality.

ANESTHESIA IN THE FIELD.

The *British Medical Journal* for October 10, 1914, refers editorially to a recommendation of the well known Professor Schleich that anesthetics be used in the field by the German soldier. Every soldier, according to Schleich, should carry a small bottle. Chloroform alone is too dangerous for the layman to give himself, while ether is apt to excite the patient, making him toss about and aggravate his wounds. Neither of these drugs should, therefore, be intrusted in the pure state to the soldier. The following mixture, the efficacy of which has been already tested in the present campaign, is recommended: Ethyl chloride, chloroform, and ether in the proportions of 20, 40, and 120. The man saturates a handful of cotton wool with this mixture, and presses it to his nose and mouth while he breathes deeply. He quickly loses consciousness, and no longer being able to hold the cotton wool to his face, the further administration of the anesthetic is automatically prevented; so Schleich teaches, but if the man was lying on his back this might not happen. The loss of consciousness is followed by prolonged sleep, and when death supervenes it is, according to Schleich, due to the wound and not to the anesthetic.

DR. JAMES GREGORY MUMFORD.

It is natural for the confraternity of medical journalists to feel special regret at the death of one of the few American physicians distinguished for literary attainment. In the death of Doctor Mumford, which occurred on Sunday, October 18th, the profession loses not only a practitioner of unusual ability, but a most graceful and talented writer. We had the pleasure not long since of commending highly Doctor Mumford's last volume of essays, *A Doctor's Table Talk*, sympathetic comments on men and things of special appeal to the writer's confreres. Doctor Mumford was a comparatively young man, passing away in his fifty-second year. He was a graduate of Harvard University in both arts and medicine and had numerous appointments in the hospitals and dispensaries of Boston, beside being a member of several distinguished organizations.

News Items.

Changes of Address.—Dr. Edward Anthony Spitzka, to 66 East Seventy-third Street, New York.

Dr. Frank Van Fleet, to 17 East Thirty-eighth Street, New York.

Dr. Harry Rodman, to 780 West End Avenue, New York.

Dr. Leigh F. Sturges, to 128 West Eighty-seventh Street, New York.

Dr. Charles E. Farr, to 40 East Sixty-second Street, New York.

Dr. Charles B. Graf, to 131 West Thirty-ninth Street, New York.

The Harvey Society Lectures.—The third lecture in the course will be given on Saturday evening, November 7th, by Professor A. S. Loevenhart, of the University of Wisconsin, his subject being Certain Aspects of Vital Oxidation.

Revision of the Sanitary Code of New York City.—A general revision of the sanitary code of the city of New York has been recently undertaken with the purpose of bringing it into conformity with the great body of municipal ordinances recently remodeled by the Codification Committee of the Board of Aldermen.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, October 26th, North Branch of the County Medical Society; Tuesday, October 27th, Medicolegal Society, West Philadelphia Medical Association; Wednesday, October 28th, County Medical Society; Friday, October 30th, Medical Club (directors).

Personal.—Dr. F. McKelvey Bell, of Ottawa, Canada, who went to the front with the first contingent of Canadian soldiers, has been appointed surgeon to No. 2 Stationary Hospital.

Dr. Mary Merritt Crawford, of Brooklyn, has sailed for Paris for service in the American Hospital in that city.

Utah State Medical Association.—At the annual meeting of this association, held in Salt Lake City recently, the following officers were elected: President, Dr. R. S. Joyce, of Ogden; first vice-president, Dr. J. W. Aird, of Provo; second vice-president, Dr. Edward I. Rich, of Ogden; third vice-president, Dr. L. B. Baker, of Eureka; secretary, Dr. W. Ewing Brown, of Salt Lake City, reelected; treasurer, Dr. H. P. Kirtley, of Salt Lake City, reelected.

Cholera in Austria-Hungary.—It is reported that cholera is increasing in Hungary to such an extent as to cause apprehension. Twenty-seven cases were announced on October 1st, 111 cases on October 2d, and 240 cases on October 3d. The cases are confined principally to military hospitals, but some occurred among civilians. Sporadic cases are being reported from many parts of the country to which wounded soldiers have been sent. Several cases have been reported in Vienna.

Medical Society of the State of New York.—The Fourth District Branch of this society met in annual session in Gloversville on Tuesday, October 13th, and elected the following officers: President, Dr. J. G. Ransom, of Dannemora; vice-president, Dr. L. H. Finch, of Amsterdam; secretary, Dr. Frederick J. Resseguie, of Saratoga Springs; treasurer, Dr. George H. Oliver, of Malone.

New Laboratory Opened at Quarantine.—The opening ceremonies of the new quarantine laboratory, held Saturday, October 10th, were attended by fully five hundred medical men of New York. Dr. Joseph J. O'Connell, health officer of the port, was in charge of the exercises, and among the guests were Dr. M. Serratti, of the Italian navy; Dr. George M. Stoner, of the United States Public Health Service, and Health Commissioner S. S. Goldwater. Addresses were made by Doctor O'Connell, Professor Joshua M. Vancott, chairman of the advisory board, and Dr. Francis Carter Wood.

The new building is equipped with the latest appliances for bacteriological and research work. It is of the Italian Renaissance style, and stands on a hill overlooking Quarantine grounds and New York Bay.

New York Civil Service Examinations.—Among the positions for which the New York State Civil Service Commission will hold examinations on November 14th is that of State medical inspector of schools. This position carries a salary of \$5,000 a year and is open to men only. Applicants must be graduates of a college approved by the University of the State of New York; must have had at least five years' experience in the practice of medicine in New York State, and at least three years' experience in public school inspection. They must also show a reasonable familiarity with the general organization and administration of the public school system. There will also be an examination on the same date for the position of trained nurse in State institutions, which is open to both men and women, salary \$420 to \$600 a year and maintenance. For further information concerning these examinations for the necessary application blanks address the State Civil Service Commission, Albany, N. Y.

Mortality in New York for Week Ending October 17th.—The mortality for the past week was very low, the death rate being 11 per 1,000.

There were no noteworthy features attached to the mortality during the week, with the exception of that from typhoid fever, there being only 7 deaths reported from this cause during the week against 17 during the corresponding week of last year. So far during this year the mortality from typhoid fever has been low.

The death rates among infants under one year and between one and five years of age were somewhat lower.

The death rate for the first forty-two weeks of this year was 13.69 per 1,000 against the rate of 13.99 during the corresponding period of 1913, a decrease of 0.30 of a point.

If this ratio of decrease should prevail throughout the remainder of the year—from past experience it is fair to assume that it will be slightly decreased rather than increased—there will be a saving of 1,675 lives for the year 1914 compared with 1913.

Administrative Control of Whooping Cough in New York.—For the past two months, all cases of whooping cough reported by dispensaries, as well as all other cases that are ascertained to be without the care of a private physician, have been kept under supervision by the district nurses of the Bureau of Infectious Diseases. The nurses are now required to visit and revisit pertussis cases in common with measles, scarlet fever, and diphtheria, and to leave cards of instruction with the family. If there is a private physician in attendance the nurse does nothing further, but instructs the family to keep the child in quarantine and isolated for one week after the first day on which the "whoop" appears. No placards are posted. In families where, in addition to the sick child or children, there are infants or very young children, care is taken to explain the danger to the latter. Failure to secure observation of isolation is followed by a warning from one of the health squad patrolmen. One week after the first appearance of the "whoop," permission may be given for the sick child to leave the premises, *provided it is accompanied by an adult who will see that the child does not play with other children, enter other homes, attend places of amusement, or ride on street cars, etc.* Children can play in the yard or on the roof, provided no other children are there.

Medical Society of the County of Warren, N. Y.—Dr. LeRoy M. Haviland, of Glens Falls, was elected president of this society, at its annual meeting held on the evening of October 4th. Other officers were elected as follows: Vice-President, Dr. Virgil D. Selleck, of Glens Falls; secretary and treasurer, Dr. C. R. Hoffman, of Glens Falls; board of censors, Dr. J. J. Montgomery, of Luzerne, and Dr. B. J. Singleton and Dr. Alexander McKee, of Glens Falls.

Medical Society of the County of Dutchess.—At the annual meeting of this society, held in Poughkeepsie, on Wednesday, October 14th, the following officers were elected: President, Dr. Robert W. Breed, of Wappingers Falls; vice-president, Dr. A. L. Peckham, of Poughkeepsie; secretary, Dr. F. J. Mann, of Poughkeepsie; treasurer, Dr. L. H. Marks, of Poughkeepsie; censors, Dr. Howard Carpenter, of the Hudson River State Hospital; Dr. J. H. Cotter, of Poughkeepsie, and Dr. D. H. MacKenzie, of Millbrook.

Delaware State Medical Society.—At the 125th annual meeting of this society, held in Wilmington on October 12th and 13th, the following officers were elected: President, Dr. Henry W. Briggs, of Wilmington; first vice-president, Dr. J. T. Massey, of Viola; second vice-president, Dr. Roland G. Paynter, of Georgetown; secretary, Dr. G. W. K. Forrest, of Wilmington, reelected; treasurer, Dr. Samuel G. Rumford, of Wilmington; delegate to the American Medical Association, Dr. William Marshall, Jr., of Milford.

Vermont State Medical Society.—The 101st annual meeting of this society was held in Rutland, October 8th and 9th, under the presidency of Dr. Albert L. Miner, of Bellows Falls. There was a good attendance and the meeting was in every way one of the most interesting ever held by the society. An important feature of the work of the house of delegates was the changing of the by laws of the organization creating a committee on health and public instruction. This committee is composed of Dr. E. H. Ross, of St. Johnsbury; Dr. G. G. Marshall, of Rutland; Dr. Grace W. Sherwood, of St. Albans; Dr. J. S. Blodgett, of Bellows Falls, and Dr. George I. Forbes, of Burlington. The society also elected four counselors: Dr. S. S. Eddy, of Middlebury; Dr. C. W. Bartlett, of Bennington; Dr. R. M. Wells, of St. Johnsbury, and Dr. G. L. Bates, of Morrisville, representing the first, second, third, and fourth districts. The meeting passed a resolution that the Vermont State Society instruct the legislative committee to use all honorable means to obtain such legislation as will provide for the maintenance of the college of medicine of the University of Vermont, characterizing the possible discontinuance as a "calamity to the State." The following officers were elected: President, Dr. W. W. Townsend, of Rutland; vice-president, Dr. W. J. Ricker, of St. Johnsbury; secretary, Dr. J. M. Hamilton, of Rutland; treasurer, Dr. C. F. Dalton, of Burlington; auditor, Dr. E. M. Brown, of Sheldon.

American Association for the Study and Prevention of Infant Mortality.—The fifth annual meeting of this association will be held in Boston on November 12th, 13th, and 14th. The program will include sessions arranged by the committees on nursing and social work, pediatrics, vital and social statistics, obstetrics, and public school education. The subjects to be discussed will include prenatal care, the need for increased and improved maternity hospital service, institutional mortality, and continuation schools of home making. The session on nursing and social work and the joint session on pediatrics and social statistics will be held at the Harvard Medical School; all other sessions will be held at the Copley Plaza Hotel. Special clinics will be held on the opening day of the meeting at the Harvard Medical School and elsewhere, the exact time and place to be announced later. An exhibit will be held in connection with the meeting. The chairman of the committee on local arrangements is Dr. Hugh Cabot, 87 Marlborough Street, Boston. Further information concerning the meeting may be obtained from the executive secretary, 1211 Cathedral Street, Baltimore. The officers of the association are: President, Dr. J. Whitridge Williams, of Baltimore; president-elect, Mr. Homer Folks, of New York; first vice-president, Dr. Milton J. Rosenau, of Boston; second vice-president, Miss Julia C. Lathrop, of Washington, D. C.; secretary, Dr. Philip Van Ingen, of New York; treasurer, Mr. Austin McLanahan, of Baltimore.

News of the Medical Schools.—Dr. J. B. Leathes, professor of pathological chemistry at the University of Toronto, has been appointed professor of physiology at the University of Sheffield, England. He will leave Toronto in December.

The following members of the medical faculty of Western Reserve University, Cleveland, Ohio, have returned from abroad: Dr. J. J. R. MacLeod, professor of physiology; Dr. T. N. Stewart, professor of experimental medicine; Dr. G. W. Todd, professor of anatomy; and Dr. P. J. Hanzlik, instructor in pharmacology.

Among recent appointments made to the faculty of Washington University Medical School, St. Louis, Mo., are the following: Dr. J. Lucien Morris, associate in biological chemistry; Dr. E. A. Baumgartner, instructor in anatomy; Mr. R. S. Hubbard, assistant in biological chemistry; Mr. R. E. Lee Gunning, Jr., assistant in physiology and pharmacology; Mr. Howard H. Bell, assistant in pathology; Dr. M. R. Johnston, assistant in pediatrics; Dr. R. F. Fisher, assistant in surgery.

The following instructors have been added to the faculty of the School of Medicine of the University of Colorado: Dr. Claude Edward Cooper, instructor in otolaryngology; Dr. Edward Welles Collins, instructor in otolaryngology; Dr. Robert L. Charles, instructor in anesthesia.

The Henry S. Denison Memorial Building is a gift to the University of Colorado from Mrs. Ella Strong Denison, in memory of her son, Dr. Henry S. Denison, who was a member of the faculty of the school of medicine. The building is designed to accommodate the Henry S. Denison research laboratories, also Mrs. Denison's gift to the university, and to provide a building for teaching graduate courses in public health and sanitation. The west wing of the building has been completed, at a cost of \$21,000, and contains laboratories for bacteriological, pathological, physiological, chemical, and clinical work. In addition there are offices, a library, and photomicrography, operating, sterilizing, and hospital rooms, with animal houses on the flat cement roof.

The following faculty changes at the Medico-Chirurgical College, Philadelphia, have been announced: Dr. Herbert H. Cushing, to be professor of practical anatomy; Dr. Ardrey W. Downs, professor of experimental physiology; Dr. Vernon K. Suydam, professor of physics; Charles E. Vanderkleed, professor of analytical chemistry; Dr. John H. Small, associate professor of bacteriology; Dr. Eugene A. Case, associate professor of pathology; Dr. Philipp Fischelis, associate professor of histology and embryology; Dr. Guy Hinsdale, associate professor of climatology, and Dr. Arthur C. Morgan, associate professor of medicine; Dr. J. Stewart Rodman and Dr. John J. Gilbride, associate professors of surgery; Dr. Howard L. Jameson and Dr. Andrew Callahan, associates in medicine, and Dr. Robert F. Ridpath, associate in laryngology.

Announcement has been made of the following items of interest concerning the Medical School of the University of Minnesota:

Dr. Richard E. Scammon has been advanced to a full professorship of anatomy; Dr. Harold E. Robertson, who is enjoying a Sabbatical year of study in Europe, has been promoted to a full professorship of pathology; Dr. Frederick H. Scott, associate professor of physiology, is studying in the laboratories of the University of London.

A new service building is in process of building in the university hospitals system. A school of public health, under the administration of the medical school, has been established, in which courses of instruction, covering 600 hours of required work and 400 hours of elective study, will be offered to graduates in medicine, engineering, etc. These courses will cover periods of one, two, and three years. Later, opportunities of study will be offered for lay health officers.

A graduate school in medicine has been organized, in which opportunities are given for advanced studies in general medicine, but in which notable provision is made for the efficient training of specialists in internal medicine, surgery, pediatrics, neurology; diseases of the eye, ear, nose, and throat; urology and dermatology.

Graduate students in any field of medicine will be registered under an annual fee of \$150; but an invitation is given to two groups of selected men to enter for two series of appointments; the one of six teaching scholarships and the other of six teaching fellowships.

Pith of Progressive Literature.

LYON MÉDICAL.

July 26, 1914.

Diathermia in Bladder Affections.—Reynard employed diathermia by high frequency currents, in papilloma of the bladder, tuberculous cystitis, and rebellious nontuberculous cystitis. The bladder was filled with sterile water before each application, and an operating cystoscope used. The sitting never was longer than thirty seconds. Results in benign tumors and ulcerative conditions of the bladder seemed excellent. If the tumor is benign, incision with partial cystectomy is preferable; if the tumor shows numerous divisions at its periphery and a thin, transparent pedicle, well conducted diathermia should permanently cure at a single sitting. In tuberculous ulcerations that have withstood every conservative measure diathermia should be tried wherever the bladder capacity is sufficient, eighty to 100 c. c.

Separation at the Pubic Symphysis.—Murard and Lévy report the case of a man who fell ten metres and soon died of shock. The pubes were forced apart two fingerbreadths. The anterior ligaments of the left sacroiliac joint were torn, but on the right a longitudinal fracture of the sacrum was found. In spite of rupture of the pubovesical ligaments, no injury to the corresponding surface of the bladder was found; but its posterior wall had been burst. In another case of pubic diastasis, observed by Patel and Murard, the urethra had been ruptured, owing to concomitant fracture of the ischium. These cases show that forcible pubic diastasis does not always cause rupture of the bladder.

Diagnosis in Posttraumatic Hemiplegia.—Durand discusses the means of differentiating hemiplegia due to embolism from hemiplegia due to hemorrhagic extravasation when these conditions occur a short time after severe traumatism. He lays stress on unilateral pupillary dilatation as a differential sign of intracranial hematoma. In the case of a woman whose left thigh had been severely crushed and who had complete right sided hemiplegia some hours later, absence of an intracranial hematoma was deduced from the equal, contracted pupils, the rapid pulse and respiration, and absence of stertorous breathing. An exploratory operation discovered no blood extravasation; soon after, when the patient succumbed, a small clot was found in the Sylvian artery, blocking its lumen.

REVISTA DE MEDICINA Y CIRURGIA PRACTICAS.

September 21, 1914.

Spinal Caries from Gunshot Wound through Mouth.—Vaz describes an operation which he performed on the deep portion of the neck because of injuries resulting from a gunshot wound, the bullet perforating the lip and passing through the soft palate into the posterior wall of the pharynx. On entering the hospital the patient presented a right carotid fistula which when probed was found to extend in the direction of the pharynx; radiographic examinations failing to reveal the bullet, it was sup-

posed to have escaped. Under chloroform narcosis a sound was introduced into the fistulous tract, the superficial aponeurosis was laid open, the sheath of the pneumogastric separated, and the posterior wall of the pharynx reached, permitting a curettage of the suppurating tract; sutures closed the pharyngeal wall and Michel clamps the external wound, a gauze drain being introduced; the result was excellent, the wound healing speedily. But after five months a new fistula formed a little below the site of the first, accompanied by fever and tenderness over the fourth dorsal vertebra. A radiographic examination now located a bullet at the level of the fourth intercostal space, between the vertebral column and the arch of the aorta. Instead of entering by the posterior wall of the thorax, it was decided to enter by the neck, incising near the posterior border of the sternocleidomastoid and dissecting downward. The third and fourth dorsal vertebrae were found to be necrosed. Resection was done, and a cure resulted.

RIFORMA MEDICA.

September 12, 1914.

Traumatic Psychoses and Neuroses.—L. Bianchi analyzes posttraumatic neurasthenia and the hysteria-neuroses. Certain trophic disturbances, loss of weight, muscular atrophy, glycosuria, somatic phenomena prove the reality of the effect upon the nervous system of psychosomatic trauma. Hysterical insane states arising from trauma or shock are usually temporary; it is conceded that in the case of paresis or tabes ensuing upon injury or concussion there is a lighting up of a degenerative process already established—hastened or precipitated by the accident, yet the author believes that, as a result of trauma or shock, minute organic changes may take place in the brain, a disintegration of the nerve elements which may initiate a degenerative process, leading to true dementia. Late epilepsy, in the absence of signs of direct injury to the brain, may be due to capillary hemorrhages caused by the trauma. The author then proceeds to analyze the indemnity idea, the other determinative factor in traumatic psychoneuroses. The injured is obsessed with memories of the accident, the injuries sustained and that might have been sustained. As in psychasthenic neurasthenia the patient struggles to rid himself of the haunting impressions, but without success, so the injured fails to rid himself of the psychic complex of the accident as it recurs in his mind. The psychic complex assumes direct relation with the indemnity idea as based on the law; and this would explain the tardy development of the traumatic neuroses in many cases, the indemnity obsession being secondary to the first psychic complex. It is noteworthy that it is often the traumata of seemingly small moment that give rise to the syndrome of neuroses, while grave injuries to any part of the system, including the head, have not been followed by such results when not in the field of indemnity.

September 10, 1914.

Obesity.—S. Fichera describes a special group having its origin in functional changes in the organs of internal secretion. The ovaries and testicles, the thyroid, pituitary, and pineal glands, and the supra-

renals are the glands concerned in the accumulation of fat in the organism. Genital obesity is the type that is associated with atrophy of the ovaries or testicles. Anemia is common, and in women irregularity of menstruation. Thyroid obesity which is apt to supervene upon ablation of the thyroid should not be confounded with myxedema. Tumors of the pituitary, pineal, and suprarenal glands are all associated with obesity, in the two last assuming the type of gigantism, with marked and precocious development of the genitals. In the suprarenal form there is rapid infiltration and fatty degeneration, and later a stage of cachexia. Diffuse hypertrichosis occurs in this type. Even other organs of internal secretion by reason of the changes they undergo may be concerned in the causation of obesity, notably the liver and pancreas. There are those who attribute the function of internal secretion to all the organs, tissues, and cells of the body. Hence the author finds that many factors would combine in the genesis of obesity. In all forms a lowered resistance to infection, and intoxication are noted. The peripheral circulation is poor and the heart, liver, and kidneys are weakened in their functional activities. In adiposity of glandular origin opotherapy is indicated.

LANCET

October 3, 1914.

Value of Antistreptococcic Serums.—James W. McLeod draws from the literature and from his own work the following conclusions: 1. A certain type of streptococcus exists, very virulent for rabbits and capable to a peculiar degree of producing toxin in the body of an infected animal, against which rabbits cannot be readily immunized; the serum of a horse treated with injections of these streptococci is not capable even in large doses of conferring passive immunity on the rabbit. 2. Perusal of the literature with regard to antistreptococcic serums leads to the opinion that none afford a supply of immune opsonin which would suffice to alter the course of streptococcic infection in man. 3. In the treatment of severe streptococcic infections, heated normal horse serum, which has proved slightly superior in experiment, might, if administered in large doses, be substituted with advantage for commercial antistreptococcic serum. 4. Experimental work which aims at finding some artificial antibody to streptococcic toxin is more likely to be fruitful than efforts to amend and improve the methods of immunizing horses to this type of bacteria. McLeod conducted his experiments on rabbits and used both commercial and homologous antisera without very marked effect in any case, though slight protective action was observed. The doses were very large, corresponding to 100 to 500 c. c. for an average adult man. In considering the factors which may underly immunity to streptococcic infection the author comes to the conclusion that the only antibody of any importance is an opsonin or bacteriotropin, and it is not possible to obtain this in any serum in sufficient quantity to be of any therapeutic value.

Sclerocorneal Trephining.—R. H. Elliot lays down the principles of this operation. The operation should be so carried out as to produce per-

manent fistula filtration from the anterior chamber into the subconjunctival tissues. For this purpose three operative conditions are essential; perfect asepsis so as to avoid adhesions, resulting from inflammation; the use of a trephine two mm. in diameter so as to give working space for the trimming of the flap; and avoidance of the entanglement of the uveal tissue in the wound. The flap is to be cut at the corneoscleral junction and the corneal edge of the trephine must be made to cut through first. The size of the opening is dependent upon the severity of the condition in the eye and is adjusted by cutting from the free margin of the hinged flap the requisite amount of tissue. The avoidance of impaction of uveal tissue is secured by the anterior position of the trephine and by the performance of a buttonhole iridectomy simultaneously with the trimming off of the edge of the flap. The proper protection of the fistulous track is secured by cutting a wide enough flap of conjunctiva, by freeing it from the sclera in its central portion only, and by reducing the width of freeing as the region to be trephined is approached. This obviates the need for sutures and minimizes the danger of infection. In more than 1,000 cases of this operation the author has never had a case of late infection, about which so much has been written in condemnation of the operation, and this immunity is attributed largely to the proper preparation of the flap of conjunctiva.

Electrolytic Treatment of Lead Poisoning.—Kenneth Goadby conducted a series of experiments on animals poisoned with lead in order to test the efficacy of the electrolytic method of treatment recommended by Sir Thomas Oliver. In no case was there found any trace of lead on either of the electrodes used, although stronger currents were passed than were recommended, and for longer intervals. Further, the electrolysis of the liver of one of the animals yielded no lead, although chemical tests showed the presence of almost five mg. in the organ. Goadby says: Lead was present probably as an albuminate; in this form it is undissociated and not ionizable, hence it is not acted upon by an electric current; there is no evidence that lead is ionizable when present in the animal body, either in the incipient or established stage of lead poisoning. Any lead circulating in the blood is unlikely to remain as a simple organic salt, but unless it does so—and there is no evidence to show that it does, and much to show that it does not—it will not undergo ionization by small electric currents. Iron is easily deposited by electrolysis; if, therefore, Oliver's contention is correct that lead is eliminated electrolytically by a double bath, the iron from the hemoglobin of the red cells should also be removed.—W. H. F. Oxley also tested the value of this method on men constantly exposed to lead in factories, and although he increased the current over that suggested by Oliver he was unable to detect even traces of lead in the bath or on either electrode even when used successively for several men. Experiments on two rabbits were also negative. In addition to his actual findings, Oxley reasons on a pure physical basis that it would be impossible to free a demonstrable amount of lead from the tissues on account of its small proportion to the other ions present. He comes to the conclusion that the best that could

be hoped for would be the removal of 1/7500 of a grain of lead by an electrolytic bath.

GLASGOW MEDICAL JOURNAL.

September, 1911.

Practical Points in Abdominal Surgery.—Dalliel points out that of the neuralgias simulating visceral lesions the most important is that of the twelfth nerve. Here some internal complaint is usually diagnosed. This nerve is affected more than the others because of its position. Of hernias, the ventral hernia of extraperitoneal fat is of interest. It is usually found about two and a half inches above the umbilicus in the median line and is characterized by attacks of vomiting and regurgitation of bile; pain is seldom complained of. In the gall-ducts, stones may grow to considerable size without causing symptoms, especially when the duct becomes dilated. Acute inflammation of the kidney may give rise to symptoms which closely indicate an acute abdominal condition. Some of these cases are helped by operative procedures, as are also some cases of suppressed urine. Hematuria may be due to a stone, ulceration, malignant or tuberculous lesion of the kidney; also to a condition which has been described as "essential" hematuria, in which no anatomical lesion can be found but which, on section, may show thin walled blood spaces near the apex of the pyramids. Varicose veins of the bladder also give rise to hemorrhage, as does the presence of Bilharzia. Marked abdominal discomfort may be caused by the presence of calcareous glands in the mesentery and the symptoms may closely simulate appendicitis. In making diagnosis of stomach conditions, one must always bear in mind the possibility of spasm of the pylorus and adhesions.

Complete Auriculoventricular Heart Block.—Allan reports a case in which the patient, who was apparently in good health, suddenly fell down in a faint. These fainting spells were repeated every day for some time and during these attacks he lost consciousness for a few seconds. His pulse rate varied from twenty to forty a minute. He had evidences of syphilis, but the Wassermann reaction was negative; the luetin reaction, however, was positive. An examination of the circulatory system showed the pulse rate to be about twenty-four a minute at the beginning of the illness, later nearer thirty. There was a distinct pulsation in the neck and in the suprasternal fossa, and these pulsations averaged about seventy-four a minute. The heart was slightly enlarged to the left and the apex beat was not forcible. Systolic blood pressure was 125 mm., diastolic 55 mm. Tracings showed twenty to thirty ventricular cycles and about seventy-nine auricular cycles a minute. Injection of atropine increased the auricular rate, but the ventricular rate remained stationary; the auricular sounds became more evident. The pathological diagnosis in these cases is very difficult, but acute infections, such as diphtheria and septicemia, syphilitic processes, and gumata occupy a prominent place among the lesions found.

Lumbar Nephrectomy.—Newman gives the history of six cases in which he performed this op-

eration. Three of these were cases of pyonephrosis; two of the three showed the presence of a stone; the others were aneurysm of the renal artery occupying the renal pelvis, hypernephroma, and a carcinoma of the kidney. All of these cases were operated in successfully, the symptoms completely disappearing in from two to three months after operation. The case of aneurysm is of interest because it involved a portion of the vessel after it had entered the kidney. It completely filled the pelvis, its walls being adherent to the pelvic mucous membrane. In most cases of aneurysm of the renal artery, the sac is outside of the kidney and hematuria is not a symptom, as it was in this case.

PRACTITIONER.

September, 1914.

Chronic General Periodontitis.—J. F. Colyer says that clinically this disease, known to us as pyorrhœa alveolaris, starts either between the posterior teeth or around the anterior teeth. In the former situation, the stagnation is principally produced by lodgment of food, while in the latter, it is the direct result of mouth breathing. He believes that a marginal gingivitis around the anterior teeth, more especially the lower incisors, is diagnostic of mouth breathing, and that this gingivitis, unless cured by making the patient a nose breather, must lead to periodontal disease. The most virulent types of periodontal disease are usually to be found in mouth breathers. Under normal conditions, microorganisms are always present in the mouth, but these are cared for by the defences of the body. In septic conditions of the mouth the number of organisms is increased and the defences of the body at times are unable to cope with the attack, so that pathological processes may be started in the body. Infection may also come through the bone. With regard to treatment the following points need to be taken into consideration: 1. The important part played by mouth breathing, which renders local and other remedies of little avail. 2. The more thoroughly the function of mastication is carried out, the greater will be the resistance of the tissues. 3. The recuperative powers of the patient are indicated by the condition of the alveolar process. The presence of sclerosis of bone may be taken as a sign of resistance. 4. The condition of the teeth may be taken as an index of the amount of rarefying osteitis. Cases favorable for treatment are those in which the pockets around the teeth are shallow, in which the arch is well developed, the function of mastication efficiently performed. Treatment resolves itself into a question of drainage. The more thoroughly the pockets can be cleansed, the greater the chance of staying the progress of the disease. The measures he adopts are thorough scaling, massage of the gum, regular irrigation by the patient of the spaces around the teeth, for which hydrogen peroxide is useful, but the main thing is to keep the spaces clear and clean, and the occasional application of tincture of iodine to the pockets. Thorough cleanliness of the pockets seems to be the keynote. Other cases that are not favorable for treatment are grouped under two headings, those unassociated with apparent symptoms, and those in which a causal relationship to

other diseases has been established. In the former class, the discharge from the tissues may be kept in check by efficient irrigation, but the patient has a potential source of infection which may become active at any time, and the greater the destruction of the alveolar process the less is the chance of making comfortable and efficient dentures, so it is questionable whether it is not best to remove the teeth. In the second class of cases, the removal of all the affected teeth is the right line of treatment and the only safe course. He reports some cases of arthritis and of suspected tuberculosis that were dependent on this disease. His experience with vaccine treatment has not been favorable.

Bilateral Extensor Response in States of Unconsciousness.—C. O. Hawthorne is of the opinion that the association of a bilateral extensor response with coma does not necessarily mean an organic brain lesion; and that coma, however produced, may be sufficient to establish in the central nervous system the conditions upon which the appearance of the extensor response depends.

CANADIAN MEDICAL ASSOCIATION JOURNAL.

September, 1914.

Treatment of Empyema, Subphrenic Abscess, by Aspiration Followed by Injection of Formalin Solution.—Alexander McPhedran reports six cases of empyema in patients of various ages in which benefit was obtained by the aspiration of the pus and the immediate injection of from two to six c. c. of a two per cent. solution of formalin in glycerin.

Hourglass Contraction of the Stomach.—A. Primrose believes that no routine method can be applied to all cases of hourglass contraction of the stomach. Whatever form of operation is undertaken, one should endeavor to accomplish two main objects; first, to remove the diseased portion of the stomach, whether ulcer or new growth; second, to overcome the hourglass condition by such means as will give the best prospect for the prevention of further trouble from subsequent contraction along the line of suture.

BOSTON MEDICAL AND SURGICAL JOURNAL.

October 8, 1914.

Epidemic of Paratyphoid Fever at the Boston State Hospital, Massachusetts, 1910 (Bacillus paratyphosus alpha).—Myrtelle M. Canavan, Mary E. Gill Noble, and E. E. Southard describe an epidemic which embraced about thirty cases, mostly of employees, and a few patients in the hospital. Twelve cases began with fever, aches, and malaise, which were not recognized at once as belonging to the typhoid group of diseases. There had been no such outbreak within ten years, the disease was mild, and there were no deaths. Careful exclusion was made of other sources of infection, such as the plumbing, ground water, ice, garbage, rubbish, flies, etc.; it seemed to come from meat, especially as six months after the epidemic organisms of the colon and paratyphoid groups were isolated from chopped meat which had been sent to the laboratory for the purpose of making culture media. The first indication of the nature of the disease was the discovery of a positive Widal reaction in a woman assisting in the

serving room of the nurses' quarters. Then a man who had for one of his duties the turning of the meat machine was found to have fever, and the organisms were found in the blood of both. The clinical course was so irregular; the symptoms were so varied that they cannot be described briefly. Classical symptoms of typhoid, with the exception of epistaxis, were conspicuously absent. The onset in most cases was rather sudden, but in a few severe cases it was more gradual. The duration varied from eleven days to five weeks. Headache was the most constant symptom, pain in the back and limbs was general and striking, more suggestive of the pain of influenza and tonsillitis than of typhoid. The tongue was usually coated. Leucocyte counts may prove of some service in differentiating paratyphoid from typhoid, since they show that the paratyphoid blood picture remains within the normal range without tendency to hypoleucocytosis at any stage of the disease, and without loss or drop in eosinophiles; the epidemic from which these data were derived was one of mild paratyphoid fever, *Bacillus typhosus* alpha type. The blood cell picture after antityphoid vaccination remained within the normal range, with a tendency to a slight initial rise in leucocytes. Of fifty persons who received the prescribed four inoculations, no one contracted typhoid, and but one paratyphoid. In this case the antibodies produced by *Bacillus typhosus* were obviously not effective against *Bacillus paratyphosus* alpha.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

October 10, 1914.

Osteoplastic Closure of the Trifacial Foramina, by A. B. Kanavel.—This paper was abstracted in our issue for June 27th, page 1308.

Myositis, by J. B. Murphy.—This paper was abstracted in our issue for July 4th, page 44.

The Rodman Operation for Breast Cancer, by D. Guthrie.—This paper was abstracted in our issue for July 4th, page 44.

Cancer Vaccine and Anticancer Globulins in the Surgical Treatment of Malignancy, by J. W. Vaughan.—This paper was abstracted in our issue for July 4th, page 44.

The Association of Erythema nodosum and Tuberculosis, by O. H. Foerster.—This paper was abstracted in our issue for July 4th, page 52.

Diseases and New Growths of Lymphatic Origin, by G. Arndt.—This paper was abstracted in our issue for July 4th, page 51.

Paresis Patients Treated with Intraspinal Injections of Salvarsanized Serum, by L. B. Pillsbury.—This paper was abstracted in our issue for July 4th, page 50.

Results of One Hundred Injections of Salvarsanized Serum, by C. E. Riggs and E. H. Hammes.—This paper was abstracted in our issue for July 4th, page 50.

Juvenile Psychosis; Report of a Case, by H. H. Drysdale.—This paper was abstracted in our issue for July 4th, page 50.

Beriberi.—J. M. Little, Jr., states that beriberi is uncommon among deep sea fishermen except on vessels where food is bad. On American fishing vessels, even those which go out for long periods,

the disease is practically unknown; but these vessels are well supplied with foods that prevent beriberi. It is on Newfoundland vessels which go north, away from supplies of vegetables, that we find beriberi; it is "down north" that the disease is found among the people living on land, and always among those who, on account of custom and ignorance or their economic and geographical position, are, at certain times of the year, almost entirely dependent on white flour for food. So far as known, the Eskimo and Indian do not have beriberi, but they eat plenty of fresh meat. In the last 5,000 cases seen in the outpatient department of the St. Anthony Hospital (Newfoundland) the diagnosis of beriberi has been made 220 times—in 175 in men and in forty-five in women. It is now an accepted fact that beriberi among rice eating people is due to the absence of certain necessary elements in the diet. These have been called *vitamines*, and are lacking in milled rice. It is not so generally recognized that in a wheat diet, restricted to milled wheat flour, the *vitamines* are also absent, and beriberi develops with the same certainty. Whether or not polyneuritis gallinarum and beriberi are identical, the study of the former has been the means of establishing correct knowledge of the etiology of beriberi, and the infectious theory of the disease has now been given up. The premonitory symptoms of beriberi are due mainly to functional derangements of nerves or groups of nerves, with special susceptibility of the vagus and nerves of the lower extremities. The more advanced symptoms are well described in textbooks, and do not differ essentially from regressive changes in nerves, whether in beriberi or other forms of multiple neuritis. In diagnosis the important thing is to recognize the premonitory symptoms and atypical forms. Prognosis depends on how much damage has been done, to what nerves, for what length of time, and on the ability to procure needed elements in the patient's diet. In treatment, absolute rest in bed is important at first in all cases. A patient whose symptoms are not immediately dangerous, if put on a diet including fresh meat, whole wheat bread, beans, peas, potatoes, and macaroni, will recover within ten days from all functional symptoms. When the stomach rebels, milk from mash fed cows should be used. Strychnine and quinine seem indicated by experimental and clinical observation. While the antineuritis substance is curative in small quantities, its preparation is too complicated at present for general use, and the employment of proper foods is still the best method. Electrical treatment and massage should be delayed until progressive degeneration has ceased.

Pathological Affinities of Beriberi and Scurvy.

—S. T. Darling concludes: The striking eccentric hypertrophy and dilatation of the right heart, with extensive fatty degeneration of the same musculature (the left heart remaining normal), and the severe degeneration of the vagus nerve observed in several fatal cases of scurvy from the Rand, furnish new and additional facts which show the intimate relationship, as to etiology, between scurvy and beriberi. The affinities between these two diseases and certain other cachexias emphasize that they are the result of the continued use of deficient diet.

MEDICAL RECORD.

October 10, 1914.

Surgical Treatment and Radiotherapy of Cancer.—I. Levin states that the rationale of radiotherapy must be looked for in the so called selective action of the rays on the cancer cell. In conditions like carcinoma of the larynx, esophagus, rectum, or vagina the radioactive substances, which can be placed within the lumen of the organ, are superior to the Röntgen rays; on the other hand, the latter can be used over a larger area, and are therefore more advantageous in carcinoma of the breast, or stomach, or in large round cell sarcomas, lymphosarcoma, mediastinal tumors, etc. Both surgery and radiotherapy being local methods of treatment, a general dissemination of the disease, or metastases in distant organs, is at present beyond their reach in the majority of instances. The advantage of surgery consists in the fact that it removes immediately, at one sitting, every thing diseased; on the other hand, it removes also a great deal of adjacent healthy tissue. A limit is set to this removal of normal tissue by the fact that vital organs may be injured, and as a result of this a large proportion of cancer cases are inoperable, while in many of those operated upon there are left microscopical islands of cancer tissue. Subsequently these develop into secondary tumors, and the disease recurs. The main advantage of radiotherapy is that it may destroy such small islands of cancer tissue without injuring the adjacent normal tissue; its disadvantage is that with our present technic it does not reach beyond a certain depth, so that while it destroys the upper layers of a tumor, the lower part may continue to grow. The great advantage of the combined treatment is thus evident. Surgery must remove the gross tumor, wherever this is possible, and radiotherapy destroy the small island of cancer tissue, which cannot be seen with the naked eye, which are left behind in the greater number of cases, notwithstanding the most radical operation. In other words, the treatment of a cancer patient is not complete unless the operation is followed for a certain length of time by radiotherapy. Cases considered inoperable should be operated in with the aim in view of removing the greatest mass of the cancer tissue, and radiotherapy then should be employed in order to destroy its small disseminated remnants.

Dietetic Treatment of Children.—C. G. Leo-Wolf says that during the second year milk will furnish most of the protein, though some will also be supplied in the cereals now given; while the salts required will be ingested in tender young vegetables and fruit. In order that the salts may be properly utilized, the water in which the vegetables have been boiled should be boiled down and added to them. For the teeth nothing is better than dry toast made in the oven, zwieback, Holland rusk, crackers, and graham wafers. During the next two years we may give, occasionally, an egg or some minced meat; we can also allow the coarser vegetables, and of the fruits, those with pits and berries with the seeds strained out. The child may now get bread, ordinary toast, and rolls. After the age of four it may eat at the family table, especial-

ly as it may now be trusted to chew its meat; it may get all kinds of vegetables and fruit, and the daily allowance of milk may be still further cut down. Many a child which had been looking quite well at six months will look pale and pasty at the beginning of its second year. This is due to an anemia from the lack of iron in the milk; such anemia will readily yield to feeding with green vegetables; it is to prevent this condition that we now recommend the use of fruit juices and vegetables during the second half of the first year. In rickets also a judicious mixed diet will accomplish much more than overfeeding with milk, while infantile scurvy is amenable to dietetic treatment alone. Spasmophilia, laryngospasm, tetany, and nervous overexcitability, can be easily controlled by withdrawing all cow's milk for a time, and giving vegetable proteins only. That interesting condition, the exudate diathesis, attention to which has been called especially by Czerny, can be influenced by diet: by giving the child the lowest possible amount of food, especially animal proteins, on which it can exist, even if its weight remains somewhat below the normal. With dietetic treatment we shall be able, not only to influence the pathological conditions (such as glandular swellings, exudations on the skin, and refractory catarrhs of the respiratory passages) after their appearance, but often to prevent their occurrence in the younger children in families where the older ones have had these symptoms. The author is convinced that asthma and chronic bronchitis in the adult may be prevented by changing the diet of the child.

LANCET-CLINIC.

October 10, 1914.

Modified Whitehead Operation.—Caldwell adopts a slight modification of the Whitehead operation: The rectum is drawn down and the muscularis at different points is stitched to the sphincter; the device is used as a means of fixing the bowel, and prevents reaction at the incision. The muscularis of the bowel and the sphincter are coaptated and stricture avoided. The bowel is then cut around circularly with a knife, the mucosa stitched to the skin, complete hemostasis secured, and a large size rubber drain enveloped in greased iodoform gauze inserted. This is removed on the second day.

Defensive Ferments in the Urine.—Holmes points out that one of the objections to the routine use of the Abderhalden reaction is the large quantity of blood required for an adequate research. Theoretically the urine should contain the defensive ferments. The urine has first to be freed from peptones, polypeptones, and aminoacids. To do this the morning urine is passed into a sterile flask. It is divided into two unequal parts, the smaller of which is used for chemical and microscopical examination, the larger for dialysis. Dialyzing is carried on in a Proskauer apparatus. The dialyzer should first be tested for permeability to peptones and aminoacids and impermeability to albumin. The filtered, centrifugated urine, which should be neutral or acid, is placed in the dialyzer. Fresh water is constantly brought into contact with the membrane, washing away all the dialysate. The

entire process requires about five hours. At the end of this time the urine is emptied into a sterile flask and five c. c. are placed in a test tube with a boiling stick and one c. c. of a one per cent. ninhydrin solution and boiled one minute. If there is no reaction at the end of half an hour the urine may be used as ferment-containing serum. This method has been used by Krafka with uniform success.

Physical Chemistry in Heart Disease.—Aulde maintains that the initial or primary cause of heart disease can be traced to impairment of nutrition, which is always characterized by calcium depletion with coincident or subsequent magnesium substitution. The average dietary of an adult carries about ten to fifteen grains of calcium and about half as much magnesium. In sickness, which is accompanied by diminished alkalinity of the blood (acid excess), the daily loss of calcium is greater than the intake, while the daily loss of magnesium above the intake is inconsiderable. In tetanus the blood shows diminished calcium content and in cases of this disease where calcium is administered the severity of the attack is diminished. In cases of heart disease where the alkalinity of the blood is diminished due to calcium depletion with the substitution of magnesium, the magnesium exists in the form of the oxide. It forms a chemical union with the colloids of the nerve structures, which cannot be dissolved by water, fresh air, exercises, electricity, baths, or diet. These conditions are made worse by alcohol, tobacco, tea, or coffee. To prove the presence of magnesium, silica is given the patients. This hardens the magnesium and increases the patient's discomfort. If calcium is not given dissociation is promoted, and if iodine is added to the calcium, in the form of calcium iodide, the inflammation of the nerve, incident to the chemical union of the magnesium oxide with its colloid substance, will be combated and, unless the nerve tissue has undergone degeneration, its conduction will be restored and the patient's symptoms will improve.

Effects of Alcohol and Tobacco.—Crothers states: Alcohol acts as an irritant, depressant, and anesthetic, and, at the same time, is corrosive and erosive. It is estimated that not less than 60,000 to 70,000 persons die yearly from this source, and it is the most prominent of all the particular causes of death in persons under fifty years of age. In death after cerebral hemorrhage or pneumonia, from fifty per cent. to seventy-five per cent. of the cases give alcoholic histories. The action of tobacco is the same as that of alcohol, only it is less marked and more concealed. The action is due to the poisons contained, such as nicotine and furofural. The arterial tension is first increased and then diminished and the latter is accompanied by a sense of comfort and relief which is pleasant and sought for. It leads to excessive nervousness, loss of control, and derangement of nutrition.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

September, 1914.

Experimental Ligation of One Ureter.—Jones observes that in the human being, the ureter is most frequently wounded or ligated during operations upon the female intrapelvic genital organs. He reports experiments in which he ligated the

ureter in fifty-two dogs. It was found that if hydronephrosis follows ureteral occlusion, it arises more rapidly after complete closure, but never attains the immense size possible when the obstruction is incomplete. There is also almost no appreciable toxemia as a result of unilateral ureteral obstruction. Renal absorption is rare, and changes in the other kidney are slight. Following sudden complete closure of the ureter, the pressure rises within a few hours to an average maximum of about sixty-five mm. Hg. There is a gradual fall which reaches nearly zero in a few months. Jones concludes that ligature of the ureter may be indicated in irreparable injuries to this duct, in order to get rid of the kidney functionally. This procedure takes the place of immediate nephrectomy. The kidney may be removed later, if necessary; but if no serious symptoms arise, nothing further need be done. In some instances, when the patient's condition will not allow the prolongation of the operation, the ligation may be a strictly temporary measure, to be followed by an early secondary operation for the restoration of the ureteral lumen, before the function of the kidney becomes seriously impaired.

Pseudostruma of the Ovary.—Strong reports a case of tumor of the ovary that showed a picture closely resembling thyroid struma. Other portions of the cyst wall show a typical papillary serous cystoma. Some of these latter are evidently malignant. From this case and others in the literature he believes that the teaching of a teratomatous origin no longer holds for the majority of these tumors, although it is undeniable that a teratoma may form a struma, and that this embryonal structure may overgrow and suppress all others. For these rare cases alone is the designation of struma ovarii acceptable.

Mortality in Cæsarean Section.—Boyd reviews the advancements that have been made in this operation and then gives in detail twenty-one Cæsarean sections of his own. These are supplemented with twenty-seven cases already reported by him. Of these forty-eight, celiohysterotomy was resorted to in all but one; in that instance a celiohysterectomy was performed. Boyd concludes that the mortality depends upon two factors, the skill of the operator and the condition of the patient at the time of the operation. In clean cases, operated in before labor, the maternal mortality should not be more than from two to three per cent. When, however, the patient is seen late in labor, and undoubtedly infected, then, because of the high mortality of celiohysterotomy, probably twenty-five per cent., supravaginal hysterectomy must be performed.

JOURNAL OF NERVOUS AND MENTAL DISEASE.

September, 1914.

Hemiatrophy of the Cerebellum in Late Catatonia.—A. E. Taft and M. E. Morse report a case of focal unilateral cerebellar disease of long standing, apparently quiescent, and beyond question due in large measure to arterial thrombosis. There were no histological nor clinical evidences of syphilis, and the pericardial fluid post mortem gave a negative Wassermann. The lesion was not of an old cyst with softening, but rather

gradual shrinkage and induration, possibly due to unusually gradual thrombosis. The authors give as follows the effects of this lesion upon the neuron systems: 1. Focal absence of granule cells, entire or partial in the area of involvement. 2. In this area many of the Purkinje cells also are lost, but this loss is not so marked as that of the granule cell, and is somewhat variable in amount in the affected area. 3. Fibre loss is evident in the white matter under the cerebellar cortex: this fibre loss should, according to current theory, involve in part at least the cerebellodentate system, i. e., the Purkinje-dentate neurons. 4. The hypothesis of Purkinje-dentate neuron loss is supported by the appearance of the homolateral (right) dentate nucleus, which shows a relative focal reduction in size, presumably due to the loss of the dentate ends of the destroyed Purkinje-dentate neurons. 5. If this hypothesis is correct, a similar hypothesis would need to be made for the contralateral olive. The contralateral (left) inferior olive shows a relative focal reduction in size, quite comparable with the dentate nucleus reduction. 6. Neither the dentate nucleus nor the olivary area shows any demonstrable loss of endogenous cells. 7. If no endogenous dentate or olivary cells have been destroyed, it might be inferred that some cerebellofugal neurons run also to the contralateral olive, i. e., that there exist both cerebellodentate and hitherto undescribed cerebello-olivary neurons. 8. Against this last hypothesis we may perhaps argue that both the homolateral dentate nucleus and the contralateral olive have actually, though not demonstrably, lost endogenous neurons; and olivocerebellar neurons, known to exist, and dentatocerebellar neurons, assumed by some to exist in small numbers, have been lost, but this hypothesis requires us to assume a much more extensive and far less focally operative agency than the intracerebellar thrombosis. 9. We may try to reconcile these findings with hitherto recognized neuron systems by supposing that the dentate nucleus atrophy is due to cerebellodentate neuron loss, the olivary atrophy due to olivocerebellar neuron loss. 10. It is suggested that a cerebellar cortex lesion may be accompanied by characteristic homolateral dentate and contralateral olivary atrophy, yet such lesion may also be associated with contralateral olivary atrophy and no sign of dentate lesion. This seems to prove that contralateral olivary lesion is not to be explained in these cerebellar cases by reaction at two removes and is accordingly not dependent on dentate nucleus disease.

ARCHIVES OF INTERNAL MEDICINE.

September, 1914.

Statistical Study of Pellagra.—J. F. Siler, P. E. Garrison, and W. J. MacNeal present statistics, covering observations on 866 families of cotton mill workers in relation to the cause of pellagra. That pellagra is an intoxication due to habitual use of maize was not borne out. The use of canned foods was shown to have no influence; the use of fresh meat was not an essential factor in preventing pellagra. Milk did show a relation to pellagra. Of 3,171 persons in families using milk daily, 2.81 per cent. were pellagrins, while of the 619 persons avoiding the use of milk 6.95 per cent. were pellagrins. An apparent effect of milk in preventing pellagra

was noted. The data did not show, however, that deficiency of milk in the diet was a cause of pellagra. Eggs exerted no apparent influence on the existence of pellagra, and only an uncertain influence on the origin of new cases. The relationships discovered in the domiciliary study seemed to be conclusive evidence of the correctness of the infectious theory of pellagra. The disease clearly spread from a preexisting case as a centre in the six villages studied. It was transmitted to new victims only through very short distances, and chiefly to those immediately associated in the home with a preexisting case.

Lymphocyte Increase and Altitude.—M. E. Staines, T. L. James, and C. Rosenberg assert, from study of the blood of 100 healthy male students in New York city and a similar series in Colorado Springs, that at an elevation of 6,000 feet the larger lymphocytes are absolutely increased in the circulating blood at least twenty or thirty per cent. The basophilic mononuclear cells at sea level are approximately thirty-four per cent. and at 6,000 feet about forty-two per cent. The total of white blood cells is approximately the same at the two levels, 7,500. The total of polymorphonuclears diminishes in the exact proportion in which the mononuclear cells increase. The red corpuscles increase twenty-two per cent. at 6,000 feet.

Glycyl Tryptophan Reaction in Meningitis.—R. H. Major and E. Nobel applied this reaction to the cerebrospinal fluid in seventeen cases of meningitis—sixteen tuberculous and one pneumococcic—and in twelve cases of other diseases in which meningitis was suspected. The test is described as follows: One c. c. of cerebrospinal fluid is placed in a test tube with an equal part of glycyl tryptophan, and one c. c. of toluol added as a preservative. To test the peptolytic power of the cerebrospinal fluid, various dilutions of it with normal saline solution, up to one in 200, are made. After the mixture has been kept in the thermostat for three hours, a few drops of dilute acetic acid are added, and then, very carefully, a small amount of oversaturated calcium chloride, which has been briskly shaken just before using to give off free chlorine. It is safest to dilute the calcium chloride to one in ten, and it should be added drop by drop, an excess masking the reaction. In the presence of free tryptophan, i. e., if the reaction is positive, a red color will be noted. Cerebrospinal fluid containing blood is to be rejected. The authors consider the reaction of value in the diagnosis of meningitis.

Elliptical Human Erythrocytes.—F. W. Bishop reports the case of a patient with acute appendicitis, in whose blood about seventy-five to eighty per cent, of the red cells were observed to be elliptical in outline. The hemoglobin percentage was 110 and the red cell count 5,400,000. The fragility of the red cells was normal. That the condition was a congenital anomaly is strongly suggested by the fact that the patient's healthy sister showed an exactly similar state of the blood. One cell was found to measure as much as 17.2 microns in length by 3.2 microns in width. The blood of other members of the family—including the father but not the mother—as well as of all other persons living in the same house was normal, thus excluding the possibility of

chronic poisoning by lead, coal gas, or other chemical as a cause of the condition.

NEW YORK STATE JOURNAL OF MEDICINE.

September, 1914.

Atypical Pneumonias of Childhood.—Edward J. Wynkoop mentions the frequency of two symptoms in these cases; gastrointestinal disturbance and pain. When vomiting, with or without diarrhea, occurs in childhood, we should not content ourselves with attention to the gastrointestinal tract alone; we should make a searching physical examination of the entire body. Persistent or repeated vomiting should always put us on guard, especially vomiting continued more than twenty-four hours after proper dietary precautions. Very often these cases of vomiting will show signs of pneumonia, if a careful search is made. On the other hand, the lungs may be found clear at first examination and pneumonia develop a day or two later. The author believes that these atypical pneumonias are very frequently followed by some complication, such as empyema, etc. Textbooks lay very little stress upon the presence of pain in the abdomen in pneumonias of childhood; it is a frequent and often confusing symptom. Rise of temperature, increased pulse and respiration rates, vomiting, abdominal pain, and often some muscular resistance constitute a not infrequent clinical picture of early pneumonia in children. Both pain and muscular resistance are secondary to irritation of the same nerves in the pleura as supply the abdominal muscles and skin, or through the production of a zone of hypersensitivity in the cord, as described by Head.

The Pleural Lymph Flow.—Albert H. Garvin discusses the physiology of the lymph circulation in the pleural cavity; the current is directed from visceral to parietal pleura and coaptation between these two surfaces produces the most favorable conditions for this flow. Other factors, the state of the pulmonary circulation, size of lung surface, etc., play a part in the rate and efficiency of the flow. He summarizes the physiology of this process in relation to its bearing upon modern therapeutic procedures by saying that: It appears safe in a purely physiological sense to interfere with the pleural surfaces to the extent of half their volume without apparently disturbing the normal lymph stream to any appreciable extent; a separation of the pleural surfaces to an extent greater than this by any method is apt to throw out of balance some of the factors that regulate stream flow; the same volume relatively of fluid separates the pleural surfaces to a greater extent than the same volume of air or gas, and the reduction of fluid within the pleural space may bring about readjustment of the two pleural surfaces in such a way that their normal physiology again operates effectively. This explains the rapid disappearance of fluid in some pleurisies with effusion after needle puncture and slight aspiration. The chief interest in physiology of the pleura exists in the application of lung collapse or compression in the treatment of pulmonary tuberculosis. The size of the compression, the extent of the separation of the two pleural surfaces beyond the safe limit may in itself throw out of balance the mechanical factors that regulate and balance the stream flow.

SURGERY, GYNECOLOGY, AND OBSTETRICS.

July, 1914.

Pott's Fracture.—Kellogg Speed concludes after a study of 208 cases that ankle fractures are relatively numerous and have much influence on the wage earning power of laboring people. Pott's fracture as classically understood is very rare. Each ankle fracture should be treated not by routine, but in accordance with the most searching diagnosis, aided, if possible, by skiagraphs. Too much faith should not be given to anteroposterior skiagraphs through the ankle mortice. Lateral views should be made to show the correct position of the astragalus in the anteroposterior axis and to reveal lipping fractures. More emphasis should be laid on the treatment of fractures of the external malleolus, with or without ligamentous damage on the inner side of the ankle, by overcorrection in extreme inversion on a splint or in a cast. Special attention should be paid to cases with posterior or anterior displacement of the foot, as these indicate lipping fractures of the tibia or complete separation of the external malleolus with loss of support of either anterior or posterior tibiofibular ligaments. Operations should be considered in these cases.

Placenta prævia and Its Treatment.—Professor Nagel of Berlin employs the following technic: He performs bipolar version as early as possible, when only one or two fingers can be admitted through the os, and brings down a foot. He places a loop around it, and leaves the case to nature. As long as the liquor amnii has not escaped and the fetus is movable, the operation is by no means difficult. When the placenta covers the os completely, he burrows the fingers right through it into the amniotic cavity. Perforation of the villi and chorionic membrane is not difficult, but perforation of the amnion sometimes proves so, which can be avoided by pressing the presenting part with the abdominal hand against the pelvic brim, while at the same time the vaginal fingers rub gently the membrane upon the presenting part until it tears. He grasps the first obtainable foot, no matter if it is the anterior or posterior one, and brings it down into the vagina chiefly by means of the abdominal hand in the beginning of the first stage, should the abdominal wall and uterus relax through anesthesia to such an extent that the abdominal hand can push the foot, so to speak, through the os, for thereupon it can be seized between the thumb and index of the vaginal hand. How far the foot can be pulled down into the vagina depends upon the dilatation of the os. It would, for instance, be a mistake to try to pull the breech immediately into the pelvic brim without considering the size of the os. Otherwise severe laceration of the cervix and hemorrhage would occur, which would be blamed upon the method. With a partially dilated os, the leg must not be pulled down further than above the knee, which will be sufficient to check bleeding. Should any hemorrhage occur, when the os has become more dilated, the foot may be drawn slowly until plugging again is complete; after this the expelling of the fetus is once more left to natural forces. An extraction is then only justified when the os is fully dilated and the child still alive.

Proceedings of Societies.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Twenty-seventh Annual Meeting, Held at Buffalo, New York, September 15, 16, and 17, 1914.

The President, Dr. CHARLES N. SMITH, of Toledo, in the CHAIR.

The Necessity of Constantly Looking for Cancer of the Uterus.—Dr. J. HENRY CARSTENS, of Detroit, drew the following conclusions: 1. Every case in which curetting was done should be examined. If it was done for miscarriage, the product should be examined to show the remnants of placental tissue, and also to determine whether there might not be the beginning of decidua maligna. 2. If curetting was done for hemorrhage, one should know if this was due to a condition of the mucous membrane or was constitutional. If it was done for an irritating discharge, he should know the pathological changes in the mucous glands. 3. In every case of curetting the tissue removed must be carefully examined microscopically. In every case of trachelorrhaphy the tissue removed should be examined in the same way for cancer. 4. The age of the patient should cut no figure, old or young. All tissues removed should be subjected to the same careful microscopic examination.

Dr. JULIUS H. JACOBSON, of Toledo, thought that if they could impress the nurses in the training schools with the importance of the early recognition of cancer, they could do more good in informing women of its early signs than by any other plan.

Dr. CHANNING W. BARRETT, of Chicago, would not be inclined from the point of view of the development of carcinoma in the liver, the pylorus, or cervix, to lay as little stress as the essayist did on the point of irritation as an etiological factor. They would probably find that there was another cause, a parasitic cause, yet it could not be doubted that irritation did play an important role in the causation of cancer.

Dr. GORDON K. DICKINSON, of Jersey City, stood alone with Doctor Deaver in exploiting the value of diagnostic hysterotomy. Doctor Carstens had spoken of the pathologist finding cancer cells and making a diagnosis. How many times had they trusted their pathologists who sent a report back "no cancer found," and afterward they discovered carcinoma? They should make a diagnosis early, and he did not see any reason why when clinical and pathological proof was wanting, they should not bring the fundus down into the vagina, split it, examine the interior of the uterus, and remove a piece, if necessary, instead of relying on the curettings.

Dr. CHARLES L. BONIFIELD, of Cincinnati, did not think it wise to keep on harping to the laity about the early symptoms of cancer, because they could not make the diagnosis, but what was necessary was to teach married women who had had children the necessity of going to a gynecologist occasionally to be examined, just as they went to a

dentist to see if their teeth were sound or decayed. If it was worth while to pay money to save the teeth, it was certainly worth while to have some competent man to determine whether or not a woman was suffering from cancer.

Doctor CARSTENS held that irritation did not produce cancer. It never had and never would. If by coincidence there was a place that was irritated and cancer developed, there was some other place where cancer developed where irritation did not exist. People who wore glasses irritated the skin of their noses; their noses were pinched, yet he challenged anybody to show him a single case of cancer having started from such irritation.

Renal Damage from Calculi.—Dr. HENRY D. FURNISS, of New York, from an experience of about four cases, had come to the following conclusions: 1. Lithiasis was essentially a chronic disease. Undoubtedly the calculus in each case was present much longer than the symptoms, yet the average duration of symptoms was four years; the minimum being one month and the longest eighteen years. The development was often insidious, and frequently complete destruction of a kidney occurred with very little discomfort or interference with the general health. In only two cases, with a septic temperature, was the general health much impaired. 2. Multiplicity of stones was found in fifteen cases, though in only two were both sides affected. In calculous anuria this bilateral involvement should always be considered. The consensus was that sympathetic anuria was rare, and that in nearly every case it would be found that the unsuspected kidney had either been congenitally absent or previously destroyed by disease. Reflex pain was another condition to be looked upon with suspicion; a definite cause for pain was generally to be found, and he regarded this so called reflex pain as very rare. 3. Stones, unless multiple or very large, situated in the calices, in the absence of infection, or the opening of a bloodvessel, by attrition, caused little discomfort and *little damage*. The size and location in these quiescent cases should be determined by frequent radiographs, and when the stone remained favorably situated and did not enlarge, a waiting policy should be the one used. When very large, pressure atrophy of the renal parenchyma occurred. 4. When a stone entered the pelvis of the kidney, then obstruction was likely to occur, and with the consequent retention infection would sooner or later develop. The rougher the stone and the greater the retention, the greater the liability of infection, so the more urgent need of operation. Calculi able to be passed through the ureter, entered it soon after they had dropped into the pelvis from one of the calices; so they seldom saw pelvic stones that were subsequently passed. Stones in the pelvis that obstructed had many features in common with ureteral calculi. 5. Ureteral calculi that were small and smooth did not completely obstruct, moved downward constantly, and were passed in a relatively short time, did only temporary damage. Those that were fixed, or obstructed seriously the outflow of urine, soon led to irreparable damage, especially if infection took place. Stones in the pelvis that ball-valved it, and ureteral calculi caused much more suffering and

greater renal damage, than stones in the calices, especially when infection supervened upon the retention. Ureteral calculi often became imbedded in the ureteral wall, and after operation, stricture of the ureter was very apt to occur, and caused further damage to the kidney. 6. The effect of calculi upon the kidney was dependent mostly upon the obstruction that was produced, and was added to by infection, which was present in sixty-eight per cent. of his cases. There were nine cases of pyelitis and pyelonephrosis, five of pyonephrosis, and five of infected hydronephrosis. In seventeen cases the function of the involved kidney, compared with its fellow, was determined, and in only two was it normal, in four the loss of function was moderate, in three great, and in eight complete. This analysis showed that in practically fifty per cent. there was damage to the renal function, and that in thirty-five per cent. it was completely destroyed. These numbers fell short of showing the real condition, for in fifteen cases, nearly fifty per cent. of the total, no determination of function was made. 7. Of the thirty-two cases, the calculi produced no injury in thirteen, in nine there was pyelitis and pyelonephritis, in five pyonephrosis, and in five infected hydronephrosis, and it was fair to assume that some of the nine pyelitic and pyelonephritic cases would have in the course of time advanced to the stage of pyonephrosis and infected hydronephrosis; and of the thirteen undamaged cases, many would later have become more seriously involved. 8. In the pyonephrosis cases and the infected hydronephrosis with great loss of function, nephrectomy was advisable. 9. In the ureteral cases with great loss of function, it was debatable whether the removal of the stone or the kidney was advisable. Better results were obtained by removing the kidney than the stone, and the best results came from removing the kidney and ureter to a point below the stone.

As infection was one of the greatest dangers, their examination should be conducted with this in mind. The method upon which he insisted was radiography, first and always. The estimation of the damage done the kidney was best determined through a cystoscope, noting the elimination of indigocarmin injected intravenously. Seldom was there any need for the use of the ureteral catheter. Occasionally, but not often, it was necessary to insert an x ray catheter to be certain that a given shadow was in the ureter, or to pass a waxed tip catheter when radiography failed us.

Dr. CHARLES L. BONIFIELD, of Cincinnati, remembered distinctly a case he operated in two years ago. The patient went to one of his colleagues two or three years previously, had the kidney explored and needled, but the conclusion was reached that there was no calculus. In the meantime x ray showed a calculus and its position, so that it was easily removed. It was important to x ray in all these cases early.

Dr. FRANCIS REDER, of St. Louis, said hardly any surgeon today would invade the kidney without having a positive x ray picture. In one case he cut down upon a kidney following an x ray picture which located the stone in the lower pole. At the operation it was found that the stone was an inch

and one half in the ureter. In some way the kidney was displaced and the shadow showed through the kidney and gave the impression the stone was in the lower pole of the kidney.

Dr. E. GUSTAV ZINKE, of Cincinnati, said a man, fifty-four years of age, came to him complaining that he did not pass as much urine as usual, and that occasionally he would have a dull pain in his back. Examination of the urine revealed a slight trace of pus. The x ray showed a stone about the size of a rooster's head upon the right side, with another, the size of a cherry, upon the left side, which gave him very little or no trouble. In operating upon the kidney with a large stone, the kidney was easily found, exposed, and incised its full length. There was no evidence of destruction of the kidney tissue, and as the man had a stone upon the other side he concluded not to remove the kidney. He sewed it up in the usual way. The man did well for a week, and then suddenly began to go down. He had no evidence of peritonitis, and died of exhaustion at the end of two weeks.

Dr. JOHN F. ERDMANN, of New York, mentioned a case in which a radiograph showed a large stone on the right side and a large shadow on the left side. The patient had a high temperature with all the evidences of sepsis. He operated on the left side and removed a large hypernephroma. He did not operate on the kidney containing the stone. Although the urine was badly infected, the man recovered. The speaker hoped later, if the man turned up, to do a nephrostomy and remove the stone from the right kidney.

Delayed Union in Noninfected Epigastric Wounds.—Dr. MILES F. PORTER, of Fort Wayne, said the evidence upon which rested the opinion that delayed union was more likely to occur in wounds in or near the mid line above the umbilicus than in similar wounds below the umbilicus was quite strong. Neither the suture material nor the method of suturing could be blamed in all cases. The causes were many. Of special importance was the general condition of the patient. By using non-absorbable suture material, and allowing the sutures to remain *in situ* for two weeks or more, one might avoid serious accidents from delayed union; but one could not in this way always secure prompt union. Incisions through the recti united more promptly than incisions through the white line. The results of imperfect union were immediate and remote. The immediate result was protrusion or exposure of the viscera; the remote result hernia and rarely rupture of the scar. Lack of union was usually symptomless and was usually discovered when the wound was dressed. In some cases the moisture of the dressing led to an example which revealed the condition. The prognosis was good. The proper closure of wounds might not secure prompt union, but would prevent serious accidents from delayed union.

Dr. GEORGE VAN AMBER BROWN, of Detroit, had had three cases. The first occurred in a young woman for whom he had removed a large cystic ovary and done the so called Gilliam operation. She left the hospital in fifteen days. Two or three days after her return home, he found the wound had separated down to the peritoneum. There was

no suppuration; it was filled with one blood clot. A culture was made and staphylococcus infection was found. She was taken to the hospital and the peritoneum closed with catgut and a layer of gauze placed between the peritoneum and the muscle for drainage, and then the muscle sheath closed with catgut; she made an uneventful recovery.

Dr. LEWIS F. SMEAD, of Toledo, reported two cases of delayed union above the umbilicus, the first pyloric obstruction due to ulcer in which the Finney pyloroplasty was done. It was a right rectal incision; the wound was closed with fine silk in the peritoneum, and muscle and fascia with heavy silk, the through and through muscle fascia stitches going back three quarters of an inch and tied over a running stitch, the skin being closed by subcutaneous silver wire. At the end of ten days the silver wire was removed and the wound was apparently clean. In the afternoon the wound opened completely from end to end. It was closed immediately, but the woman died on the seventeenth day from peritonitis.

Dr. ASA B. DAVIS, of New York, had seen five or six cases of separation of the wound after Cæsarean section. The wound was not infected apparently, but by closing it again with through and through silkworm gut sutures, there was strong union and no complications. In one or two cases the wound had been infected and opened part the way down and had been allowed to heal by granulation. In these cases hernia developed, while in the other cases it did not.

Dr. FRANK D. GRAY, of Jersey City, remembered a laparotomy done for resection of the intestine following a bullet wound; he made six or seven openings in the intestine, which he resected and united by the modified Maunsell method, and the man made an uninterrupted recovery. For a week there were no evidence of sepsis. At the end of the time he sat up, was put in a roller chair, and on his own responsibility went rolling around the wards. He went back to bed, had partial syncope and vomited. The wound separated. It was closed again, and he made an uneventful recovery with perfect union.

Dr. WILLIAM H. HUMISTON, of Cleveland, did not see why they should have more difficulty with incisions made in the epigastric region than in those made below the umbilicus. The question arose whether the technic might not be at fault in the majority of cases. It was better to go through the muscle to the right of the median line and be very careful not to strip the fascia from the muscle. If the incision was clean, the muscles were separated carefully, and the posterior fascia was divided carefully, he did not see why there should be separation. Where separation occurred, the muscle sutures were drawn too tight.

Myomectomy with Extensive Resection of the Uterus in Fibroid Tumors.—Dr. X. O. WERDER, of Pittsburgh, averred that a comparison of the mortality of hysterectomy and myomectomy seemed to be rather in favor of the latter. Since 1898 inclusive, during which time accurate records had been kept, 707 cases of uterine fibroids had been operated upon with a total mortality of 3.25 per cent. This did not include over 100 cases in which small fibroids were removed coincident with other

operations, but only those in which this neoplasm constituted the principal indication for operation. In these 707 cases, hysterectomy was performed 536 times and myomectomy, including the thirteen cases of extensive resection of the uterus here reported, 171 times. The total mortality in the latter cases was four or 2.33 per cent., while hysterectomy was accompanied by a death rate of 3.45 per cent., or more than one per cent. in favor of myomectomy. The morbidity of myomectomy compared even more favorably with that of hysterectomy, as the myomectomy patients almost uniformly made a smooth, uncomplicated recovery, and almost without exception enjoyed perfect health after the operation. He felt, therefore, justified in making a plea for more conservative treatment of uterine fibroids in younger women. Myomectomy and the more radical resection of the uterus could be profitably performed in many women whose uteri were now ruthlessly sacrificed, resulting in many cases in long years of discomfort, unhappiness, and invalidism.

Dr. J. HENRY CARSTENS, of Detroit, in some cases, had taken out one side of the uterus, about one half, but had not tried systematically to save any uterine tissue by taking away half of it or one quarter or three quarters. It was of little consequence whether they took it all away or half of it. If the ovaries were intact, it did not make any difference whether they took out the whole uterus or half of it, and whether these women menstruated or not was of no great moment, because menstruation was no benefit to them. Ovarian secretion was all important, and if they left the ovaries, the woman would go on and never know whether the uterus was out or not, except that she did not menstruate every month.

Dr. ROBERT T. MORRIS, of New York, said that they were apt to forget the patient herself. To a patient who had these small masses, he said, if he did a myomectomy removing a part of the uterus and leaving a part, she would probably have a further development of this neoplastic growth because the original conditions persisted. If she wanted him to leave a part with the possibility of having further neoplastic growth, with the idea of having a child, all right. If one woman said yes, he left it for her. If another woman said no, he took it all out for her. He left it to the patient to decide.

Dr. A. B. MILLER, of Syracuse, saw very few large fibroids at the present time compared with former years. In connection with fibroids in women of advanced age, from the fact the menopause did not cease, many women would either not accept operation or, owing to associated conditions of heart disease, general debility, anemia, etc., it was impossible to subject them to operative interference without mortality. He had had six cases of fibroid tumors in women of advanced age that had been treated with x ray with very good results.

Doctor WERDER, in closing, said that, in regard to deaths from embolism, he had had a number of embolic deaths, and they were included in the three and one quarter per cent. mortality, but only one embolic death from myomectomy.

(To be concluded.)

Letters to the Editors.

IPECAC AS A SPECIFIC IN AMEBIC DYSENTERY.

SALEM, OREGON, October 7, 1914.

To the Editors:

In your valuable JOURNAL for July 25th, you were so kind as to publish a letter from me, giving my experience of the use of ipecac in the treatment of amebic dysentery, which prevailed extensively in central Ohio in the summer and fall of 1854, causing great mortality. The many kind and complimentary letters that I have received from prominent members of the medical profession and their requests that I should in another letter give my views of the value of ipecac in dysentery as well as in other disorders, have made it my duty to place upon record the history of ipecac and its mode of action.

I have come to regard it as one of the most valuable and efficient remedies for the ills that afflict poor humanity that we possess, second to none, not even to opium, which has been characterized as the "greatest gift of a beneficent Creator to assuage the ills of mortal man." I have come to conclusions that clear up a point that had long been a puzzle to me and to many others; and that is, how an agent that in ordinary doses acts so promptly as an emetic, could be a proper remedy in dysentery, where it is so necessary to enable the stomach to retain sufficient food to sustain the vitality of the patient. The whole thing becomes clear if we consider ipecac as a pure vasomotor stimulant with special action upon secretion; large doses of ipecac cause violent action of the muscular and mucous coats of the stomach and forcible expulsion of its contents; while small ones favor healthy secretion and tend to quiet nervous irritability. The action is the same in both cases, differing only in degree. The first case of dysentery that came to my notice convinced me that it would not do to cause vomiting, and if I tried ipecac, it must be in very small doses, so I began treatment with two grains. Seeing that it did no harm, I repeated it in two hours with an increase of two grains, to be repeated at intervals every two hours, increasing the quantity each time until the dose reached not more than ten grains. After giving a few doses, it became apparent that there was a decided improvement in the symptoms, and that the medicine was being well borne. In about six hours the patient had a free movement of the bowels, consisting almost entirely of fecal matter of the color and consistence of bean porridge; this has been aptly called "the ipecacuanha stool," and is the first sign of convalescence; after which he was turned over to the nurse to be well fed and cared for. All medicine was then suspended and the patient quickly recovered. Ipecac was the only medicine given. The case was a serious one with a high fever, much abdominal pain and tenderness upon pressure, and tenesmus; warm fomentations to the bowels were used to relieve the pain and the cool pack for the fever, and it was wonderful how quickly the bad symptoms subsided.

After reading the reports of different physicians who have tried ipecac in dysentery and have not been satisfied, I would like to know whether the remedy was used in the early or later stage of the disease. I do not believe that ipecac or any other remedy will cure a severe case if its application is too long delayed. If the dose is large enough to produce vomiting, it will surely be of no avail but only increase the gravity of the disease. In the early stage there is an entire absence of healthy secretion, the nerves of the stomach are in a high state of irritation, and all remedies must be of a soothing nature; the coat of the stomach becomes dry, congested, and inflamed. Now if we consider ipecac as a vasomotor stimulant, acting especially upon the organs of secretion, it is easy to understand that small and repeated doses should prove to be soothing, not only in this case, but in any other disease characterized by a hot dry skin or other tissues, with more or less congestion or inflammation. No organ of the animal organism will perform its proper function in the absence of moisture. The living body is a highly complex and perfect machine, and like any other requires some viscid fluid to prevent friction of its working parts; in the animal machine this lubricator is mucus, and no other agent works so efficiently as ipecac as a promotor of the necessary secretion. It is not directly a soothing agent; it only acts indirectly as a

stimulant to healthy secretion, and this action may prove destructive if in excess but in no ordinary sense can it be ranked as a poison. It certainly acts specifically by stimulation. The absence of secretion to my mind is a sufficient explanation of the cause of the disease, and the peculiar effect of ipecac as a specific for its cure. Whether or not the ameba is the efficient cause, I do not presume to say; some investigators think there is a variety of the disease in which no amebas are found, and which ipecac fails to cure. I have never found any difference in the efficacy of the remedy; in both cases I have found the remedy equally efficient; and my experience has been quite large in both kinds. I wonder if the explanation is in the different methods of administration of the medicine. The disease was very common in the sporadic form among the soldiers in the civil war, and it is not unusual in civil life; some cases have come under my notice recently in this vicinity that were speedily cured with ipecac. I consider this agent especially useful in all cases where there is insufficient production of bile from the liver and an abnormal temperature of the body. I recently saw a case of typhoid fever where it seemed very much to ameliorate the symptoms and expedite the cure. Long before my time ipecac was known and used as an efficient remedy for persistent vomiting from any cause, and Hahnemann used this fact as an argument to prove the truth of *Similia similibus curantur*. I regard opium and all its salts, astringents, laxatives of any kind, and any other agent that interferes with free secretion as entirely contraindicated; they only increase the gravity of the disease. I feel it to be my duty to place upon record the results of a method that in the course of many long arduous years has never failed to give satisfactory results in every curable case of dysentery. If ipecac destroys the ameba, so much the better; any way it certainly cures the disease. Substituting emetine for plain powdered ipecac does not appeal to me as an improvement. Ipecac is found in every drug store, does not cost much, agrees perfectly with the patient, and very seldom fails to cure if used in the early stage of the disease, at not too short intervals and in not too large doses. After mixing the powder with a small quantity of sugar and placing it upon the tongue, giving a swallow of water, even a child makes no objection to it. Keep a sharp lookout for the ipecac stool and all is well. Most mothers, I am sure, would object to the use of the hypodermic syringe for children for the administration of emetine or for anything else if it could be avoided. E. Y. CHASE, M. D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Defensive Ferments of the Animal Organism. Against substances out of Harmony with the Body, the Blood-Plasma, and the Cells; Their Demonstration, and Their Diagnostic Significance for Testing the Functions of Different Organs. By EMIL ABDERHALDEN, Director of the Physiological Institute of the University at Halle a. S. With 11 Text Figures and one Plate. Third Enlarged Edition. English Translation by J. O. GAVRONSKY, L. R. C. P., M. R. C. S., M. D., Halle a. S., and W. F. LANCHESTER, M. A. New York: William Wood & Co., 1914. Pp. xx-242. (Price, \$2.75.)

As is well known, Abderhalden's aim was, in the original edition, to harmonize the defensive measures of the body with the metabolic processes of the latter. The author terms "defensive ferment" the agent, or aggregate of agents, which is able to deprive disharmonious, i. e., more or less toxic agents of endogenous or exogenous origin, of their specific character, the object being "to bring the so called reactions of immunity into close line with processes that are normal and consequently familiar to the cells." On the principle that, under normal conditions, substances which are toxic, i. e., out of harmony with the plasma, never have access to the blood, it seems apparent that the blood plasma should be normally lacking in digestive powers. This proved experimentally to be true; the blood plasma having never been found "either in the majority of

animals or in man to produce decomposition of albumin, peptones, or polypeptides." Yet after a meal rich in fat, active lipase could be demonstrated in the blood, while after the introduction parenterally of nucleoproteids, nuclein, and nucleic acids, ferments appeared in the blood plasma in increased quantity and quickly reduced these substances. This applied also to cane sugar as determined in the dog by the optical method. As to pathogenic germs and their toxins, the gastrointestinal tract and the liver afford the first line of defense for ingested organisms, while the lymphatic system "watches that no material shall reach the blood which is out of harmony with it," whether of endogenous or exogenous origin. When, however, the actual invasion of organisms occurs, "the harmoniously organized cells of the tissues are subjected to the influence of a kind of cell which has an utterly strange organization of its own." Each cell of the body, with very few exceptions, has been found to dispose of approximately similar ferments to those secreted by the digestive glands; here as in the blood, the pathogenic organism and its products are subjected to the action of defensive ferments.

That the tissue cells themselves are not disintegrated by these ferments is provided against, according to Abderhalden, "by giving them a structure and configuration . . . which are out of harmony with the ferments." Be this as it may, he attributes to ubiquitous digestive ferments, not only an active role in cellular metabolism of the body at large, but also defensive properties.

All those of our readers who are familiar with Sajous's work on the *Internal Secretions* will recognize that Abderhalden's line of thought was first advanced in this country in 1903. Its great merit, however, lies in confirming experimentally what before had been regarded merely as a plausible hypothesis.

Some American Medical Botanists. Commemorated in our Botanical Nomenclature. By HOWARD A. KELLY, M.D., LL.D. Delivered as a lecture before the Medical Historical Society of Chicago, 1910, and before the University of Nebraska, October 16, 1913. Troy, N. Y.: The Southworth Company, 1914. Pp. 215.

The temperament which inspires such books deserves hearty praise, and perhaps some censure. Botany is a beautiful study, but it is not one for the amateur or amiable enthusiast. The selection of names hardly justifies the term "botanists," except in Wordsworth's meaning. For instance, the plan is to give a biographical study of each botanist, and to add to this an appreciation. The tendency to slipshod in such a work is best exemplified by a comparison between the biography of Asa Gray, which covers twelve pages and that of John Bartram which has eleven. Gray was a much more thorough botanist, though we fancy his work is more relished by students than by the ordinary plant lover. It is desirable, however, to know what we can of men like Bartram, and no one who is fond of botany will be the worse for reading this collection. Doctor Kelly's criticism is intelligent and sympathetic. The illustrations and printing are excellent.

The Therapeutic Value of the Potato. By HEATON C. HOWARD, L. R. C. P. Lond., M. R. C. S. Eng. Based upon an Article Contributed by the Author to the *Lancet* for April 11, 1914. New York: Paul B. Hoeber, 1914. Pp. vi-31. (Price 50 cents.)

The exposition of the subject in this monograph is of very considerable merit; it is remarkably clear and straightforward. We consume the potato without thinking that its raw juice possesses medicinal properties. A liquid extract applied to a synovitis, a bruise, a gouty or rheumatic joint, makes the pain milder. A fomentation or poultice put on a joint with effusion cuts the pain and irritation short, and appears to promote absorption. One part of the extract to three or four parts of hot water on three or four layers of lint, is applied and covered with a protective, cotton wool, and a bandage. This treatment, Mr. Howard tells us, is much more satisfactory than the drastic treatment of synovitis described in textbooks. The extract, or juice of the potato, may be administered subcutaneously; it is efficacious but painful. The principal defect of the treatment is that the composition of the juice does not explain these effects. Its ingredients are chiefly potassium, nitrogen, and phosphoric acid. The potato treatment, however, will be found useful.

The Life and Letters of Nathan Smith, M.B., M.D. By EMILY A. SMITH. With an introduction by WILLIAM H. WELCH, M.D., LL.D. New Haven: Yale University Press; London: Humphrey Milford (Oxford University Press), 1914. Pp. xiv, 185. (Price, \$2.25.)

The life and letters of the "organizer and chief ornament," as Dr. William H. Welch calls him, of the medical faculty of Yale University, have been gathered into a beautifully printed and illustrated volume by Mrs. Alan P. Smith. Dr. Nathan Smith was evidently a man of most unusual talent and attainments, as is shown indeed by an extract given on page 79 of this volume, from a lecture on chemistry delivered not later than 1813, wherein he forecast with almost uncanny prescience what might be expected from that handmaid of therapeutics. The letters are those of a scholar as well as of a man of the finest type of New England rectitude. As Dr. Abraham T. Lowe, of Boston, a former pupil, wrote: "Doctor Smith was a great and good man. He never seemed to toil for professional fame, but to do good to his fellow men." It appears that, in point of time, he was the second ovariectomist and, without knowledge of McDowell's procedure, he performed an original operation at Norwich, Vt., on July 5, 1821. We wish we had the space to go further into this most entertaining and historically valuable volume, which we commend to all our readers who love their profession apart from its bread winning aspects.

Practical Prescribing; with Clinical Notes. By ARTHUR H. PRICHARD, M. R. C. S., L. R. C. P., R. N. (Rtd.), Late House Physician, The Brompton Hospital, and Resident Surgeon, R. N. Hospital, Gosport. London: (Oxford University Press) Henry Frowde and Hodder & Stoughton, 1913. Pp. x-307. (Price, \$2.00.) (American Branch, New York.)

For elementary exercises in prescribing the learner is referred to this book, which sets forth the art on the principle that example is better than precept. Nothing could be juster, and we think that the execution of the work, as the author has accomplished it, is worthy of special notice. The simplicity of the outline is one of its greatest merits, and is one that may be missed. In treating disease the physician shows his art by the simplicity of his means, by heightening the effect of nature with natural instruments. The eleven sections in which the author has arranged these exercises are devoted to the most important diseases, as typhoid fever, anemia, measles, rickets, nephritis, etc., with references to clinical notes of cases, which serve as the subject matter of medical lessons. Ordinary cases of this kind require no special discussion. All that the author has done is to analyze each of the co-ordinate effects of the drugs in a prescription. He adds that there is one class of cases that require care, namely, those in children. This part of the book has a valuable and rather novel meaning. In his selection of drugs, the author has been judicious, and has not introduced any doubtful importations.

Interclinical Notes.

We have referred, we think, to the use of *deduct* for *deduce* in more than one slovenly edited and printed daily paper; a recent use is particularly grotesque. In discussing the alleged atrocities of war in Belgium, one evening paper mentioned the categorical denial by five reporters who had been traveling through Germany; "men," said this ingenuous sheet, "accustomed in their daily work to deduct from facts."

* * *

We find the following astonishing compliment in a circular issued by a magazine clubbing agent: "*Harper's Weekly* is now offering a six months' War Special . . . *Harper's Weekly* as a magazine is making the very best of an extraordinarily bad job."

* * *

Bella do not look so *horrida* in the pictures, as one may see by examining the *Outlook* for October 14th. Professor Albert Bushnell Hart writes on the historical roots of the war, Arthur Bullard on the theory thereof, and George Kennan on the spiritual uplift in Russia. Everybody knows now that nobody started this war; very likely the

governmental blue and white papers turned into seidlitz powders and exploded spontaneously.

* * *

Dr. Rupert Hughes, who, like Sir Conan Doyle, dropped the lancet to take up the pen, is getting along splendidly with *Empty Pockets* in the *Red Book* for October. We shall not pay our colleague the dubious compliment of calling him the New York Dickens, for Dickens was essentially of London and of the middle nineteenth century, while Hughes's story is photographically American and up to date and full of artistic interest too.

Edwin L. Sabin's *The Miracle* is an unusual piece of humor; James Oliver Curwood is perfectly at home in the far north in *God's Country and the Woman*; Justin Huntly McCarthy, in *April's Lady*, does nobly without rapier or buckler; and a line of other practised story writers too long to name will fill the physician's leisure hour with consolation and oblivion.

* * *

The Reverend George F. Herrick, an American clergyman for fifty years a resident of Constantinople, says in the *October Review of Reviews*, that millions of American dollars have been spent in Turkey on education and medical plants and that she will naturally turn to us for money to develop her plans for judicial reform, for higher education, for improved engineering, mining, etc. All white residents of Turkey seem to agree that the country has been grossly misrepresented for political reasons by the other European governments; now that we are beginning to learn how racial antagonisms are fostered from the very cradle in the schools of Europe, the statement is easy to believe. Doctors, at least, should not forget what they owe to Mohammedan chemists and physicians.

Meetings of Local Medical Societies.

MONDAY, *October 26th.*—Medical Society of the County of New York; Psychiatric Society of Ward's Island; Poughkeepsie Academy of Medicine (annual meeting).

TUESDAY, *October 27th.*—New York Psychoanalytic Society; New York Dermatological Society; Metropolitan Medical Society of New York City; Buffalo Academy of Medicine (Section in Pathology); New York Medical Union; New York City Riverside Practitioners' Society; Valentine Mott Medical Society, New York; Washington Heights Medical Society, New York; Woman's Hospital Society, New York.

WEDNESDAY, *October 28th.*—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; New York Society of Internal Medicine; Schenectady Academy of Medicine.

FRIDAY, *October 30th.*—Academy of Pathological Science, New York; Hospital Graduates' Club, Brooklyn; Audubon Medical Society, New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending October 14, 1914:

Bolton, Joseph, Assistant Surgeon. Amending bureau order of September 30, 1914, directed to report to Passed Assistant Surgeon Oleson for duty in the sanitary survey of certain industries in Michigan, Minnesota, Illinois, Ohio, and Pennsylvania. Brooks, S. D., Senior Surgeon. Directed to proceed to San Pedro, Cal., at least once a week, to inspect the operations of the marine hospital service and quarantine stations at that port. Carrington, P. M., Surgeon. Granted ten days' leave of absence from October 16, 1914. Creel, R. H., Surgeon. Detailed, at the request of the State Board of Health of Mississippi, to attend the meeting of the Mississippi Public Health Association to be held at Jackson, October 27 and 28, 1914, for the purpose of presenting a paper on the Rat and the Flea and Their Relation to Plague. Cumming, H. S., Surgeon. Directed, whenever it is impracticable for the steamship *Dratton* to reach certain shellfish beds, to proceed to

such places or direct his assistants to proceed thereto by railroad or other means of conveyance. Hesselstine, H. E., Passed Assistant Surgeon. Granted one month's leave of absence from October 26, 1914. Hommon, H. B., Sanitary Chemist. Directed, upon completion of present investigation of cannery wastes at Farnham, N. Y., to return to Washington, D. C., by way of Noblesville, Ind., for consultation with the sanitary engineer of the service in charge of the construction of experimental works for the investigation of straw board wastes at that place. Lumsden, L. L., Surgeon. Detailed, at the request of the State Board of Health of Mississippi, to attend the meeting of the Mississippi Public Health Association to be held at Jackson, October 27 and 28, 1914, for the purpose of presenting a paper on the Typhoid Fever Problem. Neill, M. H., Assistant Surgeon. Relieved from duty in the investigation of the pollution of the Ohio River and directed to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory for duty. Oleson, Robert, Passed Assistant Surgeon. Directed, on request of the Commission on Industrial Relations, to make a sanitary survey of certain industries in Michigan, Minnesota, Illinois, Ohio, and Pennsylvania. Phelps, E. B., Professor. Directed, at the request of the Connecticut State Board of Health, to proceed to such places in the State of Connecticut as may be necessary in order to offer advice in regard to investigations of stream pollution now being carried on in that State. Rucker, W. C., Assistant Surgeon General. Detailed, at the request of the State Board of Health of Mississippi, to attend the meeting of the Mississippi Public Health Association to be held at Jackson, October 27 and 28, 1914, for the purpose of presenting a paper on bubonic plague. Spratt, R. D., Passed Assistant Surgeon. Directed to proceed to Rochester, Pa., and Wheeling, W. Va., for the reexamination of certain aliens. Sweet, E. A., Passed Assistant Surgeon. Amending Bureau order of September 24, 1914, directed to make a sanitary survey of certain industries in Massachusetts, New Jersey, and Pennsylvania. Voegtlin, Carl, Professor. Directed to proceed to Spartanburg, S. C., for conference in regard to special investigations of pellagra undertaken in the hospital at that place. Von Ezdorf, R. H., Surgeon. Upon completion of present investigations of malaria in State of Virginia, and before proceeding to other places selected for investigation, directed to report at the bureau, Washington, D. C., for conference. Waller, C. E., Assistant Surgeon. Amending bureau order of September 30, 1914, directed to report to Passed Assistant Surgeon E. A. Sweet for duty in sanitary survey of certain industries in Massachusetts, New Jersey, and Pennsylvania.

Casualty.

Assistant Surgeon L. W. Jenkins drowned by capsizing of small boat from Revenue Cutter *Manning* at Unimak Island, Aleutian Group, Alaska, October 10, 1914.

Boards Convened.

Boards of medical officers convened for the physical examination of candidates for appointment as assistant surgeons in the Service, and for the presentation of questions for the mental examination to meet Monday, October 19, 1914, at 10 o'clock a. m., as follows:

Immigration Station, Ellis Island, N. Y. Detail for the board: Surgeon L. L. Williams, chairman; Surgeon C. H. Lavinder, recorder. Marine Hospital, San Francisco, Cal. Detail for the board: Surgeon R. M. Woodward, chairman; Surgeon J. M. Holt, recorder. Marine Hospital, Chicago, Ill. Detail for the board: Surgeon J. O. Cobb, chairman; Assistant Surgeon Don C. Sutton, recorder. Marine Hospital, Boston, Mass. Detail for the board: Surgeon B. W. Brown, chairman; Passed Assistant Surgeon G. L. Collins, recorder. Marine Hospital, Louisville, Ky. Detail for the board: Surgeon S. B. Grubbs, chairman; acting Assistant Surgeon J. F. Crane, recorder.

United States Navy Intelligence:

Official list of changes and duties of officers serving in the Medical Corps of the United States Navy for the two weeks ending October 19, 1914:

Conklin, F. L., Assistant Surgeon. Commissioned an assistant surgeon from September 11, 1914. Cress,

W. W., Assistant Surgeon. Commissioned an assistant surgeon from September 19, 1914. **Curl, H. C.**, Surgeon. Detached from the Naval Hospital, Mare Island, California, and ordered to the *West Virginia*. **Depping, G. W.**, Assistant Surgeon. Commissioned an assistant surgeon from September 2, 1914. **Freeman, Arthur**, Assistant Surgeon. Commissioned an assistant surgeon from September 11, 1914. **Heiner, R. G.**, Passed Assistant Surgeon. Detached from the Naval Station, Guantanamo, Cuba, and ordered to the Atlantic Reserve Fleet. **Jenness, B. F.**, Passed Assistant Surgeon. Transferred to the retired list from October 1, 1914. **Johnson, M. K.**, Surgeon. Detached from the Naval Torpedo Station, Newport, R. I., and granted two months' leave. **Jones, E. L.**, Passed Assistant Surgeon. Ordered to the Naval Hospital, Puget Sound, Washington. **Longabaugh, R. I.**, Passed Assistant Surgeon. Ordered to duty with the Third Regiment Marines, San Diego, Cal. **Matthews, E. L.**, Assistant Surgeon. Commissioned an assistant surgeon on September 11, 1914. **McLean, N. T.**, Passed Assistant Surgeon. Ordered to the Naval Hospital, Washington, D. C., for treatment. **Miller, J. T.**, Passed Assistant Surgeon. Detached from the *Hannibal* and ordered to the *Brooklyn*. **Moran, C. L.**, Passed Assistant Surgeon. Detached from the Naval Hospital, Mare Island, Cal., and ordered to the *South Dakota*. **Natkemper, R. L.**, Assistant Surgeon. Commissioned an assistant surgeon from September 11, 1914. **Parker, E. G.**, Surgeon. Detached from the *South Dakota* and ordered to the Naval Station, Samoa. **Reed, T. W.**, Surgeon. Detached from the receiving ship at Norfolk and ordered to the Naval Hospital, Norfolk, Va. **Reeves, I. S. K.**, Passed Assistant Surgeon. Detached from the *Brooklyn* and ordered to Annapolis Hospital. **Stephenson, C. S.**, Assistant Surgeon. Ordered to the Asiatic Station. **Target, J. D.**, Assistant Surgeon. Commissioned an assistant surgeon from September 19, 1914. **Thompson, A. C.**, Assistant Surgeon. Commissioned an assistant surgeon from September 11, 1914. **Treibly, C. E.**, Assistant Surgeon. Ordered to the Naval Station, Guantanamo, Cuba. **Webb, E. R.**, Surgeon. Detached from the *South Dakota* and ordered to the Naval Hospital, Mare Island, Cal. **Wilson, W.**, Assistant Surgeon. Commissioned an assistant surgeon from September 12, 1914. **Winn, C. K.**, Passed Assistant Surgeon. Detached from the receiving ship at Mare Island, and ordered to the Naval Hospital, Mare Island. **Woodland, E. E.**, Assistant Surgeon. Detached from the Naval Hospital, Annapolis, Md., and ordered to the Naval Hospital, Philadelphia.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending October 17, 1914:

Burnett, Thomas W., First Lieutenant, Medical Corps. Granted two months and fifteen days' leave of absence. **Casper, Joseph**, Captain, Medical Corps. Granted, on his arrival in the United States, one month and fifteen days' leave of absence. **D'Alemberte, C. W.**, First Lieutenant, Medical Reserve Corps. Assigned to active duty in the Medical Reserve Corps, with temporary station at Fort Barrancas, Florida, during the absence of Major Arthur W. Morse. **Darby, Taylor E.**, Captain, Medical Corps. Granted leave of absence of one month and fourteen days. **Lyster, Theodore C.**, Major, Medical Corps. Reported for duty as assistant to the attending surgeon, Washington, D. C., October 11, 1914. **Murray, Alexander**, Captain, Medical Corps. Granted one month's leave of absence. **Pinkston, Omar W.**, Captain, Medical Corps. Ordered to the Walter Reed General Hospital, Takoma Park, D. C., for observation and treatment. **Snyder, H. D.**, Lieutenant Colonel, Medical Corps. Will proceed to Vera Cruz, Mexico, for temporary duty. **Usher, F. M. C.**, Major, Medical Corps. Relieved from duty with the Second Division, and from further duty at Fort Sam Houston, Texas, and will proceed to Fort Terry, New York, for duty; relieving Major Patrick H. McAndrew, who will proceed to Fort Bliss, Texas, for duty. **Van Dusen, James W.**, Major, Medical Corps. Granted leave of absence for four months on his arrival in the United States. **Voss, William E.**, Major, Medical Corps. Granted one month's leave of absence on his arrival in the United States.

Births, Marriages, and Deaths.

Married.

Blauvelt—Costello.—In Nyack, N. Y., on Wednesday, October 21st, Dr. John Hudson Blauvelt and Miss Mae Costello. **Brown—Harris.**—In Spring Hill, Va., on Thursday, October 8th, Dr. Lawrason Brown and Miss Martha Lewis Harris. **Davenport—Postal.**—In Memphis, Tenn., on Tuesday, October 6th, Dr. Raleigh R. Davenport and Miss Mayme K. Postal. **Davis—Hunter.**—In Haverford, Pa., on Wednesday, October 14th, Dr. J. Leslie Davis and Miss Izora Venetta Hunter. **Flanagan—Swartwood.**—In Syracuse, N. Y., on Monday, October 12th, Dr. George M. Flanagan, of New Britain, Conn., and Miss Mary E. Swartwood. **Fuller—Westman.**—In Minneapolis, Minn., on Wednesday, October 7th, Dr. Allen Fuller, of Missoula, Mont., and Miss Gertrude Westman. **Gardner—Dixon.**—In Moscow, Pa., on Wednesday, October 14th, Dr. A. P. Gardner, of Scranton, and Miss Mary Lena Dixon. **Geiger—Reid.**—In Pawtucket, R. I., on Wednesday, October 7th, Dr. Carl J. Geiger, of Syracuse, N. Y., and Miss Catherine Reid. **Graham—Jernegan.**—In New York, on Thursday, October 8th, Dr. Henry James Graham, of Mishawaka, Ind., and Mrs. Theresa Tromp Jernegan. **Hankins—Taylor.**—In Washington, D. C., on Wednesday, October 7th, Dr. Thornton W. Hankins, of Fordwick, Va., and Miss Nell Taylor. **Merritt—Townsend.**—In Easton, Md., on Wednesday, October 7th, Dr. James B. Merritt, 3d, and Miss Ella Maud Townsend. **Plonske—Clarke.**—In Minneapolis, Minn., on Wednesday, October 7th, Dr. Charles Plonske and Miss Marian Clarke. **Sargent—Linton.**—In Washington, Pa., on Thursday, October 15th, Dr. Larry Dodd Sargent and Miss Naomi Linton. **Wanamaker—Murray.**—In Philadelphia, on Tuesday, October 20th, Dr. John Wanamaker, 3d, and Miss Gertrude Murray. **Williams—MacFayden.**—In Newark, N. J., on Wednesday, October 7th, Dr. T. Lamar Williams, of Mt. Carmel, Pa., and Miss Helen MacFayden.

Died.

Beatty.—In Baltimore, Md., on Tuesday, October 13th, Dr. Joseph E. Beatty, aged seventy-five years. **Brock.**—In Mount Herman, La., on Wednesday, October 7th, Dr. J. S. Brock. **Carico.**—In Cloverdale, Cal., on Thursday, October 8th, Dr. John W. Carico, aged fifty-three years. **Davis.**—In Biddeford, Me., on Friday, October 9th, Dr. Frederick L. Davis, aged fifty-five years. **Gilson.**—In Portland, Me., on Friday, October 9th, Dr. Arthur S. Gilson, aged fifty-nine years. **Heron.**—In Lakewood, N. J., on Sunday, October 11th, Dr. Alexander M. Heron, aged forty-nine years. **Hickey.**—In Warren, Vt., on Wednesday, October 7th, Dr. Eugene J. Hickey. **Hobbs.**—In Waterboro, Me., on Sunday, October 11th, Dr. Frank H. Hobbs, aged fifty-five years. **Hulin.**—In Greenford, Ohio, on Tuesday, October 6th, Dr. O. W. Hulin, aged forty-nine years. **Lewis.**—In Jackson, Mich., on Wednesday, October 7th, Dr. Charles H. Lewis, aged seventy-four years. **Libbey.**—In Cranston, R. I., on Wednesday, October 7th, Dr. Erving A. Libbey, aged thirty-nine years. **Lumsden.**—In Elizabeth City, N. C., on Wednesday, October 14th, Dr. William J. Lumsden, aged sixty-eight years. **Morris.**—In San Antonio, Texas, on Wednesday, October 7th, Dr. H. C. Morris, aged fifty years. **Mumford.**—In Clifton Springs, N. Y., on Sunday, October 18th, Dr. James Gregory Mumford, aged fifty-one years. **Sheerin.**—In Barnesville, Ohio, on Friday, October 9th, Dr. Robert Sheerin, aged forty-three years. **Shoemaker.**—In Kensington, Pa., on Wednesday, October 7th, Dr. James S. Shoemaker, aged fifty years. **Small.**—In Kankakee, Ill., on Tuesday, October 6th, Dr. A. L. Small, aged eighty-four years. **Thoms.**—In Lansing, Mich., on Tuesday, October 6th, Dr. Frank M. Thoms, aged forty-five years. **Vickers.**—In Wynnewood, Pa., on Thursday, October 8th, Dr. George Morley Vickers. **Wagener.**—In Sturgeon Bay, Wis., on Saturday, October 3d, Dr. Nicholas Z. Wagener, aged forty-one years. **Wakefield.**—In St. Louis, Mo., on Tuesday, October 6th, Dr. Harry C. Wakefield, aged forty-four years.

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Original Communications.

NERVE BLOCK, PUBLIC HEALTH, AND TUBERCULOSIS.

BY SIR JAMES GRANT, K. C. M. G., F. R. C. P.
(LOND.),

Ottawa, Canada.

President, Ottawa General Hospital, and Chief of Staff.

Public health is now calling forth much merited attention, and very fortunately so, as valuable life is thus saved, and the foundation of national prosperity established. The first question which arises is, Are we making distinct and satisfactory progress in our sanitary measures?

In England, after the Restoration, for fully twenty years, there was a high degree of mortality throughout the kingdom, which Macaulay described as a time when men died faster in the lanes of the towns than they died on the coast of Guiana. as the rate of mortality in London, from 1660 to 1679, was not less than eighty in the thousand. Fortunately a few years exercised a remarkable change for the better, as from 1846 to 1855 it was reduced to 21.9 per mille; and in 1871, to 22.6. In England and Wales the death rate in 1912 was 13.3 per mille, twenty-seven per cent. less than the mean yearly rate during the period 1891 to 1900. The death rate is much in proportion to the density of population. Man has no control over the laws of nature, but if we live in compliance with these laws, we more and more appreciate that they are charmingly arranged for the promotion of health and the prolongation of life. The health of the nation stands in close relationship to the individual. When the waste of the component parts of the body is greater than the power of restoration, then is the time to observe closely the indications of bodily decay; in the evident want of balance between waste and supply, there is an undoubted wornout condition of the system.

The essential requirements of communities and individuals must be and really are the same. Individuals must be well clothed, well fed, well housed, well aired, and well watered. Public health is a simple problem, yet frequently its attainment is difficult. A great part of sanitary science can be stated and comprised in one word—*cleanliness*. Clean houses, clean air, and clean water are a remarkable trio of power in establishing genuine sanitary conditions.

The ancients fought against bad smells most vigorously and endeavored to mask odors with per-

fumes. In fact at the present day, scents abound frequently to suppress filth. Ancient Capua had streets of perfume shops with that object in view. There is little of originality in our efforts in public health. Moses was a most practical hygienist, and one of the most telling and far reaching commandments he brought down from the Mount was *Thou shalt not pollute rivers*. In fact the ancients knew as well as we of the present day, the conditions of public health—foulness a source of disease, and cleanliness a preventive. Wash and be clean is actually the sum and substance of sanitary science. Physical and moral purity is next to Godliness.

In 1665, when the Court and Parliament of England assembled at Oxford, it had an immunity from plague, traced to the thorough cleansing which the magistrates gave to the city, to insure safety for its distinguished guests, confident that public health could be assured only by cleanliness. These are our lessons today.

Hippocrates, the first hygienist, gave to science an entire volume on public health, and his chief text was pure air, pure water, and pure soil, the adopted maxim of the present day after centuries of careful inquiry. Napoleon at St. Helena stated, "Life is a fortress which we know little about. Water, air, and cleanliness are chief in my pharmacopœia." Really today our knowledge of air and water is not complete. Nature is an object lesson in hygienic arrangements, which if followed carefully, will be productive of most gratifying results.

Canada delights in the scenic beauty of its rivers, and we trust the prospect of their being converted into open ditches, polluting the districts through which they flow, will by legislative enactment shortly become a matter of the past. Ottawa has suffered from an epidemic of typhoid fever, so we look forward to a supply of water which will not require purification, and so contribute health, happiness, and prosperity to our people.

Disraeli, in a celebrated speech at Manchester, pledged himself that a conservative Government would devote special attention to sanitary subjects. He said, as Prime Minister of England, "I cannot impress upon you too strongly my conviction of the importance of the legislature and society, uniting together in favor of these important results."

The Right Honorable Joseph Chamberlain, whose death the whole British Empire is now mourning, was deeply interested, while in public life, in the health and welfare of his people, and we can well pay a tribute to his memory for the remarkable breadth of view which enabled him to define the close connection between successful colonization of

the tropics and the problems of disease. Through his interest in drinking water, the housing question, and tropical medicine, he contributed in a great measure to strengthen the foundation of national prosperity.

Nothing could possibly be nearer the mark than the aphorism of Franklin that "Public health is public wealth." It is gratifying to our profession to be aware of the fact that, through the energetic foresight of the minister of militia in Canada, Colonel Hughes, his staff, and the late minister, Sir Frederick Borden, the sanitary measures of the Canadian force are fully up to date, in keeping with the progressive spirit of the present. No greater contrast could be produced than the death rate in the Crimean war, and the marked saving of life, in the forces of Japan, during the Russo-Japanese conflict, purely the outcome of scientific advance in the sanitary conditions of war and the aseptic treatment of wounds. Let me here state that no class of men labor more zealously, quite irrespective of personal considerations, for the prevention and cure of disease, than members of our profession.

The drama of tuberculosis is before us, and the spirit and determination of the British Government is well shown by a recent grant of £250,000, by the chancellor of the exchequer, the Honorable Lloyd George, for tuberculosis, nursing, and pathological laboratories. This is a step in the right direction, as by united and energetic action an effort will be made to stamp out this plague, a dangerous accessory of social life. What an enormous aggregate of misery is caused daily in family circles, when we consider that every third death during the working period of life, is caused by pulmonary tuberculosis. The bacillus cannot find a resting place unless the system is in a fit condition for its reception. The danger of infection is present only in enclosed spaces. Air and sunlight are the chief agencies of purity and life, in the presence of which the tubercle bacillus rapidly perishes. Two continuous sources of infection are tuberculous human beings and tuberculous food. These problems being fixed in the public mind by a degree of education in this subject, suggested the idea of the formation of a Canadian Association for the Prevention of Tuberculosis. Thirteen years ago, this association, through the vigorous assistance of the late Lord Minto, was formed, and since that date, by the generosity of our people and the assistance of the Government, sanitariums are now in operation in every province of the Dominion, doing good work in assisting those suffering from tuberculosis.

In each county, by special organization, a committee of men and women, with the local physician, should be formed to report more regularly on tuberculous conditions, and talk over the subject at church and school gatherings. Such committees would arouse an additional interest in the subject, and stimulate inquiry. Education is what we require, the more the better. In Ontario, Sir James Whitney divided the Province into districts, with a medical inspector for each. The work, however, is so great that no single medical man can possibly learn all the facts as to the spread of tuberculosis, so that practical and telling assistance

could be rendered by local committees, in controlling the spread of the disease.

An important matter for consideration is the food supply of our population. Meat, milk, and dairy products, if impure, may introduce bacilli into our organs, influence the blood supply, and thus lower vitality, an admirable preparation for tuberculosis. At this stage municipal preventive measures will prove of great service.

Twenty-five years ago, I frequently rode into country districts to visit patients, and was surprised to see cattle walking knee deep in slush, mud, and manure in barn yards, and actually shingled with manure, dry, hard, and fast to the hide of the animal, where it had been for weeks at a time. Meat and milk, under such circumstances, are not desirable foods. Water from the barn yard, filtering into the well of supply, is poisonous to cattle. Education would accomplish a good object and add greatly to the revenue and resources of our Dominion.

In Norway and Sweden, owing to exemplary cleanliness and the perfect sanitary conditions of cows and stables, the highest premium is secured for their dairy products in British markets. Under like circumstances, these avenues of trade are open to our people, who should thoroughly understand that the skin is to man for health and purity what the hide is to the milch cow as a wealth producer.

It is absolutely necessary that a knowledge of the relations of tuberculosis to the conditions of life should become thoroughly known to our farmers. The school, the family in every stage of life, should be carefully informed on what concerns life, energy, activity, and progress. A responsible tuberculosis bureau might be established in each Province, which would become a strong factor in a change for the better. In this disease we want and must have increased activity to note, observe, change, or modify existing conditions. Specific orders from a *central bureau* would arouse a spirit of inquiry for the guidance and education of our people. No pecuniary sacrifice is too great to save the lives of our workmen and their families, by healthy food supply and safe dwelling houses. In the past twenty-five years tuberculosis has been considerably reduced in the German Empire by such measures, and we hope that like success will follow the strenuous efforts of Canada in the same direction.

NERVE BLOCK.

Knowing the widespread incidence of tuberculosis, and the difficulty experienced in lessening its death rate, every effort should be made to stay its present advance. During the past twenty-five years, marked progress has been made in the study of nervous disease, by Sir Victor Horsley, Ferrier, Mott, Sherrington, McDonald, of Sheffield, and others, and still a wide field is open in pathogenesis, etiology, and pathological anatomy. *Punch* remarked, "You never do know what these creatures of nerves can accomplish." For years the relationship between nerve tissue and tubercle has been a subject of inquiry. Nerve is a remarkable structure which holds parts together, regulates and coordinates organic functions. Nerve block is a serious problem, as it takes a wide range in the system.

and in a marked manner interrupts the reflex function of nerve structure. This is a result of marked irregularities in the performance of various functions of the system. First and most important come defective digestion and retarded food assimilation, which extend through the alimentary canal and are followed by the formation of poisonous gases, ballooning the colon and sapping general vitality. This state of the system disturbs nerve structure in a remarkable manner.

Sherrington, of Cambridge, and McDonald, of Sheffield, defined the chief constituents of the axis cylinder of nerve tissue as salts of sodium and potassium, which contribute to reflex action and functional nervous activity as a whole. In the treatment of cases of nervous debility and brain overstrain, I have frequently observed sections of the body, particularly the limbs, in which no feeling or sensation was experienced on application of the neurotone charged by a dry electric cell. Suddenly, after several tests by the instrument, sensation developed to a high degree. This abnormal insensibility aroused a suspicion of block in some direction, the sudden disappearance of which led me to infer that a solution of continuity had taken place in the obstructive constituents of the axis cylinder. The problem then presented, What change in the axis cylinder constituents interrupted normal transference of the electric current?

Sir Walter Foster, of Cambridge, defined clefts in the axis cylinder, but left them entirely unexplained. The most remarkable deduction is that the noxious gases in the alimentary canal, the outcome of imperfect assimilation of food products, not only produce a distended colon, but also result in a chemical change in the saline constituents of the axis cylinder. Incidentally I might here state that in testing sensation by the neurotone, in patients over the fortieth year, I have frequently been surprised by marked differences of feeling in the limbs, which led me to infer that some interstitial change of structure in the ganglionic nerve centres was in progress, indicative of approaching paralysis.

Appreciating the importance of the nervous system in imparting energy, strength, and normal activity, I feel confident, after most gratifying results in the treatment, by electrical massage, of debilitated states of the system from nerve block, that the same therapeutic agency is worthy of the most careful investigation in debility from tuberculosis, as I believe that many valuable lives may be saved in this manner.

In such cases, the chief centre of nerve block is the abdominal cavity, in close proximity to the distended colon, developing slowly and gradually and sapping vitality through a defective blood supply. For years past I have had this abnormal development of the system under research and electrical massage has proved a valuable means of relief, far in advance of medicinal agents. Remarkable results follow a direct electric current and massage in gastric and intestinal digestion, as well as increased general vitality and a rapid reduction of colon distention. These are the outcome of liberating blocked reflex action, and normal nerve power is thus reestablished. The object of the application

of the neurotone current to the extremities is twofold, to remove all direct nerve block and to arouse increased reflex activity in the terminals of the sciatic and saphenous nerves, accessories to the histogenetic abdominal ganglia, factors in the elaboration of blood, the pabulum of life. Electric massage should be applied two hours before or after a meal and strictly avoided in all cases of paralysis, as where organic change in nerve structure is in progress, electricity is contraindicated.

THE ROXBOROUGH.

DISEASED CONDITIONS OF THE CECUM.*

Etiology, Pathology, and Treatment.

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Diseased conditions in the region of the cecum can often be distinctly classified and should be carefully studied before operation, as they are too often considered under the head of what may be a complication or sequela, for instance, appendicitis. The operation of appendicectomy, although necessary, does not cure or even relieve the condition. This is not a new story, as it has been taken up by not a few writers, but it is constantly, at the present time, being ignored by very many of our surgeons and medical men. Reference is first made to the common diseased conditions of the cecum which are the result of three factors, (a) chronic intestinal stasis and (b) congenital conditions, combination of (a) and (b) which usually results in symptoms, and (c) infection. By far the larger number of cases come under this last head.

Special diseased conditions are: 1. Tuberculosis of the cecum, primary or secondary. 2. Amebic colitis, which starts usually in the cecum. 3. Chronic ulcerative colitis, of uncertain origin and where the cecum is especially diseased. 4. Acute inflammatory processes, and secondary to appendicitis. 5. Actinomycosis.

Strictly surgical conditions are: 1. Adhesions and bands. 2. Intussusception. 3. Malignancy.

Of embryological origin are: 1. Diverticula. 2. Microcecum and stenosis. 3. Megacecum and megacolon. 4. As a result of a long, lax mesentery, volvulus. 5. Nonrotated colon. 6. Transposed colon.

THE CECUM.

The cecum, according to Cunningham's *Textbook of Anatomy* (1), is that "portion of the large gut which lies below the level of" the ileocecal orifice. In shape, a wide, asymmetrical, or looped cul-de-sac, furnished with the teniae (ligaments) and sacculations usually found in the large intestine. Its lower end or fundus is directed downward and medially, and usually rests on the right psoas muscle, close to the brim of the pelvis; while the opposite end is directed upward and laterally and is continued into the ascending colon. . . . In length, the distended cecum usually measures about two and one half inches, while its breadth is usually more and averages about three inches. . . . It is usually situated within the right iliac region of the

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abdomen" but "it is sometimes found high up in the right lumbar region, owing to the persistence of the fetal position." In the majority of instances, it is completely covered by peritoneum and free in



FIG. 1.—Illustration of Case iv. Marked coloptosis; dilated and postosed cecum; appendix large and filled with bismuth.

the abdominal cavity. In about six to seven per cent., the posterior surface is not covered by peritoneum, but is bound down to the posterior abdominal wall by connective tissue.

EMBRYOLOGY.

In an embryo of 7.5 mm. (Harvard Collection, series 256), there is a slight bend of the intestinal loop toward the vitelline duct, which increases and forms the primary intestinal loop and lies in the yolk stalk. A dilatation of the lower limb of the intestinal loop gives rise to the processus vermiformis and the cecum and marks the boundary between the small and large intestine. A distinction between the cecum and vermiform appendix in young human embryos is not easily made. Next comes the torsion of the primary loop of intestine. The large intestine first forms part of the posterior half of the intestinal loop and the loop is in the median plane. Then the loop is rotated so that its plane is transverse. The anterior half is on the right and the posterior half on the left. Further rotation causes the posterior half to become anterior. In a later stage, the torsion is completed by the migration of the cecum to the right side of the body and down toward the pelvis. The vermiform appendix appears in an embryo of 7.75 mm. as an entodermal swelling on the lower side of the caudal limb of the intestinal loop. Later it projects from the upper side of the intestine (embryo fourteen mm., Keibel and Moll (2)). It then later lies on the under surface of the liver. The tæniæ are present at birth (Toldt) and the haustra develop in the first half year, but the cecum does not acquire the characteristic adult form until the third or fourth year. In an embryo of forty-two mm., the bending of the

cecum on the colon forms the valves of the colon. In the last fetal months, the relatively large expansion of the cecum compared with that of the ileum, causes the valves to increase in size. In a ninety-five mm. embryo the descent of the cecum toward the pelvis has begun. Complete absence of the cecum and valves has been reported.

When the cecum has a mesentery it is loose and freely movable and has been named *cæcum mobile* or loose typhlon. This is the term used by L. Kast (3) whom I quote. He says the "L. T. (loose typhlon) is situated as a rule in normal position when the patient lies on the back, but easily drops to the level of the brim of the pelvis or into the true pelvis in the erect position. . . . The L. T. occurs in all ages in men as well as women. Wandell found it in ten per cent. of 640 post mortem examinations." "Klose estimates its frequency at ten to twenty per cent." "As a rule, the L. T. is also an enlarged typhlon." "In the majority of cases, the L. T. is complicated by atony and later by inflammation of the mucous membrane." The symptoms, Doctor Kast reports, are similar to those reported in this article. He finds retention of the bismuth meal in the typhlon. Appendicitis, he says, may be differentiated by the high polynuclear leucocyte count, but the signs overlap and are confusing.

Dr. Albert J. Ochsner, in his discussion of Kast's paper, mentioned the functional difficulty which comes from the fact that the cecum is not emptied because it cannot pull against a fixed point, and if we add to this a certain degree of degeneration of the muscular structure, we have a reduction in the working capacity of the organ, which will be so great that frequently it cannot be relieved by the means suggested, from the standpoint of internal



FIG. 2.—Same case as in Fig. 1. Note the slow progress of the bismuth meal at forty-seven hours.

treatment, and then the condition must be corrected surgically. This he suggests, either by the fastening of the cecum (Professor Wilms), or by Lane's operation when marked obstruction exists.

MOBILE DILATED CECUM.

The diagnosis of cecal disease and the indications for operation belong to internal medicine, as Boas (4) long ago pointed out. Wilms (5), in an ex-



FIG. 3.—Case IV on the fourth day of the bismuth meal. Cecum has less bismuth, but the appendix is still filled.

perience of forty operative cases, called attention to the fact that operations for chronic appendicitis have in many instances failed to relieve the symptoms. He says that the rational treatment for cæcum mobile is fixation. Tischler (6), in 1909, reported forty-one cases of cecal disease, with comprehensive description of the symptoms from a medical standpoint. Klose (7), in 1909, reported twelve cases with surgical results. In these twelve cases of dilated and movable cecums, the first seven were discovered only after the abdomen had been opened. After experience with these seven, the last five were diagnosed before operation. Klose made a careful study of his cases by means of the bismuth x ray test. He says that in cæcum mobile the bismuth remained twenty-four hours in the cecum; and in high degree of atony, thirty-six to seventy-four hours. This has been the experience in my cases, even to a longer period. Weimann (8), Heile (9), and Straschenke (10) have also reported cases. Seiler (11), in an article on Cæcum mobile, gives the symptoms of cecal disease. He says of the atonic condition of the cecum, that the organ is felt as a somewhat indistinct, cylindrical, or pear shaped mass, that can be distinctly displaced. It is usually tender, but rigidity and flinching are rarely observed and, if present, suggest inflammatory complication. Gurgling on pressure is characteristic, but splashing rare. In cæcum mobile, the bismuth remains in the cecum two or three days. Evidence of insufficiency of the ileocecal valve is tympanitic distention of the central parts of the abdomen.

Blake (12) describes a patient who had pain in the right lower quadrant, occurring in ill defined attacks, always associated with the production of gas

and evidences of intestinal autointoxication. Distention of the cecum was shown by tympany, splashing, and ballooning. Plication of a dilated, atonic cecum resulted in complete recovery. Blake remarks that the chief characteristic of this cecum is not its mobility, but rather its size, and that the symptoms are to be explained on the hypothesis of atonic dilatation rather than on that of mechanical obstruction. As to the cause, it is frequently associated with general enteroptosis, with developmental errors as chief factors. His theory of operation is that the symptoms are caused and the condition is perpetuated by enlargement of the cecum. This leads to stasis and fermentation and the production of gas, which, in turn, by overdistention, increases the atony and inability of the cecum to empty itself. He reports excellent results in seven or eight cases, with freedom from gas or pains. Postoperative radiographs show normal cecums. Blake does not believe that mobility of the cecum has anything to do with the symptoms.

It is the writer's plan to present a few case histories, each one illustrative of a separate type of cecal disease, and to discuss in a general way their treatment. The seventh and four last cases are contributed by Dr. J. M. Lynch, of New York, to whom the author is much indebted for advice in this study. Dr. Albert G. Bennett, of Greenwich, Conn., has been of material aid in the bacterial study and in the preparation of the autogenous vaccines used in treatment and has contributed his method of obtaining the vaccines. Dr. L. T. LeWald, of New York, has made most of the radiographs.

CASE I. Mrs. H. B. V., aged forty-two years, had been constipated for ten years following an operation for



FIG. 4.—Case IV on the sixth day of the bismuth meal. Residue in the appendix and marked sluggishness in transverse colon. Appendicectomy was necessary a few months later.

polypus of the rectum, Alexander's operation, and amputation of the cervix. Before the operation, had pain in the right side of the abdomen, constipation gradually becoming worse, with mucus in stools, headaches, neuralgia, nausea, heaviness, and malaise. Hemorrhoids which

bled profusely occasionally. Had lost eight pounds in six months. Chief complaint, pain in right iliac region, "a lame side" as she called it, heaviness, and weakness. Enemata and cathartics were beginning to lose their effect. Her mother had a similar condition. Patient looked



FIG. 5.—Illustrative of Case v. Five hours after bismuth meal. Appendix, long, kinked and filled with bismuth; bismuth massed in cecum and ascending colon.

"toxic" and had a sour odor of the breath. Abdomen lax, colon hard and doughy, and cecum and transverse colon contained hard scybala. The stomach percussed large and low and there was tenderness over the cecum. Radiographs showed a long stomach with a slight residue at six hours. The colon was very long and markedly ptosed. The cecum was very much ptosed, well in the pelvis, and was not empty at 71 hours. The descending colon and sigmoid were very sluggish, not empty at 71 hours. There was some ileac stasis. Diagnosis: Ptosed, dilated, and sluggish cecum and sluggish ptosed colon.

The treatment in this case has been abdominal support, elevation of the foot of the bed, Russian oil, diet and hygiene for constipation. One month after, because of inefficient treatment, the condition was about the same. Massage of cecum and colon, agar-agar, elevation of foot of bed and autogenous vaccines will be pushed strenuously before operation is restarted to.

CASE II. Mrs. J. W. C., aged fifty-six years, gouty symptoms and gouty joints; constipated, with pain and dragging sensation in the abdomen. Had had a few "bilious attacks" with nausea, some pain in the region of the liver, and slight jaundice. Suffered now with vertigo and nausea after eating, flatulence, and eructations. Somewhat emaciated, skin sallow, marked tenderness over the cecum, and gurgling in the small intestine. The urine contained a trace of albumin and much indican. The stool showed a moderate amount of vegetable material and considerable gas and indol production. The x ray showed a marked gastrocoloptosis with water trap stomach. The stomach was slow in emptying and the cecum was markedly ptosed, dilated, and had a large residue of bismuth.

An abdominal support was ordered, colon irrigations, and a laxative diet. Later sodium phosphate and abdominal massage with the idea of emptying the cecum and stimulating the peristalsis, and Russian oil were given. The results, five months after, have been very good, the bowels acting well and the tenderness over the cecum having disappeared.

CASE III. Miss B. R., aged thirty-six years, eight years ago had a right nephropexy; at the time of the operation the appendix appeared normal, but no note was made about the condition of the cecum. Since the operation has had constipation and "indigestion"; for years no normal movement. Three weeks before examination had pain, soreness, and ballooning in the right iliac region with flatulence and inability to sleep. Examination showed a narrow waist and broad pelvis and marked tenderness over the region of the cecum, but no rigidity. The ascending colon was full of fecal masses. Radiographs showed a slight water trap stomach, which was slow in emptying; a rapidly emptying small intestine, and a very sluggish and much ptosed colon. *The cecum was markedly ptosed and sluggish.*

The treatment has been hygiene and diet for constipation, elevation of the foot of the bed, abdominal support (which was not applied until later), and Russian oil and agaragar. Autogenous colon vaccine isolated from the stool, gave almost immediate relief, so that in about a month's time all the pain, tenderness, soreness, and swelling had disappeared, and three months after the first observation, the abdomen was apparently normal. The bowels

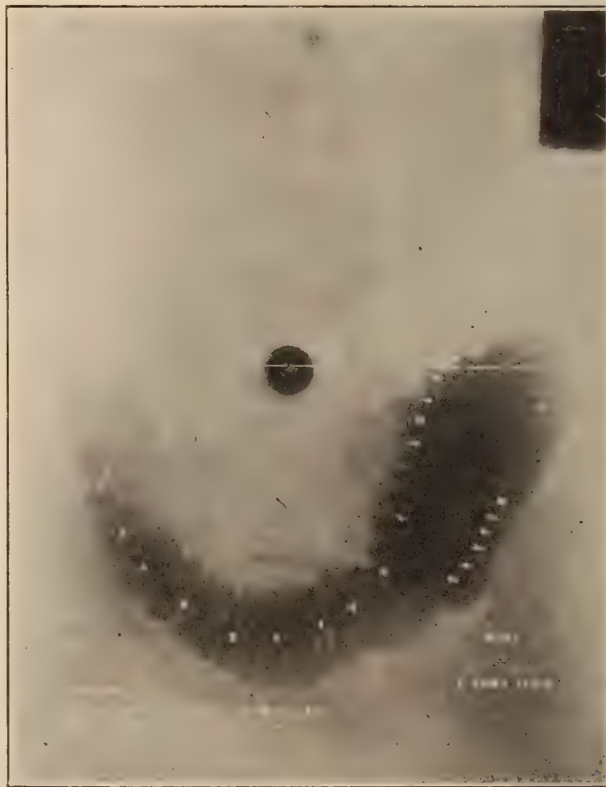


FIG. 6.—Case v at nine hours after bismuth meal. Marked coloptosis. Note the change in position of the colon from that at five hours, demonstrating the mobility of that organ.

have become regular, and with the exception of an occasional attack of gastritis, the patient is well. As no distinct signs of appendicitis were noted, the operation was averted.

The following two cases show dilated atonic cecums with probable anastalsis developing into appendicitis and appendicectomy.

CASE IV. Miss D. D., aged twenty-six years, had been constipated from childhood when she was in the habit of

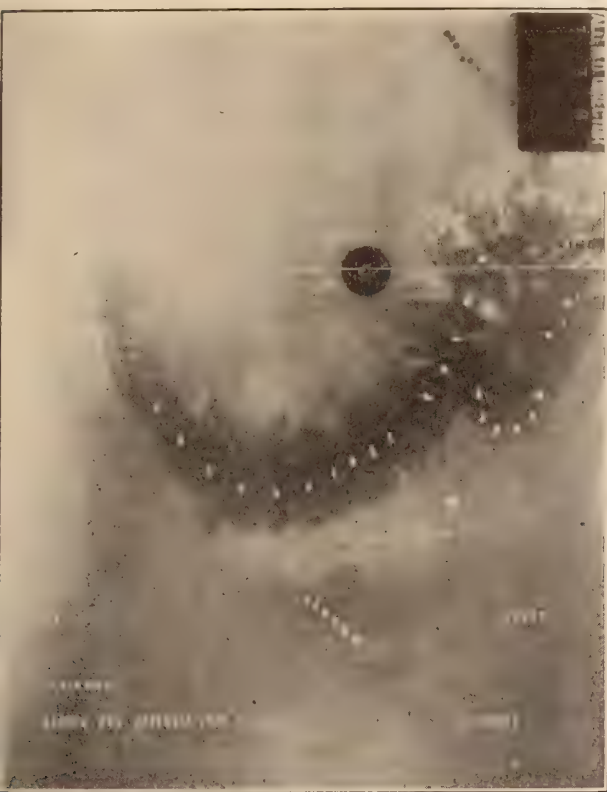


FIG. 7.—Case v at twenty-six hours. Very little progress of the bismuth meal; appendix well filled with bismuth and remained so for over a hundred hours; appendicectomy.

taking cascara. For ten years she had a "sour stomach" and had taken magnesia frequently, lately without effect; had had flatulence and headache, but a good appetite. Four years ago, after injury to spine, after a fall from a horse, wore a plaster jacket which did not help the constipation. Had had soreness in the right iliac region, but no pain and lost some weight. Examination showed a marked degree of toxemia, tenderness, and some degree of rigidity over the cecum and ascending colon and indicanuria. Radiographs showed a dilated, ptosed semunar stomach, emptying in five hours; a very long markedly ptosed colon, not empty in six days. Cecum ptosed and dilated. Appendix, large, overhanging brim of pelvis and contained bismuth for five days. Gastric contents normal. (Figs. 1 to 4.)

The treatment for six months was medical, chiefly diet and hygiene for constipation, abdominal support, massage and vibration to the colon, with particular attention to the cecum and ascending colon. Results were ineffectual, cathartics being resorted to frequently. Patient then passed out of control and was operated upon for appendicitis a few months later. At the present time she is reported as improved.

CASE V. Miss M. McD., aged twenty-seven years, colored, for years had been very constipated. The history, two years ago, showed that she had been worse for the past two years, with "nervous indigestion" and frequent attacks of vomiting, flatulence, vertigo, and cramplike pains in abdomen after eating. Lost seventeen pounds in six months and was markedly emaciated. She first presented herself with severe external, nonreducible, inflamed hemorrhoids. The abdomen was very tender, especially over the

cecum, and fecal masses in the colon were easily palpable. Hemorrhoidectomy. Radiographs then showed a normal stomach, but a very long and extremely sluggish colon, not empty after six days. The cecum was very large, residual, and showed a reversal of the bismuth meal in serial plates. Appendix well outlined, bent on itself, and overhanging the pelvic brim, contained bismuth four days after the colon had emptied. There was very marked dilatation of the sigmoid flexure with marked stasis. (Figs. 5, 6, and 7.)

An acute attack of appendicitis made appendicectomy necessary, and at the same operation the transverse colon was sutured through its mesentery to the abdominal wall, above the level of the umbilicus. The radiographic findings were corroborated at operation.

CASE VI. Miss L. DeM., aged thirty-one years; one summer, in Baltimore, at the age of eighteen years had a severe attack of dysentery, gradually lost strength, had weak eyes, and acute pains in the right side of abdomen; probable that constipation started at this time. Five years ago was operated on and a gangrenous appendix found. The wall of the cecum was reported to be thickened and a part of it was removed. Microscopical examination showed no evidence of tuberculosis nor of *Amœba histolytica*. She had had, previous to the operation, severe rectal hemorrhages, which continued after operation, but not so severely. The pain was much improved, but a colitis has continued ever since with blood, pus, and mucus in the stool. Proctoscopic examination revealed no ulceration of the rectum or lower sigmoid. The loss of weight at the time of operation was great, but she gained twenty-one pounds in a sanitarium. Colon irrigations have been constantly employed, medicated and plain salines, but the latter had agreed best. She first came under my care in February, 1913. Radiographs showed a normal stomach, the cecum and colon ptosed, but very active and irregular with retention in the cecum. The bismuth reached the rectum



FIG. 8.—Illustrative of Case ix. Nonrotation of stomach and colon, an embryological defect. Whole of the colon in right half of abdomen. Duodenum and jejunum in the right half.

in five and one half hours. Repeated examinations of the stools showed the same picture, blood, pus, and bacteria, watery with mucus and no parasites nor tubercle bacilli. Diagnosis, ulcerative colitis with marked involvement of the cecum.

The treatment has been abdominal support, colon irrigations of normal salt solution, and bismuth as little as possible, to control the diarrhea. Auto-genous colon vaccines produced marked improvement for about ten months and then were given up on account of their toxicity. Since then, improvement has been very slight and colostomy was advised but not accepted. Diet has had no effect, but colon irrigations are a necessity.

CASE VII. J. L., male, aged twenty-four years, single, as a child, was delicate and had "indigestion." Hernia at ten years. At no time gave any physical signs nor symptoms pointing toward tuberculosis, except diarrhea. Five years previously had a "cold," and severe diarrhea, eight to ten movements during the day, and eight to ten at night with cramps around the umbilicus. The diarrhea continued, the loose movements first and then cramps; the condition was better during the summer. For four years was well and then diarrhea and cramps again, attributed to a "cold." Heartburn for one half to three quarters of an hour after meals, relieved by opium and hot water bags.

Operation showed a cecum studded with miliary tubercles and the caput coli and appendix were fully one inch thick, the base of the appendix thickened and looking like a granulating finger. The ascending colon was normal. The cecum, appendix, and a portion of the ascending colon and ileum were resected and an anastomosis was made between the ileum and transverse colon. The patient died three weeks after operation, from an abscess of one of the stumps which had ruptured into the peritoneum. Death was from sepsis, and an autopsy revealed no other evidence of tuberculosis. Microscopical section showed typical miliary tubercles, but no tubercle bacilli. This was, therefore, a primary tuberculosis of the cecum.

CASE VIII. Mrs. C. S., aged thirty-five years, no history of intestinal trouble in the family. At the age of fifteen years fell, sustaining an injury to the spine, from which she apparently fully recovered. Had had two children and an ectopic gestation three years ago, when she had a laparotomy. She had always had a "stomach ache" at the time of menstruation. Between the ages of eighteen and twenty-two years, patient was very stout, but lost it all since then. For seven years had had pain resembling that of gallstones with flatulence and eructations. Constipation progressive, with headache and backache, no jaundice. Three years ago, operation for extrauterine gestation. Patient was invalided, with pain in abdomen, flatulence, and backache. Examination showed a somewhat emaciated woman with sallow complexion and acne. Soft abdomen with point of tenderness in the region of the gallbladder. Peristaltic waves over region of stomach and cecum could be plainly seen. Radiographs showed a water trap stomach with some spasm of the pylorus and a dilatation of the first portion of the duodenum. Six hour gastric residue. No gallstones evident.

The colon was markedly ptosed, the mid portion being drawn down at an acute angle into the pelvis, as if fixed by adhesion; this was proved at operation. The cecum was dilated and ptosed and showed marked stasis during the course of the test meal and after a bismuth enema, appearing as if a constricting band across the ascending colon was the cause. This also proved at operation. The probable diagnosis of gallstones, water trap stomach, and duodenal adhesions, adhesions of ascending and transverse colon, was shown at operation and, besides, a chronic appendicitis and Jackson's membrane. The adhesions were cut, the appendix was removed, numerous gallstones were found and removed with the gallbladder which had a diver-

ticulum, and a Coffey suspension of the colon and stomach was done. Four months after, symptoms disappeared and the patient is making rapid progress toward health.

CASE IX. Mr. T. O. A., aged fifty years; father had "dyspepsia." Had been a vigorous eater all his life, especially of meat. Alcohol, moderate; tobacco, none since boyhood. Had had attacks of migraine which were improving. Bowels regular. The attacks of sick headache were always preceded by marked flatulence. February 15, 1912, had a severe attack of nausea and vomiting of blood, with pain in the right upper quadrant of abdomen. At that time he was in a San Francisco hospital, and as the gastric contents showed absence of free hydrochloric acid, a possible diagnosis of gastric carcinoma was made and the patient sent to New York for further study. After being placed on a milk diet and being very nervous and anxious about his condition, he lost twenty-four pounds. When first seen, patient complained of nausea and a gnawing pain and distress in epigastrium. Examination of abdomen was negative. Analysis of gastric contents showed absence of free hydrochloric acid and traces of lactic acid. Feces were normal. Previous to this examination, one radiologist, after taking thirty plates of the stomach, had given the opinion of a



Fig. 9.—Illustrative of an embryological and congenital defect, a misplaced dilated cecum. This was found as a similar condition in two brothers. (LeWald.)

pyloric lesion and advised operation. Our radiographs showed a normal stomach aside from slight retention, but the duodenum and jejunum were entirely on the right of the median line. The cecum was in the median line and close to the pylorus and the remainder of the colon entirely to the left of the median line. (Fig. 8.) This is evidently a case of nonrotation of the stomach and colon, the cecum having failed to migrate to its proper position. In one of the series, a loop of the colon appeared in the right quadrant showing the possibility of a long lax colon mesentery and a volvulus formation. The impending strain of uncertainty and possible operation being over, the patient improved markedly and did well, wearing an abdominal support with the idea of keeping the colon in place.

CASE X. Miss E. A., aged fifty-three years, was a "seven months' baby." At the age of twenty years was in a runaway accident and thrown on abdomen. Some time later, when suffering from constipation, was told in Paris that she had a "stricture of the lower bowel" and had long bougies passed up the rectum, supposedly with the idea of dilating the stricture. She was said to have had gallstone attacks two and a half years ago. Had been at Carlsbad and other watering places for this and neuralgia. She had always been a good eater and enjoyed cocktails. Three weeks before examination, she had pain in the left side of

abdomen, intermittent, and "soreness" in abdomen. The bowels had been very regular. Chief complaints were distress on eating and nervousness. Examination showed a very nervous woman, abdomen tender all over. The stomach percussed large, but the abdomen was soft and apparently normal. Radiographs showed a dilated stomach, emptying within the normal limits. The whole colon was very small and thin, the cecum was very small, ptosed, and showed a slight residue. In forty-four hours the colon, with the exception of the cecum and sigmoid was empty. These parts showed slight retention of the bismuth meal. Practically the only treatment was stomach lavage, which removed large quantities of mucus. There was no evidence of interference with the function of the colon and one and a half year after, the patient was in good health.

CASE XI. Mr. E. S., aged thirty-six years, when seen in April, 1911, had had dull pain in the epigastrium and to the left; cramps in abdomen and nausea. Said that bowels moved regularly. Colon and stomach lavage relieved, but did not cure. Examination showed some emaciation and tenderness and slight rigidity in left inguinal region. Temperature was 99.4° F., pulse 78. Examination of the chest showed the heart on the right side, the apex to the right, confirmed by radiographs. Radiographs of the stomach showed the organ entirely on the right side of the body, the pylorus to the left. The organ was normal and active, the whole colon markedly ptosed, the cecum to the left and well in the pelvis; ascending colon on the left; cecum and ascending colon sluggish. The stools showed large quantities of mucus. Gastric contents normal. In this case there were the signs of appendicitis, with point of tenderness and rigidity over McBurney's point, only on the left side. A marker on this point appeared in the radiographs to be over the hepatic flexure. Diagnosis made of chronic colitis with complete transposition of the viscera. The subsequent course of the trouble confirmed the diagnosis for a while, but unfortunately the patient disappeared.

CASE XII. Mrs. J. E. T., aged forty years, school teacher, for fifteen years had diarrhea with "dyspepsia" and nausea, but no vomiting; more or less colitis with severe colicky pain followed by desire to move the bowels. The pains were cramplike, in the right iliac fossa, radiating to the umbilicus and continued after the bowels had moved. Movements, ten to fifteen in twenty-four hours and contained occasionally blood and mucus. Patient was of the enteroptotic type and had tenderness in the right iliac fossa.

The patient was operated upon by Doctor Lynch for chronic appendicitis. There was a long appendix, showing catarrhal changes. The base was a funnel shaped opening, which was all that constituted the cecum and communicated with the colon. Complete recovery followed. There was a rudimentary cecum, the result of faulty development.

CASE XIII. A case of megacecum, an accidental discovery. The patient was operated on for carcinoma of the rectum, which was successfully removed. The cecum was found to be four inches long and very much dilated. The organ was doubled up on itself and closely approximated the sigmoid flexure. Good recovery followed the operation.

CASE XIV. Y., school boy, aged twelve years, diverticulum of the cecum. Previous history up to May, 1913, was good. On May 9th, had severe pain in the right iliac fossa. As he returned from school, a physician found some pain and rigidity in this region. The following week there was more or less pain and high temperature between normal and 100° F. Constipation with occasional vomiting; at no time during the week free from symptoms. The stools were blood streaked. Admitted to the hospital, May 16th, with severe paroxysmal pain and more or less rigidity in the right iliac region, extending over the course of the ascending colon.

May 18th, the pain and rigidity were so severe that laparotomy for intestinal obstruction was performed. A large diverticulum on the outer side of the cecum was found, into which the end of the ileum and three quarters of the appendix had been sucked up, causing obstruction. This could not be

reduced, and was resected with part of the ascending colon, but the operation was too late and the patient died one hour later.

CASE XV. F. M., male, aged nineteen years, had been well up to one morning when he had crampy pains in abdomen at breakfast. The pains became worse during the day, and he had to return from business at 4 p. m. He ate a hearty supper at seven and retired at eleven o'clock. Was in bed a short time, when the cramps became very severe with evidences of shock. The pains were all in the left iliac fossa. Vomited three times and had no relief from morphine. Castor oil and salts were vomited. At six o'clock the next morning, the pain diminished and he was more comfortable. Next day, colicky pains but not so severe. Doctor Lynch saw him at 7 p. m. The abdomen was soft, pain and tenderness in the left iliac fossa; temperature, pulse, and respiration normal. Rectal examination showed nothing, except ballooning; saline per rectum resulted in gas and some fecal matter. Proctoscope revealed nothing. Sent to hospital. At 12, temperature 101° F., pulse 107, respiration 30. Pain now in right side of abdomen and at McBurney's point. A mass was palpated in this region.

Dr. J. M. Lynch opened the peritoneum, which was dark and congested; large quantities of muddy fluid poured out. The bowel was enormously distended and covered with plastic lymph. The finger followed the bowel to the liver, where the cecum and appendix were adherent to the liver by plastic exudate. Cecum and colon were pulled out through wound, and the mesentery was found to be non-fused and very long. Diagnosis: volvulus of the cecum and ascending colon. An incision into cecum was made and a large quantity of foul smelling contents removed. After warm applications, the color of the cecum gradually returned and the gut was replaced in the abdominal cavity. Recovery followed, and later an ileosigmoidostomy for drainage was done with success. Four years after the patient was in good condition.

SUMMARY OF CASES.

CASE I. Ptosed and dilated residual cecum and a long sluggish colon, excessively long sigmoid; intestinal stasis. Medical treatment: Abdominal support, position, diet and hygiene for constipation, Russian oil; autogenous colon vaccines, latter very successful. Just beginning to have patient under control.

CASE II. Woman, aged fifty-six years. Gouty symptoms and gouty joints. Water trap stomach of slow emptying time, dilated, residual cecum, ptosis, and intestinal stasis. Treatment: Abdominal support, modified diet, sodium phosphate, and Russian oil; massage of colon; care of teeth and treatment of pyorrhoea alveolaris with autogenous vaccines. Results after seven months, good.

CASE III. Woman, aged thirty-six years. Enteroptotic; tender, ptosed, dilated, and very slow cecum; intestinal stasis. Treatment: Abdominal support, position, diet and hygiene for constipation, Russian oil, massage and vibration. Autogenous colon vaccines cleared up the pain and tenderness over cecum. Results, excellent at first, relapse.

CASE IV. Woman, aged twenty-six years. Constipated from childhood, had cathartic habit; ten years sour stomach, had taken magnesia frequently, lately without effect; flatulence and headache. Soreness in the right iliac region, no pain. Marked degree of toxemia, tenderness, and some rigidity over the cecum and ascending colon. Radiographs showed a dilated stomach, slow in emptying; very long, markedly ptosed colon and cecum. Cecum ptosed and dilated, not empty in six days. Appendix well marked overhanging pelvic brim and retained bismuth for five days. Treatment: Unsatisfactory; appendicectomy six months later (Figs. 1, 2, 3, and 4).

CASE V. Colored woman, aged twenty-seven years. Long history of constipation with severe hemorrhoids on first examination, three years ago. Hemorrhoidectomy. Extreme intestinal stasis, severe symptoms. Stomach normal; colon very long, markedly ptosed; colon very slow.

not empty after five days. Dilated, residual cecum; appendix full of bismuth for four days. Excessive dilatation of the sigmoid. Apparent anastalsis of ascending colon, followed by appendicitis and appendectomy. Colopexy at same operation. Slow improvement, but frequent colon irrigation necessary on account of an enormously dilated sigmoid flexure. Careful dieting and hygiene. (Figs. 5, 6, and 7.)

CASE VI. Woman, aged thirty-one years. Thirteen years ago, attack of dysentery. Seven years ago, appendectomy for gangrenous appendicitis; cecum and ascending colon badly ulcerated. Tuberculosis and amebic colitis ruled out. Colon irrigations ever since. Marked improvement for eight months under treatment with colon autogenous vaccines, and very little other medication. Bismuth meal passed through intestine very rapidly, but some retention in the cecum. Stools now from five to ten a day, water, blood, pus, and bacteria. Declined to have an ileostomy or colostomy, the only real help for this condition.

CASE VII. Man, aged twenty-four years. For five years, diarrhea and cramps. Operation showed marked miliary tuberculosis of caput coli and appendix. Resection, followed by death from sepsis, three weeks after. Post mortem findings negative for tuberculosis in any other part of the body. Diagnosis, primary miliary tuberculosis of the cecum.

CASE VIII. Woman, aged thirty-five years. Three years previous, laparotomy for ectopic gestation. For seven years symptoms of gallstones. Marked flatulence and backache, loss of weight steady. Diagnosis of gallstones, water trap stomach, adhesions of transverse colon; dilated, ptosed cecum with residue caused by adhesions, all verified at operation with a chronic appendicitis in addition. Removal of gallstones with excision of gallbladder, appendectomy, cutting of adhesions, and Coffey's hammock operation with good results.

CASE IX. Man, aged fifty years. Chronic gastritis with achylia, mistaken for gastric carcinoma. Radiographs showed nonrotation of stomach and intestine, the stomach and colon situated to the left of the median line. Volvulus formation in one of the plates. Treatment: Abdominal support. (Fig. 8.)

CASE X. Woman, aged fifty-three years. Chronic gastritis and supposed stricture of the lower bowel. Radiographs showed dilated stomach, microcecum, and microcolon. Treatment, lavage and diet. Good results one and a half year after.

CASE XI. Man, aged thirty-six years. Dull pain in epigastrium and to the left; cramps in abdomen and nausea. Colon irrigations with slight improvement. Complete transposition of all the viscera, thoracic, and abdominal. Cecum ptosed and sluggish; stools contained large quantities of mucus. Diagnosis, transposition of viscera, chronic colitis, ptosed, sluggish cecum. Tender spot over McBurney's point on the left corresponded to the hepatic flexure of the colon.

CASE XII. Woman, aged forty years. Fifteen years' "dyspepsia," nausea and diarrhea. Cramplike colicky pain in right iliac fossa, radiating to umbilicus; blood and mucus frequent in stools. Enteroptotic type. Operation showed catarrhal appendicitis with a funnel shaped opening into ascending colon. Rudimentary cecum, the result of faulty development.

CASE XIII. Megacecum, discovered accidentally at operation. A case of carcinoma of the rectum. Cecum was four inches long and much dilated. Recovery from operation.

CASE XIV. School boy, aged twelve years. One week, symptoms resembling appendicitis and intestinal obstruction. Operation showed a large diverticulum on the outer side of the cecum, into which the end of the ileum and three quarters of the appendix had been sucked up, causing obstruction. Resection, but the patient was in extremis and died.

CASE XV. Man, aged nineteen years. Well up to one morning, when he was suddenly seized with crampy pains in abdomen and shock. Symptoms of intestinal obstruction, pains, and tenderness in left iliac region. Operation showed enormously distended cecum and ascending colon with very long, nonfused mesentery. The dark color of gut returned to normal and the gut was replaced. Recovery, and later ileosigmoidostomy. Four years later, in good condition.

DIAGNOSIS.

Many cases of dilated, residual cecum and intestinal stasis give symptoms resembling ulcer or adhesions of the duodenum, ulcer of the stomach, pyloric stenosis, and gallstones. The cecum has aptly been called the "second stomach," the close connection between the two organs being explained by their intimate relationship through the sympathetic nervous system. Pain from lesions in the region of the cecum is often referred to the stomach, and vice versa. This close relationship is illustrated by the frequency of stasis in the stomach with dilated residual cecum, without any actual stomach, duodenal, or gallbladder lesion.

Close attention in these cases will often show the typical symptoms of cecal disease, a ballooned, tender cecum with thickened walls and signs of intestinal stasis. It is rare, I think, to find this condition complicated by ulcer of the stomach or duodenum. Ulcer of the duodenum can often be diagnosed by careful examination of the duodenal contents, by means of the duodenal catheter and the x ray with and without the duodenal tube, and the persistent local pain, tenderness, and occult blood in the stool following forty-eight hours of meat free diet. A thorough x ray examination of the whole gastrointestinal tract is necessary in every case, and the habit of studying only the upper half of the abdomen when the symptoms and local signs point here, should be discontinued. Gallstones are perhaps the most difficult thing to prove and are often diagnosed only at operation.

Radiographs with bismuth injection of the colon should be employed in every instance to prove apparent lesions in the cecum or colon. This is an excellent way to corroborate cecal stasis. Chronic appendicitis is often present, the symptoms being overshadowed by the intensity of the other lesions. Constant soreness and tenderness over a large area to the right, with persistent constipation, indicates rather cecal disease than appendicitis, which gives usually a history of distinct attacks of pain, nausea, and vomiting. Symptoms of intestinal obstruction in this region point to adhesions or Lane's kink, intussusception, or volvulus, which can sometimes be differentiated by the x ray, but otherwise only at operation.

TREATMENT.

The medical treatment of the dilated, ptosed, and sluggish cecum consists in relief of the ptosis by means of properly fitting abdominal supports, elevation of the foot of the bed up to point of tolerance, massage and vibration with the object of increasing peristalsis and emptying this organ and the colon; diet and hygiene for constipation, occasional colon irrigations and castor oil. Russian mineral oil taken regularly has given excellent results. Autogenous colon vaccines, made from cultures from the patient's stool, will relieve the autotoxemia and sometimes move the bowels. Water *ad libitum* is commended.

Surgical operations that can be used are suspension of the transverse colon, which elevates the cecum; in conditions leading apparently to obstruction, short circuiting, colostomy, ileostomy, or partial colectomy are indicated. Partial colectomy is the operation of the author's choice. Plication of the

cecum has been practised successfully by others and in a few of my cases unsuccessfully; and the sigmoid is occasionally suspended. The important thing is to do a thorough operation and to leave no cause for hernia or obstruction. Diverticula, malignant and tuberculous processes, should, of course, be removed.

Autogenous colon vaccines, in the author's hands, have given much relief to the autointoxication. The autogenous vaccines used in these cases were made by Dr. A. G. Bennett in the following manner: A portion of the stool was broken in a small quantity of saline and streaked out on lactose litmus agar. This was incubated for from twelve to eighteen hours, and several of the red colonlike colonies were fished therefrom and transplanted on plain agar. This was again incubated for eighteen hours, washed with normal saline, and heated to 60° C., in order to kill; then trial cultures were made in order to insure sterility. This emulsion was standardized and diluted in appropriate doses and 0.25 per cent. carbolic acid was added as a preservative.

With reference to the complement fixation work, Doctor Bennett examined the blood in several cases prior to fixation treatment, and was unable to find in any case antibodies for the colon bacillus by the complement fixation method. It might be argued, theoretically, that the absence of these antibodies would rule out a colon infection, but when we consider that there are localized infections, notably gonorrhea, which do not show antibodies in the blood, these cases may possibly be likewise of a low grade type with a corresponding absence of antibody formation. The patient's symptoms are mainly due to toxemia which, of course, could not be registered by this method. The effects last for four days to two weeks and are of much aid in operative as well as in inoperative cases.

Milk fermented by lactic acid bacilli, is also of much aid in this direction. Colon irrigations with normal saline and ichthyol solutions are often very useful.

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125 WEST FIFTY-EIGHTH STREET.

Prophylaxis of Untoward Cocaine Effects.—

A. Herzfeld, in *Semaine médicale* for February 25, 1914, is stated to have seen two cases of fatal poisoning result from the use of cocaine in local anesthesia and, therefore, sought an agent by means of which such poisoning could be prevented. Alcohol proved to be an effective prophylactic. Herzfeld now has his patients, who are operated on under cocaine anesthesia, take from six to twelve drams of whisky or brandy ten minutes before the cocaine is injected.

SOME FEATURES OF PNEUMOCOCCUS MENINGITIS.

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Pneumococcus meningitis is the most important of all forms of inflammatory changes in the meninges. Not only may it complicate the special pulmonary disease which is created by the specific microorganism, but it may be encountered in the course of other infectious processes, such as typhoid fever, influenza, puerperal fever, and endocarditis. The majority of cases with traumatic meningitis are of pneumococcus origin. Pharyngitis, rhinitis, otitis, may become complicated with pneumococcus meningitis.

Beside the general features characteristic of all forms of meningitis, especially with regard to the cerebrospinal fluid, meningitis caused by the pneumococcus presents certain peculiarities during its evolution. First of all, the specific microorganism may not be detected in the cerebrospinal fluid during life and the diagnosis thus becomes difficult. Among the most recent contributions to this phase of the subject may be mentioned the work of Holt (*American Journal of Diseases of Children*, January, 1911) and that of Brady (*Journal A. M. A.*, 1913). The first author, in his extensive study of 300 cases of acute meningitis, observed twenty-two with the pneumococcus. A most rigid examination failed to detect the microorganism in two cases. Brady reports a case of a child who had been suffering for about a month from bronchopneumonia; the cerebrospinal fluid was normal in every respect, and no diagnosis of meningitis was made during life. Autopsy revealed the characteristic purulent exudate in which the pneumococcus was found. The second peculiarity of this form of meningitis is the pathological findings. A purulent or sero-purulent exudate is usually found on the convexity and the base of the brain, more frequently in the first than in the latter area or else the condition may be limited to the convexity. The pus is ordinarily not thick. The thinness and viscosity of the purulent exudate is rather characteristic and may explain certain phenomena which will be mentioned later. While the purulent condition is characteristic of pneumococcus meningitis, nevertheless there are some rare cases on record in which a serous exudate was found. The latter was observed in meningitis accompanying pulmonary infection and complicating otitis.

The histological changes consist of an inflammatory state of brain and cord with leucocytic infiltration, also changes in the ganglionic cells. A moderate amount of edema of the brain is usually present. The third peculiarity of pneumococcus meningitis to which I wish to call attention, is found in the clinical manifestations during life.

While in a number of cases the nervous phenomena which develop in the course of an infectious process usually lead to a diagnosis of meningitis, and the state of the cerebrospinal fluid from physical, chemical, cytological, and bacteriological (direct and cultural) standpoints is corroborative,

fluid, and that the presence of microorganisms is not necessarily accompanied by leucocytosis.

On the basis of the foregoing physical character of the exudate, one may perhaps find an explanation for those cases in which the clinical manifestations are very slight or absent, also of cases which terminate in recovery.

The following case, which has recently come under my observation, presents one of those peculiarities described above, viz., no clinical manifestations during life and very thin pus in the meninges.

CASE. T. W., laborer, aged twenty-eight years, manifested two weeks before death a slight sore throat, anorexia, and constipation. The throat condition rapidly disappeared. A tooth abscess then formed which gave him considerable pain. While the patient was recovering from the abscess, he began to suffer from pain in the left shoulder. The latter continued up to the time he came under my observation, viz., four days before he expired. On examination it was found that the temperature was 102° F., a murmur was heard at the mitral valve, and there was considerable pain in the left shoulder. No special nervous manifestations were in evidence. Pupils, reflexes, sensations, and cranial nerves were all normal. Except for a slight depression the mental condition was unaltered. Urinalysis showed traces of albumin, otherwise the urine was normal. On spinal puncture, the cerebrospinal fluid showed the following condition: Slight turbidity with flocculent substance; albumin ++++; Noguchi globulin test ++++; polynucleosis; pneumococci.

The patient's condition remained unaltered, except for the temperature which went up to 103.2° F. (see chart). The condition of the pulse was significant. Most of the time it did not run parallel with the temperature, a fact on which the elder clinicians lay special emphasis as presenting a grave prognosis.

On the fourth day the patient had convulsions and a spasticity on the right side. Three hours later he expired. Autopsy showed the following findings: Stenosis of the mitral valve, chronic nodular fibrosis with some calcareous infiltration in the valve; the chorda tendinae were also much thickened; the thickened pericardium contained 60 to 65 c. c. of clear limpid fluid; the pleura on the right was thickened and adherent to the diaphragm.

The brain was found bathed in thin pus at the base and especially at the convexity, more on the left than on the right side; bloodvessels were congested along the Rolandic fissure on the left side. The spinal cord was congested. Section of the brain and cord revealed nothing that deserves special mention.

The pus from the cranial cavity gave pure cultures of pneumococcus.

The case is interesting for the following reasons: Absence of cerebral manifestations during life, in spite of the presence of pus; absence of cranial nerve involvement, in spite of pus at the base. The etiological side of the case is highly interesting, viz., the chronological relation of the tooth abscess and the meningitis with the finding of pneumococcus in the cerebrospinal fluid. Finally, the thinness and viscosity of the pus are highly suggestive in view of the absence of marked cerebral phenomena throughout the disease. The above mentioned consideration of this special character of the exudate may be of some pathogenetic significance.

1812 SPRUCE STREET.

Emetine as a Hemostatic.—Gardon, in *Lyon médical* for March 1, 1914, is stated to have employed emetine hydrochloride with success in two cases of severe intestinal hemorrhage in typhoid fever. The dose given is mentioned, in one case, as having been one grain (0.06 gram), hypodermically. Prompt arrest of the hemorrhage is reported to have followed.

AN IMPROVED ETHER INHALER.*

BY A. ERNEST GALLANT, M. D.,
New York.

In a letter to the editor of the *New York State Medical Journal* (December, 1911, p. 560), James Taylor Lewis, counsel, writes: "The question of having trained nurses give anesthesia in hospitals is a matter of very serious moment. . . . Of course, I assume that a nurse during her training is given special instruction in the administration of various kinds of general anesthetics. Yet she cannot be sufficiently informed to do so, and I believe that the law does not authorize her to take part in so important, indeed so vital a procedure incident to surgical work. I believe that nurses doing so are within the pale of the law, and I believe that the practice should stop if it exists."

Naturally, the questions arise: 1. Why teach the nurse a thing which by law she is prohibited from doing? 2. What can we do, inside and outside the hospital, especially among the poor who find it a burden to pay even small fees, in obstetric and minor surgical operations done at home, if the law insists that we may not make use of our nurses for this purpose? 3. Does this law also make it a crime to call on the husband, the midwife, or a neighbor, when no one else is at hand, or the patient is unable to pay for the service of an additional doctor? 4. Is it a crime for the doctor to "put the patient under" the anesthetic and hand the chloroform or ether to the nurse or to whoever may be at hand, while the operator proceeds to deliver the baby, curette the uterus, or incise the abscess, as the case may be?

If under the law of New York we may employ only a medical confrère to administer anesthetics, in self defense and for the best interests of our patients it is up to us to insist that every student in every medical school be taught some simple and safe method, as well as the more complicated, costly, compound modes of anesthesia.

In their praiseworthy efforts to evolve safe methods of anesthesia, the specialists have added one drug after the other, necessitating more and more complicated, cumbersome, and expensive apparatus, which can be handled only by those trained to the work, and which requires an express wagon to transport the machine, which weighs over a hundred pounds, and involves an outlay of a hundred or more dollars, and a fee from three to one hundred times the amount formerly charged by the anesthetist; a fee which under the circumstances he is justly entitled to receive.

Complex machines and compound methods will perhaps always appeal to the specialist in this as in many other lines, but after twenty-five years' experience in giving anesthetics and employing others for that purpose, my own preference is for



FIG. 1.—Stocking covering metal drum pinned or sewed on, ready to be inserted in the rubber sleeve.

*Presented to the American Therapeutic Society, fifteenth annual meeting, Albany, N. Y., May 30, 1914.

an inhaler, 1, simple in construction; 2, simple to learn to use; 3, sparing of ether, and, 4, safe in the hands of the most inexperienced, layman, midwife, nurse, or doctor; 5, sanitary, in that it can be easily taken apart, sterilized, and reassembled.

The inhaler herewith presented represents the evolution of the Allis inhaler to the more simple, safe, saving, sanitary model of 1912, which was presented November 28, 1912, to the Medical Association of the Greater City of New York. (*Year Book*, June, 1913, p. 46.)

In 1892, the sleeve was lengthened from six to nine inches to allow the upper part to be folded over and keep the ether from escaping so freely, and to heat the ether before it entered the lungs. In 1894, we did away with the interlaced bandage, substituted a gauze diaphragm at the lower end, and inserted a small piece of gauze loosely in the centre to receive the ether. (*International Journal of Surgery*, XII, 223, 1899; *Medical Record*, December 30, 1899.) But this plan did not afford the needed evaporating surface so essential for rapid entrance and absorption of ether in the lungs.

The inhaler now consists of two parts: 1. An oblong, *metal drum* (Fig. 1), two inches wide, four inches long, and three and a half inches deep. Its sides are without fenestræ. The drumheads are formed by slipping the drum sidewise into a six inch piece of an old stocking, or small stockinet such as is used for the kneecap; or by winding over the ends of the drum with a gauze bandage so as to cover them with eight thicknesses of gauze, securing them in place by rubber bands, pinning, or strips of rubber adhesive plaster. When thus properly covered, the drum is inserted into its *rubber sleeve* (Fig. 2), five and a half by nine inches, on the top of which has been added a flap or tongue; and inside the sleeve it forms a chamber, near the bottom a corded ridge, wherein the ether can be rapidly evaporated and heated before being inhaled and thereby guards against postanesthetic bronchitis or worse. The flap can be thrown from side to side, opening the top, for dropping in more ether or securing greater heating and concentration of the amount inhaled. This also leaves the right hand free for other uses. The plate on the flap is to weigh it down.

The drum can be made from a three and a half inch length of four inch leader pipe, bent into an oblong, covered with stockinet or wound with gauze, wrapped around with newspaper to form the sleeve, and stitched or pinned together. We have used thick cardboard and a towel. From the foregoing, after so many years' experience, we deem it



FIG. 2.—Rubber sleeve with flap for closing the top; A, projecting cord inside to hold the drum well above the nose.

justifiable to hold that the Gallant inhaler is simple in construction; any novice can make one and use it; with ether, chloroform, or in combination, but for chloroform the *top must always be kept open*. It is safe, whether the ether is poured in, or by the drop method, the double drumheads will prevent its running down into the throat, afford a large area for rapid evaporation, and the sleeve acts as a heating chamber, preventing bronchitis or worse. The inhaler is also saving. The cost is very small; it requires no express wagon to transport it; the quantity of ether during the first hour averages 100 c. c. less, when preceded by hypodermic of hyoscine, morphine, or the oil of bitter orange peel (Gwathmey, *NEW YORK MEDICAL JOURNAL*, September 14, 1912; November 29, 1913), and the patient goes under with much less excitement.

Nitrous oxide or oxygen may be introduced at the top or bottom, for primary anesthesia or stimulating purposes. The inhaler, finally, is sanitary. The drum is easily removed from the sleeve, the drumheads are readily changed, and, after cleaning and drying, it can be sterilized, quickly replaced, and dropped into the operating bag, ready for immediate use.

70 EAST SIXTY-SIXTH STREET.

IMPLANTATION OF THE GENERATIVE GLANDS AND ITS THERAPEUTIC POSSIBILITIES.

Successful Autoimplantation of a Testis from a Subject Dead Twenty-four Hours. Other Successful Implantations of Testes and Ovaries from Dead Subjects. Experimental Implantations in Various Conditions, and Cross Implantations of Testes and Ovaries Taken from Dead Subjects.

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Medical Department, State University of Illinois.

(Continued from page 819.)

Carrel and Guthrie assert that transplanted exogenous glands can function only temporarily. The kidneys of the cat, transplanted in the same individual, survived. When transplanted from one living individual to another, they excreted urine for three weeks, at the end of which time they ceased secreting and the animal died. This has little bearing on the exogenous transplantation—at least for therapeutic purposes—of the sex glands in the human being.¹² The sex gland, by virtue of its internal and external secretory structures, is a more highly specialized organ than the kidney. It is also a doubly functioned organ. The kidney is distinctly an excretory organ, while the testis and the ovary are not, in the true sense of the word. The true generative secretion in either sex is not thrown out for elimination as useless or toxic matter, but, on the contrary, its physiological function does not begin until after the discharge and organic union of the secretions of the two sexes. The organs

¹²See my Case vi.

which produce the generative secretion are more active, more highly organized, and more energetic than the kidney. So highly specialized are their functions that no other organ can act vicariously for

That the conditions are different in the two varieties of gland is shown by comparing the results of Carrel's and Guthrie's lower animal kidney transplantation experiments with my own auto-human and heterohuman sex gland implantations. Theory aside, I believe that my experiments have conclusively proved that, as regards formation of new blood supply and survival of the hormones pro-

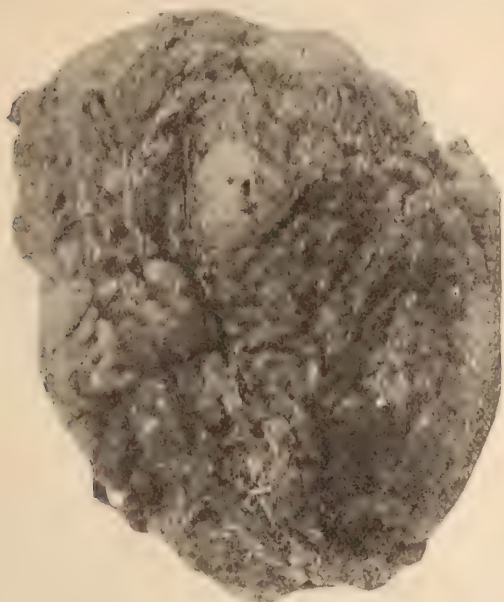


FIG. 1.—Showing posterior border of implanted testis, with site of removal of epididymis, (A) and extensive vascular areas. (Case vi.)

them, as can the skin and bowel for the kidney. When the generative secretion ceases or is prevented from escaping from the sex glands, the organs still function importantly—producing hormone.¹³

Again, as stated elsewhere in this paper, even though the implanted gland should finally perish, its work of cell regeneration has perhaps been to a

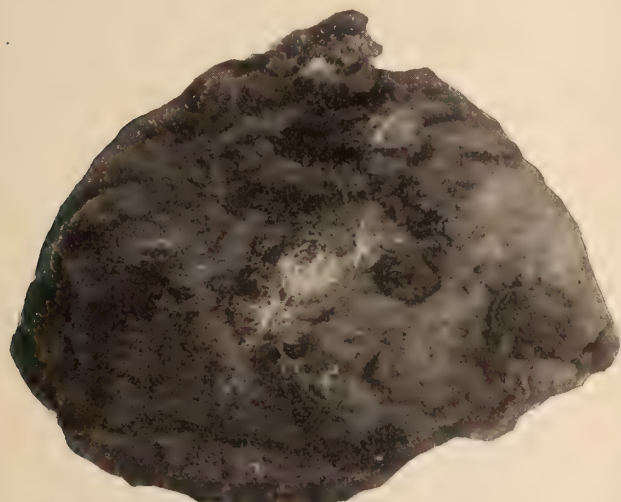


FIG. 2.—Anterior border of implanted testis, showing multiple vascular areas. (Case vi.)

greater or less extent accomplished, with beneficial results which may be permanent. Then, too, apparent atrophy does not necessarily mean that the interstitial cells (Leydig) are destroyed. Considerable diminution in bulk even may occur from various causes without the generative function itself being destroyed.

¹³E. Ullmann, *Annals of Surgery*, August, 1914, reports a case of functionally successful anastomotic transplantation from one dog to another.

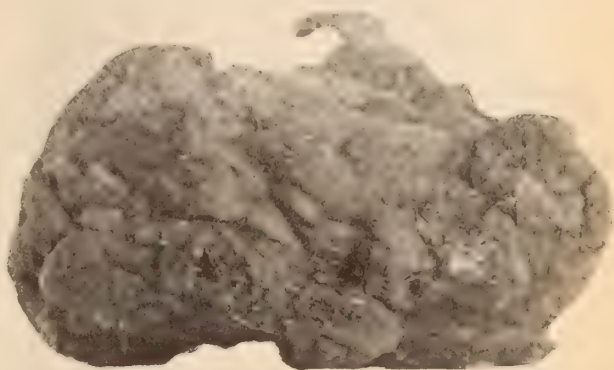


FIG. 3.—Lateral view of implanted testis with numerous vascular areas (Case vi.).

ducing cells and internal secretion therapy, transplantation of sex glands, even from the dead body, is both practicable and successful.

As to Carrel's belief that practically the only hope of success in gland transplantation in general is in a close blood relationship of donor and recipient, the author believes that, while such relationship is highly desirable, he has proved that it is not essential to either sex gland hormone therapy via implantation¹⁴ or survival of the essential elements of the gland. It is noteworthy that Carrel and Guthrie's conclusions from their experiments on the kidney of the cat, if accepted as final in their bearing upon gland implantation in general, would reduce to a minimum the practicality of Carrel's own discovery of the persistence of tissue vitality after somatic death, so far as its application to the hormone treatment of disease is concerned. Apropos of implantation of testes from distinctly alien sources Guthrie¹⁵

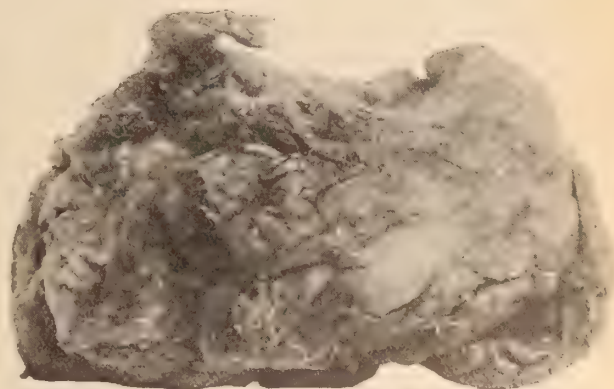


FIG. 4.—Lateral view of implanted testis with numerous vascular areas (Case vi.).

reports a case of transplantation of a testis of a guinea fowl to the shoulder of an ordinary domestic cock. The implanted tissue disappeared. In pass-

¹⁴The author has further confirmed this view by experiments on fowls.

¹⁵*Journal of Experimental Medicine*, xii, 1910.

ing, it might be interesting to Doctor Guthrie, if he has not already made the observation, that it is possible to crossbreed the guinea fowl and the American game fowl, hence they are not as alien to each other as might be supposed. I saw, a little over a year ago, a bird, apparently a male, so bred on

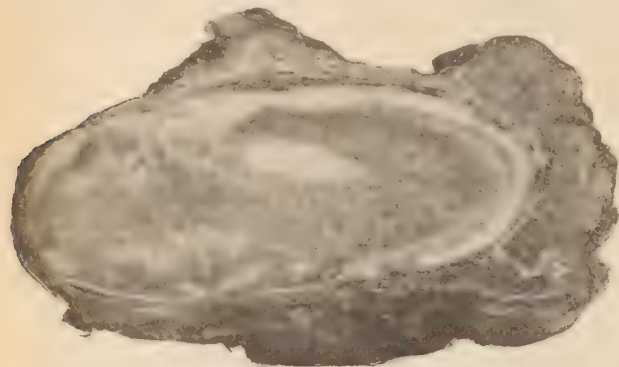


FIG. 5.—Longitudinal section of implanted testis. (Case vi.)

the farm of Mr. H. B. Gleezen, the well known game fowl breeder, of Georgetown, Mass. I recently transposed the testes of a Chinese pheasant and a domestic fowl, the results of which will be noted at some future time.

The exogenous transplantations of ovaries from the living to the living in sheep and guineapigs, reported by Voronoff and Castle, support Carrel and Guthrie's conclusions, but there still remain the questions: 1. Whether different results may not occur in human beings; 2, the possible therapeutic value of implantations of human sex glands, with or without permanent life and function of the cells of Leydig, even though generative tissue atrophy inevitably should occur.

CASE II. *Successful implantation of ovary from a subject twenty-three hours after death.* Mrs. J., aged fifty-nine years, suffered from the nerve wreckage incidental to a pelvic operation performed fifteen years ago, and also from hepatic and gouty disturbances. The uterus and appendages were removed. A "piece of the ovary" was said to have been preserved. I explained to this woman the objects and experimental nature of ovarian implantation, and she was brave enough to submit to the

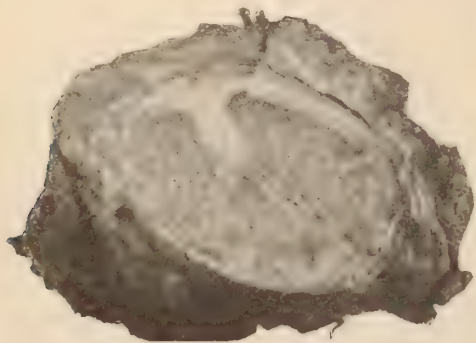


FIG. 6.—Transverse section of implanted testis. (Case vi.)

operation. Too much praise cannot be bestowed on her for cooperating in the experiment.

The implantation was performed March 3, 1914. Ovaries were taken from an apparently healthy girl of sixteen years, a *virgo intacta*, dead twelve hours of skull fracture. The operation was performed eleven hours after the removal of the ovaries from the subject, and twenty-three hours after death, Doctor Michel assisting. One ovary, the left, was implanted in the left labium majus, this location being selected because of the obesity of the patient,

and my desire to study the local results of the implantation. There was no marked tissue reaction, only slight tenderness, very little pain, and no rise of temperature, the wound healing by primary union. The patient was up and about on the fifth day, reporting at my office on

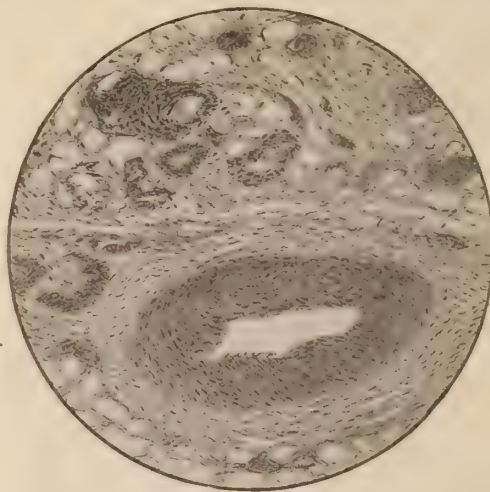


FIG. 7.—Bloodvessels, connective tissue, and fat in periphery—tunica albuginea—of implanted testis. (Case vi.) ($\frac{1}{4}$ in. objective.)¹

the ninth day. She might have been up sooner but for a persisting vaginal prolapse and vesicocoele since the operation of many years ago, which required self inserted tampons to permit locomotion. May 14, 1914, the implantation appeared to have been successful, the ovary was still *in situ*, and of course, "living." On April 27th, the case was examined, by Dr. William E. Quine, who stated that the implanted ovary was still distinctly to be felt. Dr. Alice Conklin, Dr. Effie Lobdell, and Dr. Ethel Rice also observed the progress of the case until May 30th, at which time the improvement still persisted and the ovary was still plainly perceptible.

It is unnecessary to state that Mrs. J. underwent a severe test of implantation. After fifteen years of neuropathy and loss of sex function, with other disturbances alien to the latter, a great deal was not to be expected of the method. A complete failure of therapeutic results would not have disproved the

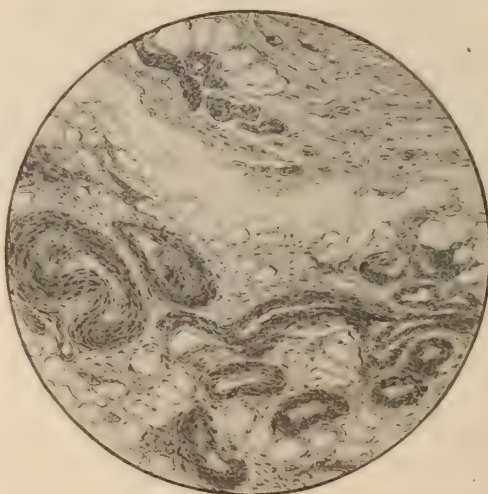


FIG. 8.—Numerous new bloodvessels, fat, and connective tissue in and beneath the tunica albuginea of implanted testis. (Case vi.) ($\frac{1}{4}$ in. objective.)

efficacy of implantation in general. The same may justly be said of Experiments iv and v. Further—

¹The sections were prepared by C. E. M. Fischer, M.D.; the drawings by Zan D. Kloppe, M.D.

more, the results of ovarian implantation, whether favorable or unfavorable, in such cases, constitute, not a positive indication, but merely a suggestion of what possibly may be accomplished by testicular implantation in the male.

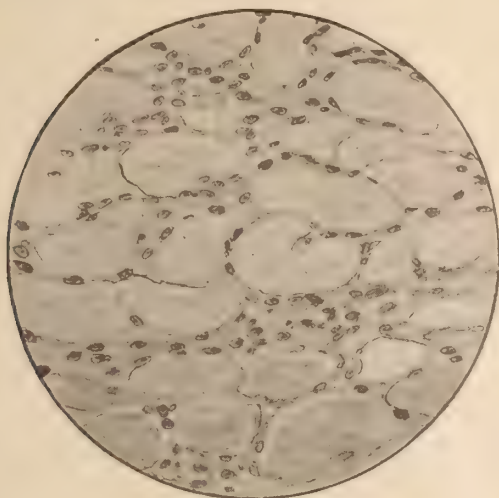


FIG. 9.—Showing area of probably dead, and another of distinctly vitalized tubuli seminiferi with an abundance of living interstitial cells in implanted testis. The vitality of the glandular tissue and the quantity of interstitial cells increases from the centre toward the periphery of the implanted gland. (Case vi.) ($\frac{1}{2}$ in. objective.)

Apparent results in Case II. While appreciating the fact that it is yet too early to determine permanence of the physiological results of the ovarian implantation, and making due allowance for psychic effects, I will present the report of the patient and her family. Briefly, this is as follows: There was a marked exhilaration for the first few days, interrupted one morning by what the patient termed a "slight nervous chill." On the seventh day she complained that her glasses seemed to be no longer effective, and that she could not see with them to read or crochet. She then asserted, and appeared to demonstrate, an unwonted flexibility and comfort of action of her knees which, she said, had been "stiff and lame for

occasions. This disappeared. Having in mind the "initial dose" of hormone, I am inclined to credit the patient's statements as to early effects. Blood pressure was not changed ten days after the operation.

After the first ten days, the patient gradually lost the primary effects. March 24th, however, she reported great increase in physical endurance, stating that she could climb

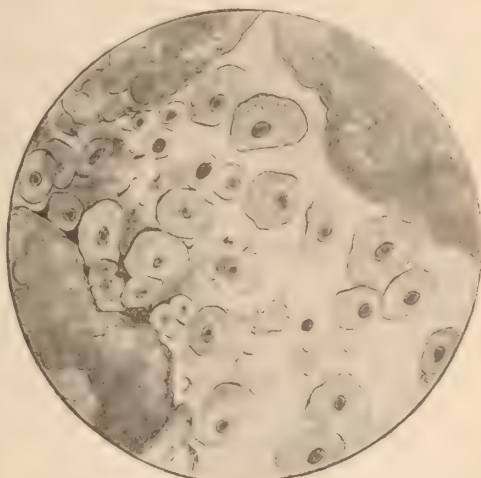


FIG. 11.—Free and attached interstitial cells with contiguous tubuli seminiferi in implanted testis. (Case vi.) ($\frac{1}{12}$ in. objective—oil immersion.)

three flights of stairs without discomfort or cardiac disturbance. Formerly she was compelled to aid herself by holding on to the baluster. She reported again, great increase in physical endurance, with improvement in the digestive functions and complete disappearance of the joint stiffness and of a feeling of numbness and coldness in the limbs associated with uncertainty of locomotion which had troubled her for some years. Blood pressure still was unchanged. Complete relief of constipation of many years' standing was also reported. Four weeks after the implantation, there was a marked change in blood pressure, which Doctor Michel reported to have afterward ranged from 125 to 130. On April 27th, Dr. Ralph Webster recorded it as 125. May 14th, I recorded it as 125. Two different instruments were used in making the

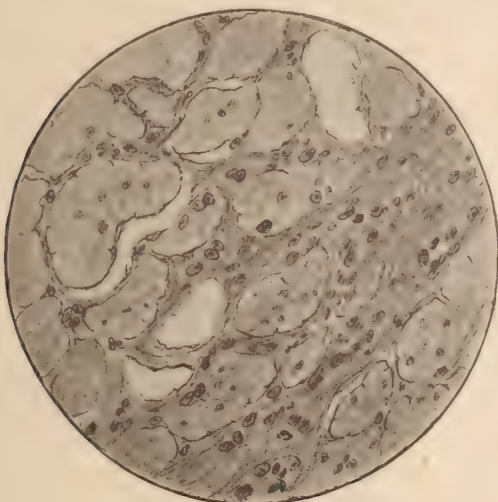


FIG. 10.—Section near periphery, also showing gradual increase of vitality of gland tissue from the centre toward the periphery of implanted testis. (Large amount of interstitial tissue. (Case vi.) ($\frac{1}{2}$ in. objective.)

several years." Her hot flushes disappeared. She no longer experienced an almost constant sense of exhaustion, and arose refreshed in the morning, whereas she stated, she formerly arose as tired as when she went to bed. Like myself, she stated that she needed less sleep. She was formerly annoyed by somnolence on inappropriate

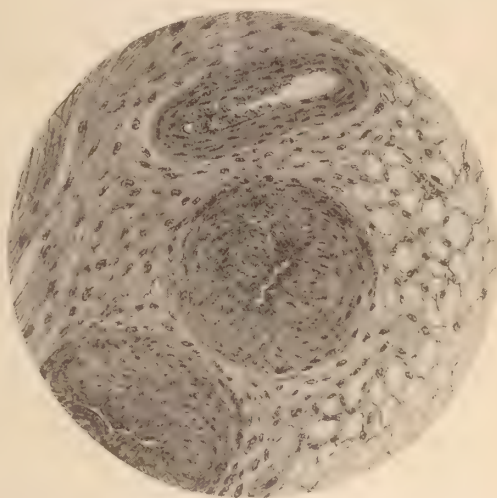


FIG. 12.—Section from area of periphery of implanted testis, corresponding with site of the epididymis, showing vein containing blood and vasa efferentia. (Case vi.) ($\frac{1}{2}$ in. objective.)

There were no areas of softening or of fatty degeneration in the interior of the gland. The Sertoli cells could not be distinguished.

The sections were prepared by C. E. M. Fisher, M.D.; the drawings by Zan D. Klopfer, M.D.

record. Dr. Harry S. Gradle, who had been making a study of Mrs. J.'s case accommodation, reported that it had improved remarkably while the patient was under his observation—a period of four weeks.

The patient made a severe test of her physical condition during her spring housecleaning, and experienced only the normal degree of fatigue. She stated also that an obstinate, frequently recurring bilateral sciatica of over thirty years' standing had entirely disappeared. About July 1st, she had a moderate transient, unilateral recurrence, following mental disquiet. At present writing, August 1, 1914, the improvement in the subject's condition still endures. The implanted ovary, although diminished in size, can still be distinctly felt. Blood pressure September 10th, is 128. The condition of the bowels is not so good as at previous report, although still better than before the implantation.†

CASE III. A man, aged fifty-eight years, commercial traveler, who, for a period of five years had been under my observation from time to time for partial atonic impotence, consented to submit to testicular implantation. There was no local disease or abnormality. Somewhat less than half of a testis was implanted, the material used being obtained from the body of a man, aged thirty years, ten hours after death produced by contact with a live wire, being a portion of a gland the remainder of which four days later was used in a cross implantation, the remainder of the gland also being used in a case of anastomosis. The implantation was performed thirty-six hours after the death of the donor. The recipient was somewhat neurasthenic, as naturally was to have been expected, but was apparently in excellent health and well preserved for a man of his years.

The implantation was performed, March 14, 1914, Doctor Michel assisting. The portion of gland was partially de-corticated and implanted in the left side of the scrotum, in contact with the cord, immediately posterior to the testis of the recipient, the technic being essentially the same as that employed in my autoexperiment. There was only moderate reaction after the implantation. This had subsided by the twelfth day, at which time a moderately firm, circumscribed, movable mass of glandular outline could be felt at the site of the implantation. During the process of healing the patient expressed himself as conscious of a remarkable stimulation of sexual activity. According to his account of the subjective symptoms, this began almost immediately—four or five days—after the implantation and continued during the progress of healing. Obviously the psychic element must be considered in connection herewith, as there was very little inflammatory reaction and the patient was not at all apprehensive of accidents. Nocturnal erections began on the second night after the operation and recurred regularly while he was under my observation. On the fourteenth day the patient left the city. A letter received from him, June 15th, was worthy of note merely as bearing upon his condition at that time. Quoting this letter, the points of interest are: ". . . The erections at night have continued regularly. They have rarely occurred before during the past four or five years. The erections are not quite as strong as in my younger days, nor so long continued, but the sexual act is natural again and is not followed by great exhaustion as was formerly the case. . . . The lump where the piece of gland was planted has shrunk somewhat, but I feel sure that the gland is alive and hearty. . . . I am still feeling fine and much more vigorous than I have felt for years." The evident improvement in this patient's sexual function cannot reasonably be entirely explained by the psychic effect of the implantation. Nocturnal erections dissociated from the erotic dreams do not occur from purely psychic impressions. As to the influence of local irritation, this might explain the sexual stimulation occurring immediately after the operation, but naturally it would have subsided later. The question of permanence of results can be settled only by time.

On July 20th, this patient presented himself for examination. The implanted mass of gland tissue was still perceptible and about the size and shape of a good sized almond. He asserted that the improvement in sexual vigor still persisted. No observations were made of the physiological effects of the implantation in this case, save to note the blood pressure—which was 165, and has thus far undergone no change—and to examine the semen microscopically, which was normal, July 20th.

†Recently following a severe nervous shock, the condition of this patient became very unsatisfactory. She is, however, now again improving.

February 21, 1914, Dr. Bayard Holmes, of Chicago, called my attention to his masterly paper, *The Nonmental Character of Dementia Præcox* (40), on reading which I was interested to note that Fauser's experiments in the diagnosis of dementia præcox and allied conditions, which experiments had not previously been brought to my attention, were complementary to the theory on which I had been working, in endeavoring practically to administer internal sex secretion in various conditions. Following Abderhalden's theory of "dysfunction," Fauser (41) found that the *Abwehrferment* or defensive ferment in the blood of patients with dementia præcox reduced the antigenlike material made respectively from the testicle or ovary, according to the sex of the patient. He finally established his test as a reliable diagnostic procedure. Summing up his studies of the Abderhalden test and its application to the insanities, Holmes says:

1. The evidence accumulated taken with many other factors indicates that dementia præcox is a condition or disease in which the secretions of the genital glands are greatly perverted.
2. As a part of this disturbance of the balance of the internal secretions, many other glands are coincidentally disturbed.
3. This "dysfunction" of the genital glands may be and is likely to be due to various peripheral infections, such as are found to produce dysfunction of the thyroid.
4. The Abderhalden reaction promises a method of diagnosis which can be applied early, in pedagogic and penal, if not judicial laboratories.
5. The psychogenetic theory of dementia ought to stand aside and give way to research into physical conditions and etiological factors and methods of prevention and cure.
6. Every institution that makes any pretence to psychiatry, even every reformatory for juvenile offenders, male or female, should have a laboratory fitted out for the defensive ferments reaction.

Adding to the list of causes of dysfunction imperfect or aberrant sex gland development, leading to dementia præcox and allied conditions, the etiological picture is complete.

In the light of Fauser's observations, the conclusion is obvious that the logical indication in dementia præcox is the administration of internal secretion, or a combination of secretions. In implantation of sex glands we have the most logical method for the administration of probably the most important of all the internal secretions in the field of psychiatry.

If the essence of etiology of dementia præcox really is a dysfunction of the sex glands, then the indications are especially clear and logical. It must be remembered, however, that, although it is conceded that the indications for sex gland implantation seem to be especially clear in dementia præcox, by the time the diagnosis is made, considerable organic neuron change may have occurred, with a resulting permanent aberration of function. Unlike other organs, probably compensatory action of brain cells will not occur and conserve its mental functions. A moderate impairment of the structure of the hepatic or of the renal cells may not be manifested by any apparent change in the health of the subject. In the case of the kidney, vicarious action of other eliminative areas may indefinitely keep the subject in apparently good health. The slightest impairment of the delicate, highly specialized brain neuron structure, will almost in-

evitably be followed by a greater or less degree of mental deterioration.

The hebephrenic type of dementia præcox probably is the most promising one for hormone therapy. While diseases of the nervous system in general seem to be a promising field for sex gland secretion therapy, early administration is urgently necessary to give both the patient and the remedy a fair chance. Regeneration of structurally damaged, delicate neuron, nerve fibre, and ganglion cell is rather more than can fairly be expected of any remedy.

In the early stages of locomotor ataxia and paresis, implantation seems to be worthy of trial. The disastrous effects of the spirochete are largely due to the cell toxemia it produces, and to the pressure of vascular cell infiltration. The resulting damage is of a nutritional type, and the indications seem to be clear enough.

Chronic inebriety offers considerable inducement for sex gland therapy. The innutrition and nerve instability which cause the cell to "cry" for alcohol, quite likely can be met by the hormone of the sex gland secretion, administered in one form or another, preferably, perhaps, by implantation.

Given a remedy which really stimulates the nutrition of nerve tissue, and the possibilities of service in therapy are boundless. There are few chronic diseases in which the nervous system is not more or less involved, with resultant trophic, sensory, or motor perturbation.

Apropos of the possible benefit of internal sex gland secretion in arterial conditions in which syphilis is the primary etiological factor, the analogy between senile and syphilitic vascular changes is suggestive.

In enlarged prostate, benefit might occur from sex gland implantation through, 1, relief of the senile etiological element through improved nutrition; 2, antagonism to the bacterial infection element—gonococcic or colon—which is such an important etiological factor in prostatism.

In dementia præcox the etiological possibility of syphilis should be seriously considered before resorting to implantation. Here the Wassermann test is of great service. Syphilis is unquestionably responsible for some cases of dementia præcox, or at least of a certain proportion of cases which fall symptomatically under that nomenclature. I qualify merely because the Fauser-Abderhalden test may force the adoption of a new nomenclature.

In a case of a boy of twenty years, seen about five years ago, in consultation with Dr. C. R. Burr, a most competent alienist of Flint, Michigan, I diagnosed syphilis. The Wassermann test proved negative. No history of syphilis had been recorded. During a fairly lucid interval, the patient finally related to me an escapade of intoxication and exposure to infection, a promptly and mistakenly cauterized penile sore of brief duration appearing later. Careful inspection showed a fairly typical adenopathy and a sparse, fading roseate papular syphilide. The patient recovered under specific medication and is now apparently perfectly well. As a presumptive verification of the diagnosis, a retinal or choroidal hemorrhage occurred, undoubtedly be-

cause of neglect of treatment, some months ago, destroying the vision of the affected eye.

It may be remarked that syphilis in the recipient ought not to be regarded as a contraindication for implantation. The disease may act as other infective diseases apparently do, by a toxic influence on the internal secretory function of the sex glands. Antisyphilitic treatment is indicated, but the impression made by the infection upon the sex glands may be such that treatment is ineffective. Here gland implantation is worthy of trial.

Senile cataract and its associated conditions in their incipience are an attractive field for experimental work with the sex gland hormone via implantation.

Should sex gland implantation prove even moderately effective in checking or improving the conditions incidental to at least a moderate proportion of cases of senility, arteriosclerosis undoubtedly will be considered amenable to treatment. As to incipient senile dementia, the inference is obvious, and I believe this to be a very promising field. Possibly certain types of prostatovesical disease and chronic rheumatoid affections of the joints also may prove amenable to treatment.

The thought occurs to me that the sex gland hormone possibly might increase the resistance of the brain cells to toxins and improve their nutrition sufficiently to correct the underlying neuropathy of epilepsy.

Neurasthenia, in my opinion, more often is a purely sexual phenomenon than is generally suspected. It seemingly is due to causes which, directly or indirectly, affect the production of sex gland hormone. Long continued emotions of all kinds, especially sex emotion, produce it. Worry, cerebral overstrain, sexual desire without gratification—sometimes even sexual life without desire—sexual excess, frequent child bearing—or no children at all, after the proper age—irritation of the sexual apparatus, innutrition from any cause, all are disastrous, probably through vitiating the quality or lessening the quantity of the hormone which, in the sex gland nutritive cycle, is necessary to the structure and functioning of both the internal secretory and generative secretory gland cells themselves. Chronic infectious diseases, such as syphilis, may be assumed to act upon hormone production in two ways, viz.: 1. Worry, producing nutritive depression and perverted chemism; 2, intoxication—inhibition and perversion of function of the internal secretory apparatus. The result is profound neurasthenia. The exhaustion produced by any disease is merely neurasthenia, probably produced by internal secretory disturbance affecting the production of hormone, the natural rejuvenator of nerve energy. Possibly so called physical exhaustion is due to the same cause, and not altogether to "fatigue" toxins.

May we not believe that all the vital functions really are manifestations of hormone activity, acting upon neuron, ganglion, and nerve fibre? Other hormones are essential, but is it too much to say that the sex hormone is most important of all?

It is probable that a hormone complementary to the testicular hormone is produced by the prostate. The markedly beneficial results of prostatic massage

in sexual neurasthenia might be explained by, first, reflex stimulation of sex gland activity; second, liberation and absorption of sex hormone by mechanical pressure; third, stimulant and tonic effect of the hormone on the nervous system.

The administration of sex gland hormone via implantation possibly may prove serviceable in malignant disease. It certainly is worth trial. The germ theory of the etiology of carcinoma has not seemed to me well grounded. Indeed, I am of opinion that the nearer we come to a perfect knowledge of the internal secretions, the nearer we shall be to the true etiology and rational therapeutics of carcinoma. In any event, whatever the abnormal impulse may be, the result is perverted cell growth, and we may at least regard hopefully any remedial measure that promises improvement in cell nutrition.

To put my view of the etiology of malignant disease concretely, I believe that there is more than a chronological coincidence in the association of sarcoma with childhood and youth, and of carcinoma with later life. A disturbance of cell nutritive equilibrium from perverted quantity or quality—or both—of internal secretion—probably of the sex gland, the thyroid perhaps playing an important part—in my opinion underlies both varieties of malignant disease. The sex gland hormone theoretically should restore this equilibrium, making in effect the cells of the sarcoma older and stronger and those of the true carcinomata younger and stronger. In the light of the foregoing view of malignant disease, the theory of Cohnheim is especially apt in its application to malignant disease of early life, and to sarcoma and the softer varieties of carcinoma at any age.

The association of cancer with the approach or occurrence of the menopause, and with advancing age in the male, is suggestive of change in the sex gland hormone as the chief underlying factor. Epithelioma of the skin, especially, may be compared to psoriasis, in that a defect of nutrition due to perversion of internal secretion and localized by special factors of irritation is a reasonable underlying cause.

The role of microorganisms in carcinoma may eventually prove to be merely that of a special determining factor of perverted cell growth through the irritation produced, and no more "specific" than traumatism, which so often appears to be the point of departure for malignant disease.

Thyroid extract has been stated to have cured psoriasis. This is not surprising. The thyroid and sex gland hormones are seemingly complementary. Thyroid defect possibly may be the more important factor in malignant diseases of early life.

Diseases due to defective quantity and quality of either, or of both hormones, perhaps may be cured by either, but possibly may require a combination of both. The one thing needful in thyroid implantation may be a simultaneous sex gland implantation. It is my firm conviction that the administration of sex gland hormone by implantation—with or without thyroid hormone, as events may prove—is well worthy of trial in malignant disease. As to whether beneficial results will follow organotherapy, this naturally will be determined by factors independent of the etiology of the disease.

CASE IV. *Dementia præcox, catatonic type.* Courtesy of Dr. George Leininger, Superintendent Illinois State Hospital for the Insane, Chicago; woman aged twenty-six years, family history unknown, duration of disease probably more than six years; Wassermann negative. Operation, March 8, 1914, Dr. Carl Michel and hospital staff assisting. Site of implantation, deep within the pelvis in the properitoneal space on the right side. Incision about 1.25 inch long, just internal to and slightly below the anterior superior spine of the ilium. Material used, portion of an ovary removed from woman of twenty-four years during a tumor operation, and refrigerated for thirty hours. It should be noted that a gland removed from a living subject and refrigerated is equivalent to one removed from a dead subject at a corresponding period after death—prior to beginning decomposition—save where the donor died of an infectious or an exhausting disease.

The wound healed by primary union. No rise of temperature. The case was examined on March 22, 1914. The implantation appeared to be successful. The mental status was unchanged. At the second examination, May 11, 1914, the implanted gland was apparently still *in situ*. There had been no improvement in the mental or physical status. I last examined the case, July 26, 1914. The implantation *per se* was evidently a success, although on account of its position the gland could not be palpated. The mental status was still absolutely unchanged. Even granting the potency of the method, under favorable conditions, a negative result should not be surprising in such unpromising cases as IV and V, or in such as were subsequently experimented upon.

CASE V. *Dementia præcox.* Girl, aged seventeen years; courtesy of Dr. George Leininger. Duration of disease, about three years. Probably a masturbatory habit. No family history. Wassermann negative. Operation, March 8, 1914, Doctor Michel, Dr. Effie L. Lobdell, and hospital staff assisting. Site of implantation, right labium majus. Material used, the companion to the ovary implanted in Case II. This had been merely refrigerated, but not frozen, for a week in normal salt solution. A Graafian follicle had just ruptured at the time of death of subject, and the corpus luteum was beginning to form. Examination, March 22, 1914, showed that this implantation probably was a success. There had been a slight rise of temperature, owing probably to coincidental incision of redundant labia and slight resultant infection. The wound healed by primary union, but a small, apparently superficial abscess formed near the implantation site bed. This was opened and drained. The ovary still was *in situ*. May 11, 1914, the ovary still was *in situ*. There seemed to be a slight improvement in both the physical and mental status.

At the last examination, July 26, 1914, in the presence of Dr. D. W. McMillan, of Pensacola, Fla., and Dr. George Leininger, the implanted gland tissue was barely discernible on palpation. The mental condition was found to be remarkably improved. There appeared also to be considerable improvement in the patient's physical condition. So marked was the improvement in this case, that a few such apparent results could justly be regarded as probably confirmatory of the theory upon which the implantation was based.

From what is known today of the internal testicular secretion and of the influence of the ovarian internal secretions upon secondary sex characteristics and the functions of the nervous system, especially in the light of Fauser's blood diagnostic observations, the internal secretion of the ovary seems to be logically indicated, not only in early cases of dementia præcox and allied conditions in the female, but especially in certain severe cases of hysteria, the nerve wreckage that often follows complete surgical removal of the ovaries, in severe and obstinate cases of neurasthenia, and the neuropathy of the menopause.

Will such beneficial effects as may be secured by a more or less continuous dose of internal secretion incidental to successful sex gland implantation be permanent, i. e., will the result be merely temporary

stimulation rather than what may be termed "re-generation?"

CASE VI. This, in a sense, is the most remarkable of all my implantation cases. Woman, aged sixty years, senile dement. At the time of the implantation she apparently was in good health, save as to her mental condition. Wassermann negative. With the double object of the possible beneficial effect of the male sex hormone in senile dementia in the female, and determining whether sex glands could be successfully transplanted for therapeutic purposes from the one sex to the other in the human being, I made a cross implantation in this case, March 18, 1914. In this case the possible effects in general of the testicular hormone on the female sex characteristics could be absolutely ignored. The gland employed was the right testis of an apparently healthy man, aged thirty years, dead of contact with a live wire. The donor had been dead ten hours when the testis was removed. The gland had been refrigerated for four days. Dr. Lee A. Stone and Dr. R. H. Rea assisted.

The gland was carefully prepared by removing the epididymis and slightly denuding the tubuli by excising four longitudinal strips of tunica albuginea about three mm. in width, extending for the whole length of the gland. The entire gland was used. A transverse incision about 1.25 inch in length was made, about four inches above the symphysis pubis, down to the aponeurosis of the recti. The wound was pocketed downward for approximately two inches, and the testis implanted at the bottom of the pocket. The fascial opening was closed with a pursestring suture of fine catgut, the skin wound with a catgut continuous suture, and the line of closure sealed with colloidion and gauze.

Healing was prompt, aseptic, and afebrile. Considerable swelling developed at the site of the implantation and the patient complained of slight tenderness on light pressure. The skin was somewhat reddened after a few days, and the implantation seemed likely to be a failure—as had been expected. Much to my gratification, however, suppuration did not occur, and the case did far better, so far as the size of the mass which survived was concerned, than any other of my series of testicle implantations. March 28, 1914, the implanted gland could be distinctly outlined on palpation and was fairly movable. There was no longer any tenderness at the site of implantation. May 11, 1914, the surrounding exudate seemed to have disappeared and the gland was circumscribed, freely movable, and appeared to be as large as when implanted. July 26, 1914, the mass seemed considerably smaller on palpation; it was moderately consistent to the feel, still freely movable, and insensitive. There had been no change in the physical or mental status.

What apparently was the implanted testis in the foregoing cross implantation was superficial, accessible, apparently of no service, and a source of mental disquiet to the patient, hence it was removed under novocaine, July 27, 1914. The measurements of the excised mass were 4 cm. in length, 3 cm. in breadth, and 24 mm. in thickness at its thickest part. The gland proper was surrounded by a pseudocapsule of connective tissue and fat. The tunica albuginea clearly showed, here and there, and contained numerous small bloodvessels. Vascular attachments to the surrounding tissues were distinct, evidently at the points of denudation of the tunica albuginea. The point of severance of the epididymis was flattened and showed a broad area of vascular adhesion. The mass weighed 9.5 grams. The proper capsule of the gland, the tunica albuginea, and the connective tissue of the mediastinum showed beautifully. The substance of the mass, within the tunica albuginea, was of a yellowish color, and to the naked eye, distinctly fatty. The macroscopic and microscopic findings are shown in the illustrations (Figs. 1 to 12). Needless to say, I was astonished to find living tubuli seminiferi and ducts in addition to a more than normally rich vascular supply and a surprising abundance of interstitial cells.

From the results in this case I conclude that implanted human sex glands from either sex may survive in the tissues of the opposite sex, there being no greater tendency to necrosis, and perhaps less rapidity of degeneration than in homosexual transplantations. It is a striking fact that, before removal, the bulk and outline of the tumor and the

conditions later shown in the specimen were more strongly indicative of a successful implantation than were the conditions in the homosexual experiments in either the male or the female.¹⁶ No physiological observations were made in this case. As already noted, no mental nor physical improvement followed the implantation of the testis, but as the subject suffered a fracture of the neck of the femur about ninety days after the implantation, it would be difficult to determine whether or not the testicle hormone was of any value.

CASE VII. Man, aged fifty-three years, musician, consulted me June 10, 1914. Always a hard drinker and a gourmand; no history of syphilis; Wassermann negative; history of two tappings for ascites, six years before. A diagnosis of cirrhosis of the liver was made at that time. When the patient first consulted me, his abdomen was enormously distended with fluid. Jaundice had appeared a few days previously and had become quite pronounced. No pain was complained of, nor was there any history of previous pain. On the scalp, backs of the arms and forearms, the elbows, the front of the right leg, the buttocks, and the lumbar region, were large patches of severe, typical psoriasis, from which the patient had suffered for many years. The patches on the arms were quite symmetrical, each measuring about 15 cm. long and 9 cm. wide. Those on the leg, six in number, averaged 7 cm. by 4 cm. The areas on the scalp and buttocks were of various and moderate sizes. A patch of psoriasis measuring 7 cm. by 9 cm. existed on the abdomen, involving a small portion of the skin covering an umbilical hernia. Two patches on the lumbar region measured respectively about 6 and 8 cm. The subject was very weak and markedly incommoded by the enormous bulk of his abdomen. His appetite had been excellent until a few days before, since when it had rapidly failed.

June 14th, I removed nearly six gallons of dark bile stained transudate from the abdominal cavity, affording the patient great relief. The liver was now found to be greatly enlarged and indurated, showing plainly through the collapsed abdominal wall. The gallbladder was greatly distended and its walls thickened and hard. In the left iliohypochondriac region was a hard, oblong mass extending downward from the under surface of the liver for about four inches. From its location this tumor might have been either renal or omental. It could not be definitely determined that it was attached to the liver. Several hard, irregular masses were noted at the left of the median line in the umbilical region. Dr. Henry F. Lewis saw the case in consultation with me, and agreed that the case probably was malignant. There was a good sized umbilical hernia, evidently now containing only fluid, which freely flowed back and forth under pressure. This had been unsuccessfully operated upon some years ago. The urine contained bile in large amount and a small quantity of albumin, but no casts. The patient's heart was very weak following the operation and strychnine was given hypodermically for several days.

From the observations which I had already made of the apparent effects of the sex gland hormone upon nutrition, and especially upon that of the skin, and with a clear understanding on the part of the patient of the experimental nature of the procedure, I resolved to make a testicle implantation in this case. On June 19th, I implanted in the patient's right scrotal sac a testicle, with the epididymis excised, removed from an apparently healthy subject about twenty-one years of age, dead about thirty hours before from contact with a live wire. Ice had been packed around the testes for perhaps four hours. The operation was done ten hours after the removal of the testis from the dead subject, i. e., forty hours after death of the donor. The local postoperative course was uneventful for two weeks. The wound apparently healed by primary union and there was very little swelling about the site of the implantation. Until the fourteenth day the implantation *per se* seemed to have been successful.

On the third day after the implantation improvement was noted in the skin eruption. By the eighth day after operation, the lesions were so improved that they scarcely could be recognized as psoriasis. The skin of the left arm was nearly normal. The patches upon the back and

¹⁶In experiments on fowls, the most definite result I have thus far obtained was from an implantation of a testis of a young cockerel upon a pullet four months old.

scalp had entirely disappeared. The jaundice had improved, the blood pressure, which was low on account of the patient's debilitated condition, had increased, the pulse was perceptibly stronger, appetite greatly increased, the hemoglobin, which was approximately sixty per cent., was now seventy per cent., and there was a distinct improvement in color of the skin, aside from the lessening of the jaundice. A considerable reaccumulation of fluid already had occurred.

The white corpuscle count showed over 13,000 at the time of operation. On the second day the white count was over 21,000, falling rapidly after the third day to about what it was originally. The obvious explanation of the rapid rise and fall in the white cell count was an ephemeral reaction to a foreign body. There was at no time any noticeable effect on the sexual function, which had been in abeyance for several years.

The blood and skin conditions continued to improve and the patient grew stronger—despite an extensive reaccumulation of fluid in the peritoneal cavity—until the fourteenth day. The percentage of hemoglobin had rapidly increased to 90, and the red corpuscles, which showed 2,275,000 at the time of the implantation, had increased by the tenth day to 5,600,000, varying from day to day, but at no time falling below 4,000,000 before the close of the case.

The site of the psoriasis on the left arm and buttocks had now become practically normal, and that on the right arm and leg nearly so. The patient asserted that his teeth, which had been so tender and loose that he could not chew solid food, had become so improved that he could chew with comfort.

The scrotal skin wound, which apparently had united, reopened superficially about half an inch, about the ninth day after operation. This was apparently due to mechanical disturbance, the enormously pendulous abdomen giving rise to great inconvenience. The slight skin lesion, while indolent, as was to have been expected, presented no evidence of anything but the most superficial and simple pus infection. The fascial wound had not reopened and appeared to be soundly healed. The temperature was normal until the fifth day, when it rose to 100° F. It fell to normal within twenty-four hours. On the thirteenth day it again rose to 101° F., but by evening fell to normal and remained practically normal until the close of the case.

June 30th, I again tapped the abdomen, removing fully six gallons of fluid. Dr. M. Milton Portis and Dr. French S. Cary were present at the operation, and found the testis still *in situ* and apparently "doing well." The fluid, which at the previous tapping had been clear and about the color of moderately strong coffee, now approximated the color of normal urine and was distinctly turbid. The liver was perceptibly smaller and the abdominal tumors previously described had markedly decreased in size since the first tapping. Doctor Portis and Doctor Cary agreed that the case probably was carcinoma. Doctor Portis subsequently examined the fluid and stated that while the findings were atypical, he still thought the case probably was malignant. Doctor Portis's report of the examination of the fluid withdrawn at the tapping was as follows:

Specific gravity, 1010; large number of lymphocytes, endothelial cells and embryonal cells; bile in moderate quantity.

The shock of the second tapping was very severe and the patient rapidly failed. On the following day he began to have involuntary bowel and bladder evacuations. The slight granulating scrotal wound became infected about the fifteenth day after the operation and on the seventeenth day pus was distinctly perceptible around the site of the implantation. This was evacuated and the implanted testis was found to have been dissected out cleanly by the pus, which was distinctly saprophytic. The gland was of normal consistence and form, and on section the tubuli apparently were not softened or in the least broken down. No evidences of adhesions were perceptible on the surface of the gland. The patient became delirious and refused alimentation, marked albuminuria developed, and death from exhaustion occurred July 12, 1914.

The autopsy, by Dr. Joseph Springer and Dr. I. K. Jamison, showed a greatly enlarged, but otherwise typically cirrhotic liver. The omentum throughout was cirrhotic and enormously thickened. The fatty capsules of the kidneys were greatly thickened and indurated. So great was the induration and thickening of the fatty en-

vironments of the abdominal organs that they were with difficulty removed for inspection. The masses which had simulated malignant omental metastases had become so reduced in size that they were scarcely perceptible before opening the abdomen. On exposure to inspection they proved to be merely thickened and hardened portions of omentum. The spleen and pancreas were cirrhotic. The kidneys showed marked interstitial nephritis. I do not recall ever having met with a case with such extensive alcoholic pathology. Doctor Springer and Doctor Jamison made a similar comment. There was no evidence of malignancy. Histological examination of the liver showed typical cirrhosis. The implanted testis was carelessly preserved, and when submitted for histological study was found to be spoiled.

The foregoing case was a severe test of sex gland implantation and the apparent results upon the blood and skin were correspondingly noteworthy. As a probable index of the physiological effects of the sex hormone, the changes in the psoriatic skin were phenomenal. That the subject received the benefit of both the initial and the secondary physiological effects of the hormone is probable. I believe that the testicle elaborated hormone until the scrotal infection occurred, a period of two weeks. That any remedy whatsoever could effect such marked changes in the condition of the blood and skin in so unpromising a case as the foregoing, is remarkable. No treatment other than implantation, save attention to the bowels, was given. The changes hardly could have been spontaneous in a case in which there existed no natural tendency to improvement. The survival of the implanted testis for so long a period in a subject in which the nutrition of the tissues of the donor was so impaired is in itself phenomenal. The apparent improvement in the biliary obstruction, and the diminution in size of the liver and omental masses are merely noted as clinical phenomena, with no suggestion of any probable relation to them of action of the sex hormone. They obviously are susceptible of other explanations, which, I think is hardly true of the skin and blood phenomena.

(To be concluded.)

INTRANASAL OPERATION IN TUMOR OF THE HYPOPHYSIS.*

Report of a Case in a Child Nine Years of Age.

By T. H. HALSTED, M. D.,
Syracuse.

In what was probably his last contribution to medical science, Dr. Roswell Park, in an article in *American Medicine* for April of this year, made a plea for the collection of facts bearing upon the hypophysis and a cessation, for a few years, of papers dealing with theories and conclusions regarding the functions and disease of this organ until such time as the known facts could be collected, digested, and analyzed. The purpose of the report of the one case in this paper is to record the observations, and more particularly to draw attention to the direct and comparatively safe and not unduly difficult approach to the hypophysis by the intranasal route, the patient being a child under nine years of age.

Hirsch, in Vienna, has for four years been operating by this route, being the first to suggest this approach and demonstrate its feasibility on a living patient. Cushing, in this country, does very much the same operation, with the important exception that in doing his resection of the nasal septum, through which he passes on to the hypophysis, his initial incision is under the upper lip, not entering

*Read before the American Laryngological Association, Atlantic City, May 27, 1914.

at all the nasal cavities, but passing between the two layers of the septum to the sphenoid. Hirsch, on the other hand, does the Killian submucous resection, his initial incision being in the nose. Cushing's operation is done under general anesthesia, whereas Hirsch does his under local. Both have had now a large experience. Hirsch has the best statistics of any operator on the hypophysis.

Dr. Lewis A. Coffin, in two recent cases, modified Hirsch's operation as suggested by West, by removing the posterior half of the septum, so approaching the sphenoid without doing a submucous operation at all, the idea being that a better field for approach was afforded than by working between the two flaps of the septum.

CASE. Mary Zollo, an Italian girl, aged nine years, was referred to me February 6, 1914, by Dr. J. R. Wiseman, with the diagnosis of a tumor of the hypophysis, and with the request that operative interference be considered, and if thought best, carried out.

The child was much above the average child of her age in mentality and might be said to be brilliant. Her answers were clear and definite. She was the oldest but one of seven children, six living. Until six months ago she had been well, with the exception of measles at four and scarlet fever at five years, attending school regularly. About six months before this history was given, she became "very nervous" manifested by a trembling of the hands, some difficulty in walking, unsteady gait, and frequent dizzy spells. Headache, frontal, came on about every other night, lasting until she fell asleep. Her sight was impaired. She felt cold all the time and tired very easily. She had always been a large child from birth, but an increase in fat had been very marked for the past few months. She was very large for her age, adiposity very marked, dark complexion with a reddish glow in her cheeks, skin dry and harsh, hair black, dry, coarse, growing low on forehead and far anteriorly at the sides of the forehead. Eyes were large, brown; pupils dilated. Marked ataxia with intention tremor. Had difficulty in standing with feet together whether eyes closed or open, and extreme difficulty in making coordinated movements, such as touching finger tips together, etc.

Doctor Wiseman had been consulted first a month ago and made a very careful study of the case. He found a negative Wassermann, and no improvement followed the use of the iodides. She gained three pounds in weight during past three weeks and had a very large appetite, an increased tolerance for sugar, no glycosuria after 200 grams glucose, urine otherwise negative. Slight pyrexia, about 100° F. per rectum. Under his directions, the eyes were examined by Doctor Foster, who reported a double optic neuroretinitis.

An x ray examination was made by Dr. C. E. Coon, who reported on January 19, 1914, as follows: "January 19, 1914. Stereoscopic plates—both right and left lateral. Four plates, all of them show sella turcica somewhat larger than the average normal at this age; bony outlines irregular and not as clear cut, well defined margins as other areas in this vicinity. Above and posterior to sella, brain area of lessened density, fairly well defined. Anteroposterior diameter one and half inch, and up and down about one inch. This area seemed to surround the sella turcica and the interpretation seemed to be soft growth, possibly a cyst, surrounding and pressing upon the pituitary body."

With a diagnosis of tumor of the hypophysis, the patient was referred to me by Doctor Wiseman for the purpose of possible surgical intervention. An examination of the nose and throat revealed a large, rather flat nose with good sized nostrils, a slight deviation of the septum to the right, moderate adenoids and tonsils somewhat enlarged. The patient came to my office several times, and on March 5, 1914, entered the Women's and Children's Hospital, where she was studied and observed for several weeks by several members of the staff.

Several additional x ray examinations were made by Doctor Coon, but with no additional facts discovered than set forth in his preceding report. The ophthalmological report by Dr. F. W. Marlow, was as follows:

Vision 6/9 each eye; sight appeared to be occasionally obscured; fields normal for form in each eye; color fields ditto, but difficult to take on account of the variable fixation; apparently no interlacing. Pupils somewhat large, except in very bright light when they were about of normal size; in dark room they show no reaction at all to light but in a very bright light a moderate change; reaction with convergence normal; muscle balance normal.

Examination of the eyes very strongly suggestive of gross intracranial disease, probably tumor. Nothing in the eye examination to suggest hypophyseal disease. The only phenomenon which could be regarded as throwing any light upon the localization, being the defective reaction of the pupils to light, compared with the visual acuity, which might possibly indicate a lesion of the corpora quadrigemina; this faulty reaction might, however, be due to lowering of the conductivity of the fibres in the inflamed nerves.

The neurological report by Dr. H. G. Locke, was as follows:

Patient short, thick set for her age, with a tendency to fatty overgrowth, particularly about the abdomen and hips; facial expression somewhat flat and ironed out, with little play of the muscles on emotional fluctuations; well marked general ataxia of partial cerebellar type; marked choreiform movements; well marked athetosis; paralysis of the pupil; deep and superficial reflexes not materially altered; deafness present, but not persistent. Added to the athetochoreiform movements, a decided intention tremor.

Conclusions: The symptom complex would place the lesion in the interpeduncular space; the iridoplegia, deafness, and the ataxia of partial cerebellar type, might be in the corpora quadrigemina; the athetochoreic and intention tremor involved the optic thalamus, which was also involved in the disturbance of the psychic reflexes. There was probably some pressure also upon the cerebellar peduncles. The tissue and nutritional changes were referable to the pituitary body.

Diagnosis: Cyst of the pituitary body, with pressure on the optic thalamus and corpora quadrigemina and all regions contiguous to, or forming the interpeduncular space.

All were agreed that the case was one of tumor involving the hypophysis, but whether by pressure alone, a neighborhood tumor, or one of the hypophysis itself, there was doubt. The preponderance of opinion was that the tumor was a cyst and that it should be operated upon.

I decided on following Hirsch's intranasal method of operating in two or three stages and under a local anesthetic if at all possible, the age of the child, nine years, presenting the only obstacle to the use of local anesthesia. The child's unusual intelligence, strength of will, and desire to be rid of the tumor, whose presence she understood and appreciated, would be of great assistance to me, I felt sure. My judgment proved sound in this respect when she was put to the test in the operating chair, as I never operated on a child under local anesthesia with greater comfort both to myself and the patient. Hexamethylenamine, five grains every four hours, was given for a week or more prior to each of the three operations.

First operation, March 23, 1914. Local anesthetic, cocaine five per cent. with one to 2,000 adrenaline, was applied with cotton pledgets to the middle turbinate regions of both sides and allowed to remain fifteen minutes. Patient in upright position. The left middle turbinate was removed in its entirety. The right middle turbinate was removed

and the anterior and posterior ethmoidal cells of same side were exenterated. So much was removed in order to give me plenty of room for the second operation when the pituitary was to be attacked, as I thought was necessary. It would have been sufficient, I think, had I left the turbinate of one side. There was no pain of any moment and no hemorrhage, the patient leaving the table satisfied to have the next operation as soon as I was ready. Five days after this operation the temperature was 100° F., and the child complained of dizziness, fell forward twice while walking, was quite confused and excited, and her movements were more incoordinated. She complained of pain in cervical region, had some muttering delirium, hallucinations of sight, intention tremor more marked, cried out great deal in shrieks, and the temperature reached 102° F. These symptoms of meningeal irritation gradually subsided within the next few days, so that by March 31st, eight days after operation, she was back to the condition preceding operation. Hexamethylenamine had been given throughout.

Second operation, April 4, 1914, twelve days after first operation, patient in upright position. Under five per cent. cocaine and one to 2,000 adrenaline, a submucous resection of the septum was done, the anterior incision beginning on the right side, well back in the triangular cartilage. All the cartilaginous and bony septum posterior to this was removed, including the vomer and perpendicular plate of the ethmoid, up to and including the rostrum of the sphenoid. The mucous membrane of the anterior wall of sphenoid on both sides was submucously elevated, exposing the whole of the anterior wall of the sphenoid, which was removed, Hirsch's modification of Hajek's instruments being used. The sphenoidal septum was then removed and the posterior wall of the sphenoid with the sella turcica was now in clear view. There had been no pain and the hemorrhage was slight. A small Jackson lamp from the direct laryngoscope, introduced through one nostril while working on the other, gave valuable aid in illumination. There was not the pronounced convexity of the posterior sphenoidal wall, marking the hypophyseal eminence, that was expected to be found, to give the positive indication for the site of removal of the bone of the sella turcica, beyond which would be found the pituitary tumor. The long Hirsch chisel was introduced at what seemed the proper site, and was sunk so deeply into the bone by the mallet that I felt the chisel must be in the body of the sphenoid instead of in the sella. A number of attempts were made, but the bone seemed too dense and too thick to be the sella, and because of the uncertainty of location and the necessity of being right, I decided to desist, and to adopt a method employed by Cushing in a similar situation where he became confused as to his location. A small piece of a lead plate less than a quarter inch square, enveloped in thin iodoform gauze with a long piece of silk thread tied about it, was carried through the wound and placed at the point where I believed the sella should be opened.

The whole wound was then packed with bismuth gauze and the patient sent to the ward. The time occupied was two hours. There was very little

complaint of pain, and the hemorrhage was not troublesome. The next day, a radiograph was made to determine the location of the lead plate and its relation to the sella turcica. The radiograph showed that while I was in a safe position for opening the sella, a better site was one eighth inch higher. The gauze and packing were removed the day following the operation, but the discharge and swelling were too great to make it safe to operate at once, as had been intended following the x ray to locate the lead plate. On the fourth day, the patient became quite drowsy, stupid, and confused, and manifested hallucinations of sight, seeing people and elephants; she shrieked a great deal, but complained of little pain. A traumatic edema with irritation of the meninges apparently occurred. A week after the operation, a tonsillitis with a temperature of 103° F. developed, but subsided in a few days. Hexamethylenamine was given throughout. On April 23rd, nineteen days after the second operation, the patient's condition, both general and local, had sufficiently improved to make it safe to undertake the last stage of the series of operations.

Third operation; patient in upright position; cocaine with adrenaline local anesthesia. The two walls of the nasal septum had completely united, but the sphenoid was wide open, the anterior walls of both sides being gone. The posterior third of the soft boneless septum was then removed, giving free access to the posterior sphenoidal wall and the sella turcica in the median line. Using Hirsch's chisel and his sella forceps and hooks and right angled spuds, the bony sella was removed, exposing the bluish dura or cyst wall. This was then incised with the long bistoury of Hirsch, when there was an immediate gush of more than half an ounce of limpid yellowish fluid. Unfortunately, this was not collected for examination. No packing was inserted in wound or nose. This operation lasted about half an hour, and the child left the operating room in good condition. It was observed within a few minutes of liberating the fluid from the cyst, that the pupils, which previously were widely dilated, became contracted.

During the week following this last operation, there was quite a marked change in her condition. During the night and sometimes during the day time, she would cry out with a sharp shriek, complained more than before of frontal headache, was slow in responding to questions, and in a stuporous condition a good deal of the time, listless, dull, apathetic, with involuntary urination and polyuria. During night of April 28th, five days after operation, she had two tonic convulsions, lasting seven and five minutes, the pulse irregular and thready, respiration slow and labored and of Cheyne-Stokes type. These were the only convulsions, and following them there began a gradual improvement, the ataxia and athetoid movements becoming markedly less and the pupils contracting, but she continued for two weeks to be very irritable, with a marked change in her disposition, her speech becoming rough in tone and words, at times profane, very different from her earlier speech, which was always polite. The loss in weight was very perceptible, while there was a steady loss in muscular strength

and tone, the child being now confined to bed and unable to stand alone. There were involuntary micturition and defecation. There occurred a very marked change in the symptoms since her entrance to the hospital, which might be attributed to the progress of the disease in the pituitary body itself, together with the lessening of the interpeduncular pressure on the surrounding neighborhood parts due to evacuation of the cyst.

From being exceedingly bright and talkative, the girl became the exact reverse, speaking seldom, apathetic, and listless. Muscular fatigue was greatly increased, so that she could hardly hold up her head or arms. She lost in weight, though there was still decided adiposity. Urination and defecation were, and still are involuntary, owing perhaps to lack of care, a condition of stupidity combined with muscular weakness. Headache was much less complained of. The ataxia was diminished. A remarkable change in the color of her hair has taken place. From being black, within four weeks it became a decided reddish brown at the distal end of the braid, while that within six inches of the scalp is also changing rapidly to a reddish brown. The examination of her eyes shows:

Periphery of field apparently normal in all directions, possibly slight contraction. Pupils moderately large, slight reaction to very bright illumination. Pupils varied in size, sometimes widely dilated, left more than right. Double optic neuritis. Vessels seen with +4D. right and +6D. left. Haze becoming lighter in color. Ocular movements normal. Pupils equal. Reaction of pupils with convergence normal. Optic neuritis simply showed later stage. No progress of optic neuritis. (Dr. F. W. Marlow.)

From a state of hyperpituitarism, a condition seemingly present when she entered the hospital, there is now apparently a condition of hypopituitarism. The pressure symptoms due to the cyst are seemingly improved, as evidenced by the lessened headache, ataxia, and improved eye symptoms.

To make up for the lessened secretion of the hypophysis, she was put on pituitary extract a week ago, and already there has occurred a most striking change in her condition. Her muscular and body fatigue, which had become so great that she could not hold her head up in bed, has improved so much within the week that she sits up now in a wheel chair an hour at a time and can take a few steps alone. There has been as great an improvement and awakening in her mental state. She is now cheerful, talkative, sings a great deal, and is becoming interested in her surroundings; we are hopeful that she will soon be as bright mentally as she was when she entered the hospital.

It is possible that the cyst may fill up and give rise to pressure symptoms again, but as yet there is no evidence of this.

831. UNIVERSITY BLOCK.

Treatment of Herpes zoster.—Lailier, in *Paris médical* for January 24, 1914, is credited with the following solution to be applied in early cases of herpes zoster:

R Ferri chloridi, ...3iiss (10 grams);
Alcoholis, ...3iiss (45 grams)
The skin should be first carefully dried.

BLACKWATER FEVER.

An Analysis of Thirty-four Cases.

BY WILLIAM H. DEADERICK, M. D.,
Hot Springs, Arkansas,

Secretary, Malaria Section, National Drainage Congress.

Of the last thirty-four cases of hemoglobinuric fever which I have treated, I have kept more or less complete histories. While all the cases occurred in private practice, and about four fifths of them in the country and among a class of people unaccustomed to record temperature, pulse, and other clinical data, a crude analysis may prove of interest.

The thirty-four cases were distributed by months as follows: July, one case; August, four; September, ten; October, twelve; November, six, December, none; January, one. Thirty cases occurred in whites and four in negroes, of whom two were blacks and two mulattoes. Males were affected twenty times, females fourteen times. Two of the negroes were males and two were females. Ages showed the following distribution: Six to ten years, 12 cases; eleven to fifteen years, 9; sixteen to twenty years, 2; twenty-one to thirty years, 2; thirty-one to forty years, 4; forty-one to fifty years, 3; fifty-one to sixty years, 2.

Twenty-seven cases occurred among the farming class, two in a printer, two in town school children, and one each in a carpenter, a liveryman, and a teacher. Twenty-seven cases were seen in rural residents and seven in townspeople. Secondary etiological factors, such as alcoholism, cold, and other influences were not prominent in these cases, though indigestion is recorded in one case and exposure to cold and rain in two cases.

All without exception had suffered previously with malaria, most of them repeatedly. Nineteen cases occurred in malarial cachectics. Fourteen of the patients had previously had blackwater fever. Of this number seven had had one attack, three two attacks, and one each four, five, six, and seven attacks. A case occurred in the practice of a colleague, in which death took place in the eleventh attack. In eleven instances, other cases had occurred in members of the immediate family, and three families appeared to show a very marked predisposition. Only once were members of the same family affected the same year, the interval between the dates of onset being fifty-five days.

In thirty cases quinine was being taken for malaria when the outbreak occurred. In four cases quinine could be absolutely excluded. The majority of those having taken quinine, had taken the sulphate by mouth, one the bisulphate, and three had taken patent "chill tonics." The smallest quantity was two grains of the sulphate.

Prodromata which were present in the majority of instances consisted of those of the ordinary malarial attack. The mode of onset was with a chill in all cases but four. Two of these cases began with pain in the epigastric region and in two the fever rose without chill, followed soon by a discharge of blackwater. In one case the chill and hemoglobinuria were simultaneous, but the average period between the chill and the first dark urine was two hours.

The temperature averaged from 100.6° to 102.8° F., the highest recorded being 104.5°. It was continuous and remittent, excepting in one instance where it showed tertian intermittent periodicity. Estivoautumnal tertian parasites were found in the blood of this patient. The pulse averaged from 110 to 135. It soon became soft and compressible and in severe cases small and feeble. Respiration varied, according to the degree of fever and of blood destruction, from thirty to sixty.

Of the four cardinal symptoms of blackwater fever, fever, hemoglobinuria, icterus, and vomiting, the first two were present in all my cases. Jaundice, though not always present at the first visit, appeared later in all but one or two very mild attacks. Yellow scleræ were present in over half the cases, and in a number the discoloration was intense. Vomiting occurred in four fifths of the cases and was very distressing in half the cases. The bowels were regular, constipated, or loose, depending in great measure on whether or not a purgative had been taken. Singultus was observed in a majority of the fatal cases.

Though most of the patients were very miserable, pain was not a prominent feature in many of them. Pain in the head is recorded oftenest, next in the epigastrium, then in the back. Herpes was not observed in a single case. The liver was tender in half the cases, but was markedly enlarged only once. There was tenderness over the right kidney in one patient. The spleen was always enlarged, often extremely so, extending beyond the umbilicus and to the anterior superior spinous process. The enlargement was often rapidly progressive and the organ frequently tender. The lungs were negative; the heart emitted a systolic murmur in about one third of the cases.

The reaction of the urine was usually acid. The average of a large number of urinalyses gave a specific gravity of 1015. The average variation of albumin was from one half to two and a half grams to the litre, estimated with the Esbach albuminometer, though specimens were observed containing five, six, seven, eight, nine, and two with fourteen grams to the litre. In the last nine cases the urine was tested for quinine with negative results. Bile was found only once in the entire series and then only in a moderate amount. Microscopically the most conspicuous finding was a dirty brownish granular detritus. Epithelia were numerous, round, spindle, and squamous cells occurring in the order of frequency. Casts appeared sooner or later in every case; the granular were the most numerous, then the epithelial. Red blood cells were found in five of the thirty-four cases, only once in very large numbers.

The blood showed wide variation in hemoglobin. One mild case ran its course with the hemoglobin not falling below seventy per cent. On the other hand, a case ending fatally was seen in consultation, in which the patient was practically exsanguinated. He had been treated actively by enteroclysis and hypodermoclysis, and the fluid obtained by puncture of the lobe of the ear was straw colored. The cover glass adhered to the immersion lens rather than to the slide, so that a dry lens had to be used for the examination. Only a few very pale red cells were

to be seen in each field of the microscope. In the majority of cases the hemoglobin fell to about fifty per cent. The lowest proportion observed in a case recovering was thirty per cent. The commonest variations shown by the red cells were polychromatophilia, macrocytosis, microcytosis, and poikilocytosis, the first being the most common. It was astonishing in many cases to see so few changes in the character of the red cells. A number of differential leucocyte counts give the following average proportions: Small mononuclears, twelve per cent.; large mononuclears, thirty-five per cent.; polymorphonuclears, fifty-two per cent.; eosinophiles, one per cent. In the thirty-four cases parasites were found in fourteen, while the examination was negative in twenty. The blood examinations were made for the first time from the first to the third day of the disease. In every instance in which parasites were found they were of the estivoautumnal variety and differed in no way from the parasites occurring in the ordinary estivoautumnal infections in this region.

With the exception of three unusually protracted cases, the average duration of the fever in the thirty-four cases was eighty hours; the minimum, twelve hours. The fever in the three cases mentioned lasted twelve, nineteen, and twenty-eight days respectively, and was remittent. The blackwater in these cases continued eighteen, forty-eight hours, and seventy-two hours respectively. All three patients recovered. The average duration of the hemoglobinuria in the series was fifty hours; minimum, eighteen hours; and maximum, ninety-eight hours. In two cases the blackwater outlasted the fever, 96:48 hours, and 18:12 hours.

There were remarkably few complications, in fact, only two, and these occurred in the same patient in different attacks. These were acute tonsillitis and otitis media not proceeding to suppuration. I know of two cases in pregnant women in the practice of two colleagues. Miscarriage occurred in both and both mothers died. One patient had purpura.

In two of my cases relapse occurred. In one the hemoglobinuria had continued forty-eight hours, the fever four days; the relapse occurred on the seventh day and lasted twelve hours. In the other the blackwater had continued sixty hours and the fever five days; the relapse took place on the sixth day and lasted only a few hours. These relapses were similar in onset and symptoms to ordinary attacks.

The only sequelæ that I encountered were cachexia and renal lesions. In exactly half the cases that I have been able to examine from a few months to several years after the attack, abnormalities of the urine have been found. These consisted of albumin, cylindroids, or casts. In only two or three were symptoms present which might be referred to a kidney lesion.

The diagnosis of all my cases was made immediately, excepting in one instance. The patient with an alcoholic history had recently been exposed to cold and unusual exertion; backache was intense and the urine contained so many red blood cells that for a few hours I was in doubt as to whether he had a true hematuria or a hemoglobinuria. Another case, one of estivoautumnal malaria, was seen in

which the urine was so loaded with bile pigment that until it was examined chemically the case appeared to be blackwater fever.

Bad prognostic signs were marked diminution in the amount of urine, excessive and uncontrollable vomiting, somnolence, coma, and singultus. This last symptom occurred in a majority of my fatal cases, and was not seen in any patient who recovered.

Among the thirty-four cases there occurred ten deaths. This high mortality may be partly accounted for by the fact that five of the fatal cases were seen in consultation, being unusually severe. Of the ten deaths there were two from suppression and eight from exhaustion. Three deaths occurred at the end of the second day, two during the third day, and one each on the fourth, fifth, sixth, seventh, and eighth days. The two deaths from suppression took place on the third and seventh days. Two of the deaths occurred in negroes and eight in whites. Seven were males and three were females. From five to ten years of age, there was one; from eleven to twenty, 3; twenty-one to thirty, 1; thirty-one to forty, 3; and from fifty-one to sixty, 2. Five of the fatal cases were in cachectics. My experience has been that first attacks are the most fatal, eight of the ten deaths terminating first attacks and two second attacks. One death occurred in July, two in August, two in September, three in October, and two in November.

NORMAL HORSE SERUM IN HEMORRHAGE FROM NOSE AND THROAT OPERATIONS.*

A Series of Experiments as to the Coagulation Time of the Blood, before and after Injections of the Serum.

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For several years the writers have been using injections of blood serum for the control of hemorrhage in nose and throat operations. In a recent paper (1), a series of cases of hemorrhage after tonsillectomy and other operations were reported, in which, after other methods failed, the bleeding could be absolutely controlled by the use of the serum. In all the cases reported at that time, the serum was not used until the hemorrhage had already started. In the series of cases on which this paper is based, the blood serum was used before operating, when we expected to have an unusual amount of bleeding.

Weil (2), whose researches in hemophilia were so largely responsible for the present status of serum therapy in this disease, reported, in 1907, a series of four cases treated with serum. In one of his cases a polyarthritis with rapidly developing subcutaneous hemorrhages, epistaxis and hematuria, the patient was given an intravenous injection of fifteen c. c. of fresh beef serum, and was cured.

The most complete of the more recent papers on this subject is that of Goldstein (3). The following details were carried out in each case: Within twenty-four hours previous to the time of operation, 1, a physical examination of the patient was made; 2, the systolic and diastolic blood pressure recorded; 3, the hemoglobin percentage was noted; 4, the coagulation time was ascertained of blood obtained from the lobe of the ear; 5, where the time limit of the coagulation exceeded seven minutes, a hypodermic injection of ten c. c. of normal, sterile horse serum was given; 6, in each case where the serum injection was made, the coagulability of the blood was again tested just prior to the time of operation. In practically every case the coagulation time was reduced after injection of the serum from one to two and one half and even three minutes.

In the writer's cases, the serum injections were given irrespective of the coagulation time before operating. They were given when we expected, from a history of severe cases of hemorrhage in the patient's family or of severe spontaneous hemorrhages in the patient, an unusual amount of bleeding after operating.

It has been recognized that the coagulation principle of the blood is dependent on the action of thrombin, the so called fibrin ferment. Voegtlin and Macht (4), however, have isolated from the blood and the adrenal cortex, a new vasoconstrictor substance, and it is quite possible that the action of the serum in controlling and preventing bleeding is due to this agent. This powerful vasoconstrictor substance was extracted from the blood in the following way: Defibrinated blood serum of oxen and pigs was treated with dehydrated powdered sodium phosphate or sodium sulphate. The dry mass was pulverized and extracted with water free chloroform. This chloroform extract was evaporated to dryness and then treated with absolute methyl alcohol. On evaporation, a white crystalline residue was obtained, very sparingly soluble in water, but freely soluble in chloroform, acetone, hot ethyl alcohol, and other organic solvents. Study of the action of this substance on the bloodvessels of cold and warm blooded animals and on the heart, led to extremely interesting observations. It was found that it was a powerful vasoconstricting agent; a minute quantity, 1/300 mg., producing a marked and long lasting (over an hour) constriction of the vessels of a frog's hind legs.

By exactly the same method, the authors extracted a similar substance from human blood serum. It was found that the quantity of extract corresponding to one c. c. of human serum diluted with 500 c. c. of Locke's solution, was sufficient to produce a very marked constriction of the rabbit's bloodvessels, which showed that the substance must be present in quite an appreciable amount in normal blood. Their work on this subject, and the isolation of the crystalline substance already described, together with a study of its chemical, physical, and physiological properties, justifies them in regarding it as a substance with a pharmacological action different from epinephrine or from any other body hitherto obtained from the blood. While they have not yet been able to isolate enough material for a complete chemical analysis, all the observations so

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far made on the physical and chemical properties of the body seem to point to its relation to cholesterol on the one hand, and to the cortex of the adrenal gland on the other. That this substance may be of considerable clinical importance, is not unlikely in view of the observations of Gubar, who noted that the vasoconstricting properties of blood serum vary in different pathological conditions, being increased in nephritis, for instance, and diminished in other diseases.

It was shown in the foregoing that it is possible to isolate from the blood of man and other mammals, a substance, the nature and properties of which compel the authors to regard it as a lipid and closely related to cholesterol. For a long time it has been known that blood serum and the defibrinated blood of different animals exert a vasoconstricting action on bloodvessels. It was formerly considered that this vasoconstrictor effect was due to epinephrine; it has been proved, however, by O'Connor (5) and others, that systemic blood, with the exception of the blood from the adrenal veins, does not contain epinephrine. O'Connor first suspected there must be another vasoconstricting substance in the blood.

In our own observations, the coagulation time was estimated by the coagulometer of Russel and Brodie, as modified by Boggs. The apparatus consists of a moist chamber with a glass bottom, which can be placed upon the stage of the microscope, while the upper surface is a truncated cone of glass projecting downward into the moist chamber. The lower surface of this is four mm. in diameter, and on it is placed a drop of blood, care being taken that the drop only just covers the surface; hence it is always of the same size. The glass is then quickly fitted into the moist chamber. Through the side of the chamber projects a fine tube, through which, by means of a bulb, a gentle stream of air can be directed against the blood. With the low power of the microscope, the cells are then watched, while being agitated, until they are seen to move in clumps. As little blowing, and at as long intervals as possible, should be done. The corpuscles will at first move freely and independently of one another, then in clumps at the periphery. As the process of coagulation continues, the masses of corpuscles will no longer move in the drop, but the drop changes shape *en masse*, the corpuscles showing first an elastic concentric motion and finally an elastic radial motion; that is, the current of air will cause the masses of corpuscles to move toward the centre, and to spring quickly back to their original position when the current of air ceases. This is taken as the end point and indicates coagulation. Using this instrument, Slader, working with Emerson, found the normal end point to vary from three to eight minutes, an average of five minutes and six seconds.

Of the series of cases in which injections of serum were given, only eight will be reported. We had reason to believe that in all these there was a decided tendency to bleeding, in fact the history in some of them proved this, and in four of them there was an undoubted hemophilic diathesis (Cases II, VI, VII, and VIII).

CASE I. T. B. W., aged twenty-seven years. Operation, radical tonsillectomy and adenoidectomy. In all the cases the radical tonsil operation—dissection and snare—was performed. Cocaine anesthesia. In this case there was a history of severe nasal hemorrhage, severe bleeding, when teeth were extracted and after trivial wounds. Ten c. c. normal horse serum was injected fifteen hours before operation. There was practically no bleeding during the operation, and there was no oozing from the tonsillar fossæ afterward. In all there was less than a half ounce of blood lost.

CASE II. A. S., girl, aged nine years. Operation, Child's Hospital, tonsillectomy and adenoidectomy. Ten c. c. serum administered eighteen hours before operation. In this case there was a decided hemorrhagic diathesis, and two of the brothers were subject to profuse nasal hemorrhages, difficult to control. A practically bloodless operation was performed, and there was no blood lost after the operation.

CASE III. M. E., girl, aged nine years. Operation, tonsillectomy and adenoidectomy, Child's Hospital. Same amount of serum administered as in the last case, fifteen hours before operation. In this case the patient had been subject to bad nasal hemorrhages. Very small amount of bleeding during and after the operation, about one third the usual amount.

CASE IV. A. McI., girl, aged ten years. Operation, Child's Hospital, tonsillectomy and adenoidectomy. Ten c. c. serum given twenty hours before operation. Practically no bleeding during or after operation.

CASE V. A. L., boy, aged nine years. Operation, Child's Hospital, tonsillectomy and adenoidectomy. Ten c. c. serum injected night before operation. Less than one third the amount of usual hemorrhage.

CASE VI. H. J., boy, aged seven years. Operation, Child's Hospital, tonsillectomy and adenoidectomy. Ten c. c. serum given fifteen hours before operation. In this case there was a decided hemophilic diathesis, in fact in the entire family there was a tendency to severe spontaneous hemorrhages. Very slight bleeding during operation, and no oozing from tonsil wounds afterward.

CASE VII. H. Van A., young man, aged twenty years. Strong looking farmer's son, but with the slowest coagulation time of any of the cases. History of excessive bleeding, day at a time, when had teeth extracted, and severe nasal hemorrhages. Hemorrhagic tendency in family. Operation, St. Peter's Hospital, tonsillectomy, middle turbinectomy, and curettage of anterior ethmoid cells. Cocaine anesthesia. Patient had had chronic ethmoiditis for years, with severe periodical headaches on same side, and ocular disturbances. Middle turbinate large and cystic. Fifteen c. c. serum injected seventeen hours before operation. Ten per cent. cocaine used with a very little adrenaline during operation. Practically no bleeding during the tonsillectomy nor afterward.

In the ethmoid operation, which is usually attended by profuse bleeding, there was also very slight loss of blood. No nasal tampons were used. So far as possible, no adrenaline, peroxide, or other agents for the control of hemorrhage were used during operations, so that we could get a better idea of the action of the serum.

CASE VIII. J. S., boy, aged nine years. Operation, Child's Hospital, for chronic suppurative otitis media, diseased tonsils, and adenoids. This was a straight case of hemophilia. Father has had an extremely bad case of purpura hæmorrhagica. Father's brother's child, a boy, bled to death as a result of uncontrollable nasal hemorrhage. He was sent to the Child's Hospital and given fifteen c. c. of serum about sixteen hours before the operation, tonsillectomy and adenoidectomy. In this case we surely expected a postoperative, possibly fatal hemorrhage, but to our surprise had a very slight amount of bleeding during the operation, and none afterward. All the children operated on were kept under observation for a long time after the operations.

In these eight cases the average coagulation time before injection of the serum was 5.18 minutes, and after injection 4.12 minutes, making an average de-

crease in coagulation time of 1.06 minute. General anesthesia was used in all except two cases. Normal horse serum should be used whenever the tonsil operation must be undertaken in a subject of the hemorrhagic or hemophiliac diathesis. When it is used in such cases, prior to operation, the operator leaves his patient with a feeling of much greater security, and with the probable assurance that he will not be called to the hospital at one or two o'clock in the morning to deal with an alarming hemorrhage.

Judging by a search of the literature, the much heralded danger of anaphylaxis is practically nil, when as in our cases, only one injection of serum had to be used. No claim is made that blood serum is infallible. In some cases it might fail. It must, however, be considered at least a valuable addition to the remedies for controlling hemorrhage. In the cases noted in the following table, the blood drop was always taken from the ear lobe under aseptic precautions.

Name.	Number.	Sex.	Age.	Coagulation time in minutes.				Operation.
				Amount injected.	Before injection.	After injection.	Decrease in coagulation time.	
T. B. W....	1	M.	27 yrs.	10 c. c.	4	3	1	Tonsillectomy
A. S.....	2	F.	9 yrs.	10 c. c.	5½	4¼	1¼	Tonsillectomy, adenoidectomy
M. E.....	3	F.	9 yrs.	10 c. c.	4	3½	½	Tonsillectomy, adenoidectomy
A. McI....	4	F.	10 yrs.	10 c. c.	4	3½	½	Tonsillectomy, adenoidectomy
A. L.....	5	M.	9 yrs.	10 c. c.	4¾	3¼	1½	Tonsillectomy, adenoidectomy
H. J.....	6	M.	7 yrs.	10 c. c.	5½	4¾	¾	Tonsillectomy, adenoidectomy
H. van A.	7	M.	20 yrs.	15 c. c.	7¾	6	1¾	Tonsillectomy, ethmoid turbinatectomy
J. S.....	8	M.	9 yrs.	15 c. c.	6½	4¾	1¾	Tonsillectomy

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TREATMENT OF RINGWORM OF THE SCALP.

Some Personal Experiences.

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The truly remarkable results attained with the x ray by Adamson and Sequiera, in London, and Sabouraud and Noire, in Paris, are very convincing. It has in their hands undoubtedly yielded brilliant results, hundreds of cures being recorded. On the other hand, every practitioner called upon to treat ringworm has not the necessary apparatus nor a sufficient number of cases of tinea to gain the experience necessary to bring about a cure with the x rays. Personal equation and experience as to dose, distance of the tube, frequency of exposure, type of coil, condition of tube, etc., are the important factors which make for or against success, and no one without a good working knowledge of this powerful

agent should attempt its use. I have personally seen several cases of permanent alopecia follow the use of x rays in the treatment of tinea tonsurans. In my opinion one cannot be too cautious in the use of the rays, particularly when subjecting the scalp and face to them. It sometimes happens that with its use the results are worse, from a cosmetic point of view, than the original lesions. I shall never forget a poor girl, fifteen years of age, with an extensive chronic eczema of many years' standing, who presented an extensive cicatrix and an enormous amount of telangiectasis, covering the entire face, arms, and legs, following x ray treatment of her eczema, which, it is interesting to note, was by no means cured.

The cure of ringworm of the scalp by means of the x ray is entirely mechanical and due solely to complete depilation. The microsporon or trichophyton is not killed, and the fallen hairs may spread the disease. The contagiousness of the patient ceases with the fall of the last infected hairs. Notwithstanding the brilliancy of the results attained with the x ray in experienced hands, I consider the dangers from its use great enough to warrant its employment only in the more rebellious cases. In making a decision whether to use the rays or not, it must be kept in mind that the disease tends to disappear at about fourteen years of age, and that the temporary inconvenience of a long drawn out treatment (which is often successful, when persistently carried out) is preferable to the risks of permanent alopecia and cicatricial formation following x ray dermatitis. The discovery of the cause of the immunity of the adult scalp would, of course, permanently solve the question of treatment. The gradual disappearance of the disease at about the time of puberty seems to me to be more than a coincidence, and I think it probable that some internal glandular secretion, which in some way influences the hair follicles of the scalp, makes its appearance at puberty and renders the soil unsuitable to the further growth or life of the fungus. The whole subject is one of very deep interest, and in the present state of our knowledge, one can only venture conjecture.

While local treatment alone proves efficient, at the same time it must be acknowledged that the disease most frequently occurs in underfed, anemic children, particularly of the blond type. There is undoubtedly something in the "soil" theory. In my experience, affected children who are in poor condition respond to treatment much more slowly than those in good health. Inquiry into the child's general condition should therefore not be neglected, and the proper tonics, both medicinal and hygienic, should be employed, if indicated. In the local treatment of ringworm of the scalp, the question of which parasiticide to use is not as important as the thoroughness and persistence of its application. The mere application of an ointment is futile. It must be rubbed in with the ball of the thumb, or preferably with a small, comparatively stiff brush with its bristles cut short. The time consumed in the operation should be at least ten minutes, and the application made twice daily. The hair should be clipped very short around the lesion; if more than one spot is discovered, the whole hair should be cut off as close to the scalp as possible. Epilation, notwithstanding the fra-

gility of the diseased hairs, should be practised. The apparently healthy hairs immediately surrounding the lesion should also be epilated. Of course this procedure is not feasible in an extensive case, but when the disease is confined to one or two small spots, it is essential to success.

Doctor Stelwagon uses a depilatory consisting of three drams of barium sulphide, and two and a half drams each of zinc oxide and powdered starch; enough water is added to make a thick paste at the time of application. The lesions are then covered with a thick layer of this paste, slightly overlapping the diseased area. It is left on for from three to ten minutes; a burning sensation accompanies its use, and is an indication for its removal. The hairs and stumps will be found destroyed after the paste has been washed off. There is seldom any irritation, and it should be reapplied every five to ten days, according to the rapidity of regrowth. It is not to be used on an inflamed patch. The spread of the disease from the initial patch is best guarded against by scrupulous cleanliness. The scalp should be shampooed every second day with *sapo viridis* containing a dram of precipitated sulphur to the ounce, and after the head has been rubbed dry, a general application of some parasiticide lotion or ointment is made, and repeated once daily. A cap of several thicknesses of gauze should be worn beneath the ordinary hat, the gauze cap to be daily washed or destroyed. A good part of the pharmacopœia has been quoted as useful in this condition.

I feel sorry for the affected children of the early eighteenth century. Daniel Turner, of the College of Physicians of London, in *A Treatise of Diseases of the Skin* (1723), a copy of which is in my library, recommends phlebotomy, blistering, and repeated purgation. In my experience, the two things most essential to success are perseverance and thoroughness, and not any one particular parasiticide. The most valuable local remedies are iodine (with genuine goose grease as a base, it is very efficient, particularly in the early cases), and mercury, in the form of ammoniated mercury, up to ten per cent. strength, or oleate of mercury in ten to twenty-five per cent. ointment. Chrysarobin, in saturated solution in chloroform, painted on, and after evaporation of the chloroform, covered with several layers of collodion, is particularly useful in the chronic cases. Sulphur in twenty per cent. ointment, with ten per cent. naphthol, is very useful. An ointment which we frequently use at the New York Skin and Cancer Hospital with good results, when the parents are sufficiently impressed with the necessity of vigorous application, consists of unguentum hydrargyri oxidi rubri a dram and a half, unguentum sulphuris three drams, unguentum aquæ rosæ one ounce. Needling, as recommended by Aldersmith, should be reserved for the more stubborn cases, as it is rather a severe measure, for it depends on inflammatory reaction and the formation of a kerion for its success. In the absence of inflammation, one cannot be too vigorous in the application of any of the parasiticide ointments. This really constitutes the key to a successful result, a fact easily understood when one considers the location of the fungus.

40 EAST FORTY-FIRST STREET.

AN EFFECTIVE METHOD TO PREVENT POSTOPERATIVE NASAL HEMORRHAGES.

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It is the experience of every physician to be called to postoperative hemorrhages, which at times are very profuse and uncontrollable, at other times hard to handle at the patient's residence. These hemorrhages are alarming to the patient, to their families, and often to the doctor as well. The custom with the majority of nose surgeons is to pack the nostril of the side operated on so as to prevent subsequent bleeding. My experience is, that all the emergency calls were made to patients packed after operation. If perchance the packed patient does not bleed enough to require an emergency call, he will do so the next day when the packing is removed by the surgeon.

This last hemorrhage is inevitably produced by the removal of the packing, which has become adherent to the cut surface, leaving the cut vessels open. Another inconvenience of the packing is the clogging of the nostril, lack of drainage, and subsequent involvement of the nasal sinuses and middle ear through the Eustachian tube, setting up sinusitis and otitis media which are serious complications. On account of these inconveniences, some nose surgeons have totally abandoned the packing method, leaving the nostril free. One who does nose operative work has to select between these two methods, which are both deficient and unsafe. Noticing that the cases left without packing do not bleed to a greater extent than the others, and knowing that the blood clot formed in the nostril acts as a natural packing, the writer has always preferred to leave the patient unpacked rather than run the risk of the complications. I simply instruct the patient not to blow through the side operated on and to apply ice cold compresses to the nose for a few hours. By this method, I have never had any complications as yet, and the only unsatisfactory feature is that the patient will be bleeding for hours until the blood clot forms.

This set me thinking to find out a means by which the bleeding could be reduced to a minimum. In July, 1910, while operating upon a very enlarged and hard right inferior turbinate, which, on account of the large cut surface and hot weather, would have bled profusely, I did not feel at liberty to send the patient out of my office with such a risk of bleeding. I cauterized with an electrocautery the cut surface only, and instructed the patient to keep quiet and apply ice cold compresses on his nose as usual. The next day the patient reported at the office, telling me that there had not been a drop of blood lost. Since then I always cauterize in this way my nose cases with satisfactory results. Occasionally a patient will complain of a little bleeding, but not enough to be alarming, although of some concern to the family.

In order to make my operations absolutely bloodless, if possible, I set out to find out the cause of this little bleeding, and in my estimation, the little fault lies with the electrocautery point. As the cut surface is not always regular and accessible to the cautery, there will be little spots not touched by it and these will be responsible for the mischief. To

supplement this insufficiency, I began to use in addition to the electrocautery, a 100 per cent. solution of silver nitrate.

A pledget of absorbent cotton, on a nasal applicator, is dipped in the silver solution and carefully passed over the cauterized cut surface only. By this improved method I make my nose operations almost always bloodless. After satisfactory results in numerous cases I recommended this method to several of my colleagues who are doing nose work, and all have been invariably more than pleased with it.

Out of 314 cases of turbinotomy (inferior turbinotomy 131 and middle 183) that I operated in and treated by this method, there has not been a single case of hemorrhage or other complication. The same results have been noted by my friends who employed this method. I feel that the method will be welcomed by the profession at large and by the specialist particularly, inasmuch as it lessens the danger of operations, diminishes the apprehension of the patients, and renders nasal surgery more of an art.

SUMMARY OF METHOD.

Shrink the tissues with adrenaline chloride solution one to 1,000, cocaineize parts with ten per cent. cocaine solution, cut with scissors or snare the hypertrophied tissue, cauterize with electrocautery the cut surface only, then pass over with 100 per cent. silver nitrate solution on an applicator.

Send the patient home, instruct him not to blow the nose through the side operated on, and to apply ice cold compresses to the nose, and you have rendered the operation bloodless.

179 FORSYTH STREET.

Therapeutic Notes.

Treatment of Gastric Indigestion.—Variot and Laviolle, in *Quinzaine thérapeutique* for December 25, 1913, are stated to have observed that in nurslings who vomit their feedings, in whole or in part, and seem incapable of digesting milk sterilized by boiling or otherwise, the administration of milk to which an excess of saccharose (cane sugar) has been added leads to a marked improvement, gastric tolerance and regular digestive functions being restored. In all but a few cases the benefit was prompt; it was often clearly noticeable on the day after the beginning of saccharose treatment. In older children and even in adults milk well sweetened with cane sugar yielded favorable results in painful affections of the stomach, with or without vomiting.

Treatment of Gastric Ulcer.—M. H. Gross and I. W. Held, in the *Archives of Internal Medicine* for March, 1914, state that they consider olive oil, where the patient bears it well, of great value in gastric ulcer. It should be given in doses of one half to two tablespoonfuls before meals. According to Cohnheim's plan the oil may be administered with the yolk of an egg and three ounces (ninety c. c.) of almond infusion. The latter is made by putting forty sweet almonds and two bitter almonds in boiling water for a few minutes, removing the

skins, grinding the almonds, and then adding a half pint (250 c. c.) of warm water, stirring constantly. This mixture is allowed to stand for two hours, then strained through a cloth. It should be freshly prepared each day. Where oil is not tolerated, warm sweet cream may be substituted.

The authors also commend the alkaline treatment of Bourget, who holds that sodium bicarbonate, given on a full stomach, passes through the fold of Retzius directly to the pylorus; where it overcomes spasm and thus causes a more rapid emptying of the stomach. The form in which the sodium bicarbonate is administered is as follows:

I.

R Sodii bicarbonatis purissimi, ...gr. xv (1 gram);
Sodii phosphatis exsiccati, ...gr. vi (0.4 gram);
Sodii sulphatis exsiccati, ...gr. iii (0.2 gram).

M. et pone in chartulam No. i.

Sig.: One powder in a half glassful of warm water when necessary.

II.

R Sodii bicarbonatis purissimi, ...3ii (8 grams);
Sodii phosphatis exsiccati, ...3i (4 grams);
Sodii sulphatis exsiccati, ...3ss (2 grams).

M. et pone in chartam No. i.

Sig.: Dissolve in a quart of water, and take in one half to one glassful doses when necessary.

This solution is taken regularly one to one and one half hour after light meals, two to three hours after heavy meals, and besides, at any time of the day or night when the patient is troubled with pyrosis or pain.

The ultimate effect of a treatment of gastric ulcer depends in large degree on continued subsequent observation of the patient. When the authors discharge their patients after five or six weeks of rest and dieting, the transition to a coarser diet is made gradually. The patient is allowed in succession boiled chicken, veal cutlets, lamb chops, well done steak, and scrambled eggs; also cooked peaches, prunes, and pears in purée form. To the list of vegetables are then added string beans, cauliflower, and asparagus tips. White bread, one day old, is allowed. Alkaline treatment, consisting of the use of an alkaline table water or the bicarbonate solution previously mentioned, is continued. Where a tendency to hypersecretion persists, salt should be restricted to a minimum. Sponge baths or mild showers are useful, and if practicable a month every year should be spent at a spa such as Kissingen, Saratoga Springs, or Carlsbad, or a home cure followed for a month, mineral water being taken one hour before breakfast and supper.

In refractory cases of ulcer it should be remembered that even food stagnation for twelve to twenty-four hours is due not to thickening of the ulcer but to the associated pylorospasm as well as to overburdening of the stomach wall. In such cases mental and bodily rest is essential. Thorough lavage of the stomach twice daily with alkaline solutions is indicated, with rectal injections for some days. As soon as the product of the morning lavage is clear of the food of the day before, the stomach washing should be reduced to once daily—in the morning—and the food gradually increased, though given in purée form for months. Later, whenever signs of stagnation reappear, lavage should be reinstituted and the diet modified until conditions improve.

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NEW YORK, SATURDAY, OCTOBER 31, 1914.

MILITARY SURGERY IN THE FIELD.

During the present war, it is perhaps in the treat-
ment of penetrating gunshot wounds of the ab-
domen that the greatest changes have been made.
Owing to experience obtained in the South
African, the Russo-Japanese, and the recent Balkan
wars, immediate laparotomy is now rarely per-
formed. Uniformly better results are obtained
by expectant methods, the patient being removed
as little as possible from where he has received
his injury. The modern, small projectile of high
velocity is aseptic, inflicts minimum wounds of
entrance and exit, there is no infection by
foreign bodies such as fragments of clothing, and
even where there are multiple perforations of the
intestine, the wounds are small and often have a
tendency to close spontaneously. Abstinence from
food and drink, intracellular or rectal injections of
normal salt solution, and absolute rest to prevent
the breaking up of protecting adhesions, are the gen-
erally accepted principles of treatment. Added to
these, when there is reason to anticipate general in-
fection of the peritoneum, there are two procedures
which are in high favor in France, both of which,
however, originated with American surgeons. There
are the semisitting position of Fowler and the short,
buttonhole incision of Murphy below the pelvic arch

to secure thorough drainage, a relatively simple and
practicable field operation readily performed without
elaborate technic.

Rivalling abdominal wounds in fatality are injur-
ies to the head, and for these cases also, transporta-
tion to a distance and operative interference are
likely to be unfavorable. Penetrating wounds are
best treated by simple cleansing, removal of splin-
ters of bone and superficial foreign bodies, and the
application of antiseptic dressings. Probing or ex-
ploring the wound and elaborate decompression op-
erations are alike contraindicated. Wounds of the
thorax and lungs, if unattended by injury to the
great vessels, heal with astonishing rapidity and with
fewer complications than formerly. In general, in
modern warfare hemorrhage is a much less marked
feature than in the wars of a generation ago. On
the other hand, traumatic aneurysm is a dangerous
and more frequent surgical complication. The in-
juries produced by the new types of missiles, if not
immediately fatal, frequently heal quickly, and it is
not unusual for soldiers to rejoin their regiments
within two weeks after being wounded.

PHLYCTENULAR OPHTHALMIA.

A physician whose practice is largely confined to
well nourished children that live amid good hygienic
surroundings and play in the open air, may occa-
sionally see an efflorescence on the conjunctiva
which clears up after a dose of calomel and per-
haps a little yellow oxide ointment, and does not
recur. He cannot be blamed if he wonders why
so much is said about the serious dangers of phlyc-
tenular ophthalmia and its constant recurrences. It
is otherwise with the physician who deals with chil-
dren who live less hygienically. He sees recur-
rence after recurrence, ulcers or crops of ulcers
following each other until about the age of puberty
when, as a rule, they cease, but often leave eyes
with vision permanently impaired to lessen the
wage earning power. Quick to come, quick to go,
more or less quick to recur, phlyctenules do not
seem to amount to much until they break down in
ulcers on the cornea, and yet, as some one has said,
a phlyctenule on the conjunctiva may be an impor-
tant, one at the margin a very important, one on
the cornea an extremely important lesion in the
effect it produces on the future life of the patient.

It is hardly fair to say that we know no more of
this disease than we did forty years ago, consider-
ing the vast amount of time and research that has
been spent, yet we can scarcely state that we have
attained brilliant results. One question on which
opinion is now divided, is whether this ophthalmia
is tuberculous or not. Some say yes, basing their

belief mainly on the frequently positive reaction of the patients to the tuberculin test, the apparent result obtained from the tuberculin treatment, and the fact that in many cases concomitant tuberculous lesions can be demonstrated. Others say no, and point out that the reactions to tuberculin are for the most part obtained by von Pirquet's test, which is generally found to be positive in the majority of healthy persons, except very young children; that the treatment with tuberculin has not proved efficacious when dissociated from hygienic measures, and that the coexistence of tuberculous lesions is often wanting. Cogent proof is advanced by neither side. The force of the arguments advanced in behalf of the tuberculous theory at the recent meeting of the American Medical Association might be summarized in the opening words of one of its advocates, "guilty, but not proven." No one has ever detected the bacilli in a phlyctenule, and the nearest approach to a statement that the latter has a tuberculous structure was made by one of the speakers, who said that he had seen two or three cases of phlyctenular ophthalmia change into ocular tuberculosis; but such an observation loses its force when we remember what an extremely large number he had seen that had no such termination. It certainly is unfortunate for the theory if von Pirquet's test must be relied upon for evidence, for this simply shows that the body has been infected with tuberculosis at some time past, not that active tuberculosis is necessarily present, and even those who spoke in its favor admitted that the test is negative in a certain percentage of the cases. The question immediately arises whether that percentage is far from what would be expected from a test of healthy children of the same age, as, if it is not, the weight of the evidence would be greatly diminished. On the other hand, it is proverbially difficult to prove a negative, a task ably undertaken in this case by Doctor Theobald, who subscribes to the eczematous theory and believes the disease to be an endogenous infection from intestinal intoxication. He contends that the majority of his patients are not puny, but are well nourished and, while not presenting the stigmata of tuberculosis, have eczema elsewhere, often an eczematous nasal catarrh. Inquiry reveals that they are fed what children should not eat, are confined too much to the house, have furred tongues, torpid bowels, and foul smelling stools.

After all had been said, the most efficient treatment to prevent recurrences of phlyctenular ophthalmia remains a hygienic and dietetic regulation of the patient's life, beginning with a purge, and continuing with wholesome food, plenty of fresh air, sunlight, and active play. To this add codliver oil,

even if we cannot explain why it does good. A question that crosses the mind is whether this trouble is not indicative of a habit of body induced by intestinal intoxication that predisposes the tissues to tuberculous infection. In other words, were our fathers not right when they believed in a condition they called scrofula, which precedes rather than is caused by tuberculosis, and is amenable to hygienic and dietetic treatment before infection has taken place? After infection the bacilli can be found in the glands or elsewhere, though before infection they cannot be demonstrated, in spite of the presence of symptoms our fathers called scrofulous. The admission of the existence of such an intermediate condition between an endogenous autointoxication and a tuberculous infection that is favored by its presence, seems to open up a way in which conflicting theories as to the causation of this disease could be reconciled.

WHAT ICE IS SAFE?

It is only in this country that people are willing to take the risk of putting ice in direct contact with food and drink; ice is served with cold dishes in our best restaurants and the cheerful tinkle of the bell boy's ice pitcher is confined to the hotels of the United States. Hugh S. Cumming, of the Public Health Service, in *Reprint No. 213* of the reports, discusses the dangers associated with our use of ice, the greatest danger lying in its improper handling. After quoting the opinion of George C. Whipple, that the likelihood of infection from ice is small if decent care is exercised, Surgeon Cumming nevertheless summarizes the precautions that may well be taken, as follows:

1. Clear ice is, of itself, as free from the danger of conveying infectious disease as we need wish.
2. Dirty or cloudy ice may be dangerous. It should not be placed in water nor on food which is to be eaten uncooked.
3. There may be danger in eating iced foods or using iced drinks if the ice is improperly handled when placed in contact with the drink or food.
4. We may eliminate all danger by avoiding the handling of ice with dirty hands, by washing the ice with pure water, and by using only clear ice.
5. The average laboring person does not always have the opportunity, even if he has the inclination, to cleanse his hands after attending to those necessities of nature which require their use for purposes which almost inevitably result in their contact with excreta which may contain the organisms of disease, even in apparently healthy people.

It is therefore impossible to overestimate the danger resulting from the handling of ice by un-

known persons if the ice is placed in direct contact with drinking water. Consequently in hotels, cars, stations, and similar places where intelligent personal supervision is impracticable, those furnishing the water should be instructed, and indeed compelled by law, to adopt such means of cooling water as do not require direct contact of ice and water.

THE COSMIC EXTRAVAGANCE OF WAR.

Why the various governments involved are now waging the most prodigious armed conflict in all history, and what their miserable peoples, whether they will or not, are killing one another for, seems to be not much clearer now that it was when Southey wrote his famous poem about the battle of Blenheim. Indeed, it is epically mystifying. For have not preparations been making these several decades past, not for war—most certainly not, the world has been redundantly assured—but in order that war might be prevented. Thus, a year ago M. Yves Guyot computed that six great military powers were paying for armamentarium some two billions of dollars. Add to this money evaporation the loss of economic production through several millions of young men being withheld from the world's proper work for military and naval service; and the total cost (at the individual rate of \$400 annually) of the European forces making, not for conservation, but for destruction, exceeds three billions. Today, a year after these computations, who would put a limit to the number of billions that are going to be spent before peace is signed among the nations? All this is on the cosmically rational theory, now so brilliantly justified, that the more crushing and blood sweating the war taxes levied on the toiling masses, the less likelihood of international slaughter there would be.

Truly did Professor Sumner observe that what we prepare for, we shall get. An odd contrast is afforded by our relations with Canada. We hundred millions or so have not the slightest notion of flying at the throats of the men and youths among those eight millions or so across the border. There is not a fort along our three thousand miles of border much more formidable than a chicken coop, nor anything warlike on the Great Lakes nor on Lake Champlain, except a gunboat or two for the purpose of discouraging smuggling. And these vessels have cannon so antiquated that if they were fired off, they would very likely burst. Warfare is impossible with our Canadian neighbors; and the blissful condition is the result of our good neighbors and ourselves having prepared, not for war, but for peace.

And at this time, when nothing but "war stuff"

interests, does any one care to consider the paradox that the most precious thing in life is the cheapest in money, while the most criminally useless is the dearest? In modern warfare, up to the present conflict the cost of killing a man averaged \$15,000. In the Boer war it was \$40,000; in the Balkan dispute with Turkey it cost \$10,000—that much just burned up in making one wretched father or brother, or sweetheart or other breadwinner food for powder. On the other hand, Gorgas and his associates saved human life in Panama, which used to be the most pestilential region in existence, at the actual cost of \$2.43 the individual, five per cent. of the total cost of building the canal; while many thousands of the people in our southland have been cured of hookworm disease at something under seventy-eight cents the head.

INSECT CARRIERS OF DISEASE.

The mosquito is hunted from pool to pool, the wicked flea is crushed whenever caught, and the fly is "swatted" at every opportunity. But this trilogy of destruction by no means exhausts the list of insect carriers that have wrought ruin, from the decline of the Grecian people to the death of the pioneers in yellow fever investigation. Their track has been one marked by death, but now, thanks to the work of Manson, Carroll, and many others, we are learning how to control these carriers. At the same time it is implied that the diseases which they carry can be abolished. In our eagerness to slay these three forms of insect depravity, we have overlooked certain others that may be equally guilty. The bedbug has been under suspicion for a long time, although as yet nothing has been proved against him.

In the September number of the *American Journal of Tropical Diseases*, Wheeler draws up an indictment against some low forms of insect life that are practically ever with us. One of them, the cockroach, holds a position preeminent as far as antiquity of ancestry is concerned. Probably no other living creature can trace back an unbroken family tree for so many eons. Yet, to offset pride of family, there is evidence that places this insect in the class of those dangerous to human health. His presence indicates not only the absence of absolute cleanliness, but even more. The cockroach is a lover of filth, eats it and runs over it, with the result that on his legs can be found *Bacillus coli*, staphylococci, and bacilli of various kinds. In addition, experiments have shown that when fed on infected material it is easy to cultivate from the roach's feces such organisms as the bacillus of diphtheria, *Bacillus pyocyaneus*, pneumococcus, and

meningococcus in undiminished virulence. It is also quite probable that tuberculous sputum may be ingested and the bacilli widely disseminated in the feces.

Ants, also, are almost ubiquitous and are always ready to fall into food, particularly syrup and other sweet and sticky substances. Darling found that when ants were immersed in a broth culture of *Bacillus typhosus*, then permitted to crawl over filter paper within a Petri dish for five minutes, and afterward placed in a sterile dish lined with filter paper, they were able, even twenty-four hours after removal from the broth, to infect culture media by simply crawling over it. Then, too, the feeding habits of the ant show how infection might otherwise occur. They live on liquid food only, which is passed on to the "social stomach," from which it may be regurgitated easily. The dirt that is taken up with the food and from the cleaning of the body and legs of the ant is eventually cast out in the form of minute pellets. In many of these pellets are found numerous kinds of microorganisms and spores, so it can be appreciated readily how infection from the ant is possible. The ant may not be a sluggard, but her absence from a house is more to be desired than her presence.

To our list can be added the bee, as certain bees in the tropics have been found that will take up any strong smelling substance, from human excrement to crude oil, to use in making their honey cells. To prove the case, there have been instances where trouble has resulted from eating the honey, such as intestinal disorders and even death.

It is evident, therefore, that many members of the insect world must be looked upon with suspicion and not be taken into confidential family relations till their innocence has been proved beyond cavil.

THE ADRENALS AND URINARY SECRETION.

Ralph Horton communicates to the *British Medical Journal* for October 17th a remarkable account of the action of adrenaline. A lady of seventy-two years was confined to bed by sheer weakness and listlessness; repeated medical examinations revealed no disease, but it was found that the urinary secretion was only some ten to twelve ounces daily. A consulting physician diagnosed pure senile debility, and prescribed strong tonics, strychnine, etc.; improvement followed, but in an early relapse these drugs failed to resume their good offices. Several medical men then saw her, but nothing prevented the gradual decrease in strength and in amount of urine. The result of adrenaline prescribed by Mr. Horton was dramatic and staggering. In forty-eight hours the urine rose from five to forty ounces; in a few days the patient was up, and in a week was

out in a bath chair. The improvement continued after the lapse of some months, but the old lady continues to take adrenaline, for cessation at once causes renewed debility.

Sir Berkeley Moynihan, having come to the conclusion that excessive activity of the suprarenal glands is a cause of arteriosclerosis, has already suggested surgical measures depriving the gland of its blood supply and leaving it attached to the kidney by only a few strands of tissue.

MYASTHENIA GRAVIS.

Dr. R. Osborn Smith, in a communication on myasthenia gravis in the *Dublin Journal of Medical Science* for October, 1914, writes of the hopelessness of ordinary treatment, mercury, potassium iodide, strychnine, iron, arsenic, adrenaline, thyroid extract having all been tried in vain. Massage is useless and electricity is harmful. In one of Doctor Smith's cases, however, tuberculin was given with marked improvement of the symptoms, but the latter were confined to the eyes—ptosis and diplopia.

News Items.

American Medical Observer with the Austrian Army.—The Austrian army has been unusually liberal in permitting the presence of foreign military observers with her troops. The United States Army has three observers with the Austro-Hungarian troops, one of whom is a surgeon, Major Joseph H. Ford, of the U. S. A. Medical Corps.

Doctor Willson's Clinics on Diseases of Heart and Lungs.—Beginning with the first Friday afternoon in November and continuing throughout the winter on Friday afternoons from 5 to 6 p. m., Dr. Robert N. Willson will give in the amphitheatre of the Philadelphia General Hospital a series of demonstrations on diseases of the heart and lungs. These clinics will be informal and a cordial invitation is extended to physicians, as well as to undergraduate students.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, November 2d, Academy of Surgery, Philadelphia Clinical Association; Tuesday, November 3d, Wills Hospital Ophthalmic Society, Medical Examiners' Association, Philadelphia Laryngological Society; Wednesday, November 4th, Physicians' Motor Club (directors), College of Physicians, Lebanon Hospital Medical Society; Thursday, November 5th, Obstetrical Society; Friday, November 6th, Kensington Branch of the County Society, Southeast Branch of the County Society.

The Hospital for Deformities and Joint Diseases, on Madison Avenue, near 124th Street, New York, has issued invitations to the dedication of the new dispensary building at 41 and 43 East 123d Street, on the afternoon of Tuesday, November 3d, at half past two o'clock. The new building is six stories in height, with a basement, and is well equipped throughout with all modern appliances for the treatment of joint diseases and deformities, either congenital or acquired. On the top floor there are chemical and bacteriological laboratories for scientific investigation into joint conditions and their most efficient treatment. Dr. Henry W. Frauenthal is medical director of the institution.

Changes of Address.—Dr. Morell B. Deals, to 498 West End Avenue, New York.

Dr. David A. Singer, to 85 West 113th Street, New York.

Dr. Elizabeth Comstock, to 601 Madison Avenue, New York.

Dr. Bernard Kohn, to 526 West 111th Street, New York.

Dr. James E. Tytler, to 440 West End Avenue, New York.

Dr. H. Sheridan Baketel, to 570 Pacific Street, Brooklyn.

Philadelphia County Medical Society.—At a meeting of this society, held on Wednesday evening, October 21st, Dr. E. E. Montgomery was nominated for president. Other officers nominated were: First vice-president, Dr. Seneca Egbert; secretary, Dr. William S. Wray; assistant secretaries, Dr. William Penn Vail and Dr. Elmer E. Funk; treasurer, Dr. Edward A. Shumway; censor, Dr. Judson Daland; directors (three to be elected), Dr. William S. Newcomet, Dr. Edward Martin, Dr. J. T. Rugh, Dr. William E. Parke, Dr. P. Brooke Bland, and Dr. Robert N. Willson. The election will take place in January.

Tuberculosis Day.—By sermons, lectures, motion pictures, exhibits, and many other methods, the National Association for the Study and Prevention of Tuberculosis will enlist thousands of churches, schools, and lodges of the country in a simultaneous educational movement against tuberculosis during the week of November 29th. The campaign is to be known as the Fifth Annual Tuberculosis Day Movement. A special circular entitled *What Is Tuberculosis Day?* is being distributed. The plan of Tuberculosis Day, as explained in the circular, does not necessarily comprehend a special sermon on tuberculosis on November 29th. If a church, school, or lodge gives the subject attention in any way during that week, this will help in the national educational movement.

Outlines for lectures or sermons on tuberculosis and "stock" talks on this subject will be furnished free to ministers and others who can use them. Literature for distribution in the churches, schools, lodges, and elsewhere will also be given away. Persons wishing such literature, either for the preparation of sermons or talks on tuberculosis, or for distribution in public meetings on Tuberculosis Day, should get in touch with their local antituberculosis society, or if that is not possible, with the National Association for the Study and Prevention of Tuberculosis, 105 East Twenty-second Street, New York.

Personal.—Dr. Elinor Van Buskirk, of 605 West 111th Street, returned recently from a vacation spent in Glacier Park, Yellowstone Valley. Doctor Van Buskirk is assistant to Dr. Walter Gray Crump in the surgical department of the New York Medical College and Hospital for Women, and is also adjunct professor of the practice of medicine in the same institution.

Dr. Mihran B. Parounagian, of 133 East Twenty-ninth Street, New York, presented a series of fifteen dermatological and syphilitic cases of unusual interest at the eighth annual meeting of the First District Branch of the Medical Society of the State of New York, held in the Hotel Martinique, New York, on Thursday, October 8th.

Dr. Simon Flexner, director of the laboratories of the Rockefeller Institute for Medical Research, received from Brown University the honorary degree of doctor of science on the occasion of the one hundred and fiftieth anniversary of the founding of the institution.

Dr. H. H. Whitcomb, of Norristown, Pa., has been elected a member of the board of directors of the Medical Club of Philadelphia, to succeed Dr. E. H. Duer, resigned.

Dr. George F. Beasley, of Lafayette, Ind., was elected president of the American Association of Railway Surgeons, at the annual meeting of the organization held recently in Chicago.

Dr. Elwood R. Kirby, of Philadelphia, has been appointed chief consulting surgeon to the group of institutions comprising the Masonic Home at Elizabethtown, Pa.

Dr. George H. Whipple, formerly associate professor of pathology at Johns Hopkins University, has assumed his new duties as director of the George Williams Hooper Foundation for Medical Research, at the University of California. This foundation was endowed by Mrs. Sophronia T. Hooper, of San Francisco, who gave to the university more than a million dollars for the purpose. Other appointments made to the foundation are, Dr. Karl Friedrich Meyer and Dr. Ernest Linwood, associate professors of tropical medicine, and Dr. Charles W. Hooper, fellow in research medicine.

Dr. Paul B. Clark, of the Rockefeller Institute for Medical Research, has been appointed associate professor of bacteriology in the University of Wisconsin, succeeding Dr. Mazyck P. Ravenel, who has accepted a position in the University of Missouri.

Dr. Joseph C. Bloodgood, of Baltimore, associate professor of surgery in the Johns Hopkins Medical School, read a paper on Cancer Control at a recent meeting of the Associated Physicians of Montclair and Vicinity.

Red Cross European War Fund.—Contributions amounting to nearly three thousand dollars were received on Tuesday, October 27th, by the treasurer of the New York State Board of the American Red Cross Society for the European war fund, making the total amount received up to that date \$286,705.07. On Monday, October 26th, \$65,000 was forwarded by cable to American ambassadors for relief work in Great Britain, France, Germany, and Austria. The American colony in Petrograd has established a small hospital in that city, and for that institution also supplies will be sent. Contributions to the fund for the American Ambulance Hospital in Paris amounted to \$105,248.14 on October 27th.

South Texas District Medical Association.—The thirty-sixth semiannual meeting of this association was held in Galveston on Thursday and Friday, October 8th and 9th, under the presidency of Dr. E. F. Cooke, of Houston. An interesting program was presented, among those taking part being Dr. C. C. Bass, of New Orleans, Dr. Walter Shropshire, of Yoakum, Dr. Frank Paschal, of San Antonio, Professor P. W. Horn, superintendent of the Houston city schools, Dr. James J. Terrell, of Temple, Dr. I. H. Kahn, of San Antonio, and Dr. Frank D. Boyd, of Fort Worth, president of the Texas State Medical Association. Next year's meeting will be held in Victoria. Officers were elected as follows: President, Dr. M. F. Bledsoe, of Port Arthur; vice-president, Dr. A. E. Malsh, of Victoria; secretary and treasurer, Dr. W. F. Thompson, of Beaumont, reelected.

Pediatric Societies to Hold Joint Meeting.—A joint meeting of the Philadelphia Pediatric Society, the New England Pediatric Society, and the Section in Pediatrics of the New York Academy of Medicine will be held at the New York Academy of Medicine on Thursday evening, November 5th. The following papers will be read and discussed: Experimental and Clinical Studies in Hemolytic Jaundice, by Dr. Edward B. Krumbhaar, of Philadelphia; Acute Acid Intoxication in Infants and Children, a Study of One Hundred Consecutive Cases in Apparent Epidemic Form, by Dr. Carleton R. Metcalf, of Boston; The Occurrence and Significance of Mellituria in Infants Suffering from Nutritional Disorders, by Dr. Oscar M. Schloss, of New York. Doctor Krumbhaar's paper will be accompanied by a lantern slide demonstration. Arrangements have also been made for visits to the Infant Welfare Experiment Station, to the Research Laboratory of the Department of Health, to the Measles Pavilion, to the Rockefeller Institute for Medical Research, and to a clinic by L. Emmet Holt.

Mortality in New York for the Week Ending October 24th.—The most noteworthy feature was the considerable increase in the number of deaths reported from epidemic cerebrospinal meningitis, there having been ten deaths reported against one in the corresponding week of 1913. This increase was most noticeable in the Borough of Manhattan, eight deaths against one in 1913.

Reviewing the course of epidemic cerebrospinal meningitis for the past thirty-five years, it is noticeable that the intervals between the high points of mortality are about eleven years. In 1881-82 occurred the first considerable increase in mortality. It appeared in a severe epidemic in 1892-93, and in 1904 and 1905 a tremendous high wave of mortality occurred, the deaths reported in the two years reaching almost the unprecedented figure of 3,000. It is probable that the increased mortality during the past week may be a forerunner of an approaching epidemic.

This infectious disease, which is due to the infection by *Diplococcus intracellularis*, has been effectively treated by the use of antimeningitic serum, prepared by the laboratories of the department of health and supplied free to the people of this city. Since this serum has been used, the mortality is less than half of what it formerly was. The other infectious diseases showed little variation from their course in previous years.

Viewed from the point of age grouping, the number of deaths of infants under one year was 39 less, from one to five years 15 less; 80 more between fifteen years and sixty-five years, and 22 more at sixty-five years and over. This increased mortality in the adult life was evidenced by an increase in the number of deaths from organic heart disease and all forms of tuberculosis.

The death rate for the first forty-three weeks of 1914 was 13.65 per 1,000 of the population against 13.93 during the corresponding period in 1913.

Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

July 27, 1914.

Further Investigation of Ultraviolet Light.—

E. Friedberger previously showed that the exposure of vaccine virus to these rays would completely destroy all contaminating organisms, leaving the virus unaffected. In the present communication he shows that ultraviolet light destroys amboceptor in serum, and the rate of its destruction can be hastened by dilution of the serum. The intensity of its action is modified by the presence of albumin and by the concentration of the antibodies. When the serum is fractioned the antibody in the clear globulin fraction is destroyed more rapidly than that in the albumin fraction. Complement is also destroyed in serum, and equally readily whether the salt content of the serum is raised or not. Further, when the complement is dried it is found to resist almost completely the destructive action of the rays. When it is separated into middle and end pieces, the end piece is more resistant than the middle fragment. Exposure of trypanosomes for five minutes, or even ten, did not destroy their motility, but they were no longer capable of infecting mice. Mice treated with such trypanosomes did not acquire immunity to later infection. Twenty minute exposures destroyed the trypanosomes. Although bacteria are killed easily by the light when suspended in salt solution, they resist this action when they are present in urine. But when certain photodynamic dyes are added to the urine in dilutions ranging from one to 100,000 to one to 1,000,000, they are readily killed by exposure to the light. Eosin, malachite green, fuchsin, etc., were found to be the most effective in this respect. Serum also resists the destructive influence of the light on contained bacteria. The organisms in the buccal cavity may be destroyed by direct radiation with ultraviolet rays, but this is slow and unsatisfactory, whereas, if the cavity is simultaneously sprayed with a dilute solution of one of the dyes, the destruction is rapid and complete.

August 3, 1914.

The Organism of Typhus.—Marcus Rabino-witsch describes a Gram positive diplobacillus, the individuals of which usually lie with their long axes parallel, but which may be found in the form of tetrads, or lying longitudinally. With Loeffler's methylene blue they stain like diplococci, with simple anilin dyes homogeneously as rods, and with Giemsa's stain as rods with a clear middle portion and heavily stained poles. The author found these organisms regularly in the different organs of fatal cases of typhus, in the blood stream, sectioned blood clots, and in centrifugated serum. He cultured them from the venous blood of patients in pure strains, and found that the cultures were agglutinated by the serum of other cases. Extracts of these cultures showed complement fixation with serums of convalescent cases. The blood of active cases, as well as pure cultures, were virulent for guineapigs, and the incubation period for any given

strain was constant, though different strains differed in this respect. The organisms could be obtained in pure culture from the blood of the infected animals. Recovery from the infection in guineapigs was followed by immunity. Young pigs (swine) could also be infected and these showed a marked exanthem. The virulence of the organisms could be destroyed by heating to 60° C., and, lastly, the organisms gave characteristic cultural phenomena.

DERMATOLOGISCHE WOCHENSCHRIFT

September 19, 1914.

Fatal Case of Syphilitic Meningitis.—Theodor Fahr reports that a strong, well nourished man aged twenty-five years died of syphilitic meningitis nine weeks after he had chancre. Autopsy revealed a maculopapular syphilide, syphilitic meningitis, edema of the lungs, swelling of the peripheral lymphatic glands, perihepatitis, splenitis, infarction of the spleen, engorgement of various organs, and partial lymphoid transformation of the bone marrow. Spirochætæ were found abundantly, not only in the infiltrates in the meninges, but also between the blood corpuscles in the bloodvessels.

September 26, 1914.

Cerebrospinal Fluid and Nervous System in Secondary Syphilis.—Udo Julius Wile and John Hinchman Stokes conclude: 1. A large part, sixty-three per cent., of all patients examined in the secondary stage of syphilis presented signs in the fluid of an affection of the central nervous system. 2. It may be supposed that this figure does not embrace the entire number from whom a reaction on the part of the nervous system may be obtained. 3. The absence of symptoms of meningeal reaction in any one examination cannot be accepted as a final proof that the central nervous system is unaffected. 4. Lymphocytosis, increased content of albumin and globulin, and positive complement fixation test may be present either alone or in varying combinations with the others, and in each case is indicative of involvement of the central nervous system. 5. A comparison of this high percentage with the relatively small percentage of late affections leads necessarily to the conclusion that this early process is, as a rule, short lived. 6. Cases with papular and follicular lesions of the skin are particularly liable to this early involvement of the central nervous system. 7. Marked subjective symptoms, like headache, sleeplessness, and nervous irritability, lead one to expect a positive finding in the fluid. 8. On the whole those cases that have been treated insufficiently or not at all show a higher percentage of involvement than those which have been treated energetically. 9. Affections of the central nervous system are found in relatively greater numbers in those cases that show a considerable disturbance of the general condition. 10. The most frequent sign of a meningeal reaction is the increase of the content of albumin and globulin, while Wassermann's reaction takes the second place and lymphocytosis the last. 11. The value of lumbar puncture in cases of secondary syphilis can scarcely be overestimated as a diagnostic aid and occasionally as a guide in prognosis.

WIENER KLINISCHE WOHENSCHRIFT

October 1, 1914.

Modern War Surgery.—A. Fraenkel states that primary infection of gunshot wounds, due to tetanus bacillus, is seen in war as in peace. It is remarkable that so little of it is seen on the battlefield, as here there is more likely to be contamination with the soil, manure, etc. It is hard to determine which are clean wounds, or which are infected from the beginning, as by the time they reach the hospital they may have traveled several days, at times without being bandaged, and may have been exposed to all sorts of infection. The great majority of these cases clear up under antiseptic treatment and the results are indeed gratifying. Pneumothorax may develop with very little local or general disturbance. Gunshot wounds of the abdomen seem to do best if not operated on at once, but if allowed to wait until a circumscribed abscess forms. On the other hand, gunshot wounds of the brain should receive early attention. Holbeck is of the opinion that tangential gunshot wounds of the skull should be operated on as soon as possible. In his work on this subject, the result of observations during the Russo-Japanese war, he points out that in cases that were operated in early the mortality was only fourteen per cent., while those that were operated in later showed a mortality of forty-nine per cent. The cases that were operated in early had the advantage of having to be transported only a short distance and then remained for a long time in a hospital. He thinks, however, that even if the cases were allowed to remain quietly in a hospital for some time and were operated in later, the results would not be so good. Early in 1913, the author reported four cases of tangential wounds of the skull which he had operated in after they had been lying on the battlefield for at least twenty-four hours and had made a three day trip to the hospital. All of the four cases resulted in cures. He had occasion to witness an autopsy performed in a case in which a prophylactic operation had been done. The autopsy showed a diffuse purulent meningitis originating from the wound made at the time of operation and on the opposite side of the brain there was an encapsulated hematoma which showed beginning infection, the result of the prophylactic operation. In view of these facts no rule can be laid down as to primary and secondary operations and every case has to be decided for itself. As a result of his observations he concludes that the present war has taught us nothing new in war surgery and that probably the best plan is to interfere as little as possible.

Infectious Diseases in Vienna from 1901 to 1910.—Rosenfeld found that, taking the averages computed for ten year periods, there are more cases of measles and meningitis among the male population than among the female; also that deaths from these causes are more frequent in the male sex. Males are more susceptible to varicella and parotiditis. On the other hand, erysipelas, German measles, and pertussis are seen more in females. Diphtheria and scarlet fever show the greater number of deaths in the male, although the greater number of cases occur in the female. In typhoid there are more deaths among the female, although the num-

ber of cases is alike in both sexes. The figures show that pertussis, erysipelas (with the exceptions of the ages from forty-one to forty-five and sixty-one to sixty-five), and German measles (with the exception of the ages from sixteen to twenty-nine) affect females more than males, and that this is also true of scarlet fever, diphtheria, and varicella after the fifth year and of measles after the tenth year. In typhoid there is no great difference, excepting that between the ages of two to five years it is more frequent in the male and between twenty-one to thirty it is more frequent in the female. Deaths occur more frequently in males than females as the result of erysipelas from the thirtieth to the sixty-fifth year; or diphtheria and measles up to the fifth year; of scarlet fever up to the tenth year; of typhoid from the twenty-sixth to the fortieth year. In females deaths are more frequent as a result of pertussis up to the fifth year; of erysipelas up to the fifth and after the seventieth year; of measles and diphtheria from the sixth to the tenth year, and of typhoid fever from the eleventh to the twenty-fifth year. The statistics help to show in what ages males and females are more likely to become infected with a certain disease. In looking for the explanation of the fact that at certain ages some of the infectious diseases are seen more frequently in one sex than in the other it was discovered that the difference was for the most part due to the varied exposure to infection.

ZENTRALBLATT FÜR INNERE MEDIZIN.

July 11, 1914.

Treatment of Diabetes with Diabeteserin.—M. Wolfheim considers that the vagus plays a not inconsiderable role in the etiology of diabetes. Injury to the vagus centres, as in Claude Bernard's puncture of the fourth ventricle, produces a disturbance in the hepatic circulation followed by glycosuria. Arteriosclerosis, with resulting circulatory disturbances, is often an etiological factor in diabetes. Diabeteserin, containing the alkaloid eserine and salts of Trunczek's serum, is recommended by the author, on theoretical considerations as well as on clinical experiences, as rational and effective in certain diabetic cases. Eserine exerts a tonic effect on the vagus; salts of Trunczek's serum have for some years been used under a variety of appellations in arteriosclerosis, with favorable results. Wolfheim reports eight cases in which diabeteserin was given. In some, dietetic treatment was simultaneously applied, but in the majority the effects of diabeteserin were clearly apparent after dietetic measures. Glycosuria was greatly reduced or entirely removed and other symptoms were markedly relieved; these effects showed a tendency to persist, after the remedy had been discontinued. In cases with chronic constipation a modified diabeteserin containing a small amount of atropine was used.

BRITISH MEDICAL JOURNAL.

October 10, 1914.

Tetanus.—Alfred MacConkey thinks tetanus antitoxin of inestimable value as a prophylactic or curative agent. The essential thing is its prompt administration after infection. The diagnosis must

be made as soon as possible, but as there are no pathognomonic symptoms before muscular rigidity, this is difficult. One or more of the following premonitory symptoms have been found to occur in every case: General restlessness, changing suddenly to a desire to rest and coming on a day or so after infection; sleeplessness with distressing dreams, or nightly delirium; temporary vertigo, violent headache, and excessive yawning; anxious facial expression, trembling of the tongue; vesical spasm causing difficulty in micturition, lasting a few minutes to half an hour; profuse sweating, and darting pains in various parts; a feeling of chilliness, some swelling locally, but without redness, and throbbing of the arteries of the injured member even when elevated; and, lastly, slight jerking after pressure on the flexor tendons, with increased irritability of the flexor muscles. The appearance of one or more of these symptoms with an accompanying dirty wound is sufficient to warrant the immediate administration of large doses of the antitoxin.

Treatment of Syphilis.—J. E. R. McDonagh holds that the parasite as usually seen is the adult male in a complicated life cycle, in which there are spores. The spore is the cause of the disease, the adult sexual forms of the symptoms. Salvarsan is capable early in the infection of preventing the parasite from completing its life cycle and of killing the spores. Later it is unable to destroy the spores, killing only the adult forms. Most cases of primary syphilis, in which salvarsan was given over four years ago, are still clinically and serologically sound, but the majority of similar cases in which two injections of the drug were given have manifested symptoms since. The commercial drug is less active than the original samples sent out directly from the laboratory. The fewest recurrences have been obtained only by giving enough doses to secure a negative Wassermann reaction in the blood taken between the seventeenth and forty-eighth hour after injection, and then instituting mercurial treatment for one year. In secondary stages it is wiser to continue the mercury for two years. Injections of salvarsan should be repeated at not less than seven day intervals; every four days is preferable. Neosalvarsan is to be preferred to salvarsan on account of its lesser toxicity and the greater safety in repeating the injections at four day intervals. The author has given over 4,000 injections of this preparation, mostly to outpatients who have gone home immediately after the injection, and he has never seen any ill effect. Cases of meningeal syphilis should be given two intrathecal injections of salvarsanized serum and should then be treated as cases of secondary syphilis.

Treatment of Lupus.—Norman Walker says we have almost no good method of treating lupus. His records cover 1,054 cases, and of these not 100 have been cured. The duration of the cases in this series before they presented themselves for treatment varied from four weeks to over fifty-one years. The proportion of lupus cases to all cases admitted to the Royal Infirmary was 3.3 per cent., while among about 20,000 private cases, 1.4 per cent. had lupus. Most of the private patients remain under supervision until they recover, most of the hospital pa-

tients fail to do so. Recovery in the private cases is not due to a difference in treatment, but to their better hygienic surroundings and to better understanding of what lupus means. Of the methods of treatment which should be considered favorably, Walker mentions curettage; application of powdered nitrate of uranium after scraping; Unna's salicylic creosote plaster in superficial cases; acid nitrate of mercury, or trichloroacetic acid; local application of a five per cent. tuberculin ointment; and the injection of rapidly increasing doses of tuberculin. The x rays have given good results, but they are followed so frequently by cancer, that they must be abandoned, at least as a routine measure.

Rationale of the Wassermann Reaction.—J. E. R. McDonagh holds that this reaction is not specific; it is physical, and in ordinary circumstances, syphilitic serums have the necessary physical properties. Normal serums, however, can readily be made to possess them. Any modification of the reaction, such as the addition of cholesterol, etc., increases the tendency of normal serums to give a positive reaction. An increase in the size of the protein molecule, a preponderance of lipid atoms in the lipid globulin complex, a breaking down of the large lipid globulin molecule into several smaller ones, and an excess of fatty and amino-acids may be responsible for a positive reaction. McDonagh says: "These various factors may be at work without the observer's knowledge, and they cannot be prevented or differentiated; therefore it must be wrong to state that a positive Wassermann reaction is indicative of syphilis. Neither can a negative reaction be regarded as excluding syphilis, since the presence of a free aminoacid or fatty acid group can prevent what would otherwise be a positive serum from reacting. It is also fallacious to believe that a positive reaction indicates the presence in the body of spirochetes, because this would imply the existence of a ratio between the positivity of the reaction and the number of spirochetes present. As a matter of fact, the most positive reactions have been obtained in those conditions in which no spirochetes were present."

LANCET

October 10, 1914.

Pathology of Heart Function.—Thomas Lewis contends that we have no direct knowledge of disordered "rhythmicity," "conductivity," etc., in the human heart, using these terms in their special senses. Turning to a discussion of the basis of certain of the disturbances of the heart action, Lewis gives three chief ways in which heart block may be produced: 1. By direct interference with the conducting tracts. 2. By stimulation of the vagus nerve. 3. And by the introduction of poisons into, or by altering the metabolites of the circulating blood. From the facts at hand he concludes that persistent heart block of high grade is invariably the result of a local tissue damage, or that there is some cause with which we are as yet totally unacquainted. It is possible that our present histological methods are still too imperfect to demonstrate lesions present in some cases. The evidence supports the conclusion that heart block, produced in one of the three ways mentioned, is

conditioned by interference, be it through direct nervous or chemical channels, with the auriculo-ventricular conducting mechanism, and especially with the auriculoventricular node and bundle. From facts presented Lewis argues that all forms of premature contractions, from the single premature beat and the short runs of such beats to paroxysmal tachycardia, auricular flutter, and auricular fibrillation, have the same essential pathology, the simplest expression of which is the isolated premature contraction. But to this argument Lewis adds that he believes the view to be open to discussion. If his theory is true he points out that it will offer the key to the solution of some of the most important problems in cardiac pathology when the cause of the single extrasystole is discovered. The most remarkable feature of the extrasystole is that it is premature, occurring long before the normal beat is to be expected. It is obvious that it cannot be due to the same process which prepares the heart muscle for a normal contraction. It is also evident that the process which prepares the heart for the extrasystole is abrupt, and analogous to an electrical shock. Another distinctive characteristic of the extrasystole is its lack of tendency to be rhythmic. It is almost always isolated, and being followed by an abnormally long interval there is ample opportunity for its repetition, but this almost never occurs. Extrasystoles are most frequently seen in conditions of malnutrition or poisoning of the heart muscle, and there is no relation demonstrable between the heightened activity of physiological heart rhythms and the occurrence of such extrasystoles. On the contrary, influences which depress the one often favor the other, an example being the action of potassium chloride, which depresses natural impulse formation and provokes the appearance of extrasystoles. The reaction of the heart nerves, particularly the vagus, is different, when extrasystoles are concerned, from that in normal circumstances. Vagus stimulation either causes no effect on extrasystoles or it stops them abruptly. Extrasystoles can be shown to arise from portions of the heart other than the natural rhythmic centres. With regard to the role of the heart nerves in the production of extrasystoles, Lewis holds that abnormal nerve impulses playing upon a normal heart are not capable of causing extrasystoles, but that nervous impulses acting upon a hypersensitive or irritable heart may provoke them. Given such hypersensitiveness, the action of sympathetic influences is capable of enhancing the conditions and the disturbance resulting in extrasystoles follows. At the present time we are not warranted in carrying our conclusions farther.

BRITISH JOURNAL OF DERMATOLOGY.

April, 1911.

Recurrent Bullous Eruption.—W. Knowsley Sibley reports a case in a patient aged sixty-three years, which was suggestive of epidermolysis bullosa. Her history in brief was as follows: About thirty years ago, she received an injury followed by hemorrhage and a bullous lesion. These bullæ have recurred, as have also the hemorrhages. About ten years ago she had a horny growth which was removed.

Pityriasis rosea.—E. G. Graham Little, after reviewing briefly the historical data of the disease, enters into a discussion of its etiology. He discusses this affection in relation to the exanthemata, and the points of dissimilarity. He mentions *Microsporon dispar* as of possible etiological importance. This disease, according to the statistics of the author, seems to be more prevalent in the later part of the year. This disease is as common in the male as in the female sex, and occurs most often in youth. Two types are recognized, the macular and the circinate. Among the important features may be mentioned: 1. The disease begins on neck and spreads over the body; 2, the existence of a primary patch; 3, the scales are wrinkled, showing their superficial nature; 4, the patches have a tendency to clear in centre, and they follow the lines of the ribs; 5, the disease is self limited, lasting about two months, and is uninfluenced by treatment.—J. J. Pringle reports a case of *xeroderma pigmentosa* with extensive carcinomatous masses which was treated with excellent results by massive radium doses introduced into the substance of the growths. As result of the radium treatment, the following results were manifest: Great reduction in size of ulcerated area; almost complete subsidence of induration; remarkable diminution of the pigmentation.

June, 1911.

Epidemic Alopecia areata.—Haedin Davis refers to an epidemic of alopecia areata, which he observed in an orphanage. The patches were not absolutely typical; they showed small stumps of hair which were rather difficult to extract. Examination of the hair, and scrapings of the scalp failed to show the ringworm fungus. The condition yielded rapidly to the application of iodine liniment. The author suggests either some toxic substance, or some form of organism, as yet unknown, as probably the etiological factor.

July, 1914.

Mycosis fungoides.—Sequeira states that in this disease we find two types of cells; one large, containing a large oval nucleus with little nucleoplasm and several nucleoli. The family staining cell plasm is drawn out into fine threads and there are two smaller cells resembling the first structurally. Giant cells are seen. Mast and plasma cells are not numerous. Mycosis fungoides may commence as an intense pruritus, or as an eczema, psoriasis, lichen, dermatitis herpetiformis, or a seborrheic dermatitis; or as an erythrodermia. This primary period is succeeded by the tumor stage. The blood shows nothing characteristic. The cause of death is general asthenia with intercurrent diarrhea. Prognosis is not favorable. X ray offers best hope in treatment. Authorities seem to favor the following conclusions: 1. Mycosis fungoides is a disease *sui generis*, probably due to a specific virus. 2. Often it is possible to make a diagnosis in the premycotic stage, either clinically or pathologically, but more commonly by both means combined. 3. Sex has no influence; it is a disease usually of middle age. 4. It is to be differentiated from eczema by its extreme itching, its chronicity, its sharp circumscription, by the fact that the edges are con-

cave, and that islands of healthy skin may be seen in the diseased patches. 5. There is no fixed blood picture; the histology of the disease varies in its different stages. 6. X ray offers the best hope, and while we cannot expect a cure, it may relieve the patient considerably in the later stages of the malady and possibly hold it in check in the early stages.

BOSTON MEDICAL AND SURGICAL JOURNAL.

October 15, 1914.

Management and Treatment of Obscure Arthritis.—H. W. Marshall says that obscure arthritis is perhaps treated now only a little better than twenty years ago, although hundreds of new remedies have been proposed and information relating to chronic joint disease has accumulated enormously. Each measure suggested has its successes and failures; the proportions of good and poor results do not differ very greatly. Many practitioners and patients still are in search of specific new remedies and avoid the more difficult understanding of joint diseases. A second obstacle is the assumption that no mistakes will be made if all the needed data and remedies are at hand; any single important defect or omission in treatment may transform a brilliant result into a dismal failure. For example, patients are admitted to hospitals where the cases are studied and accurate diagnoses made; they are then sent back to their homes, where the conditions in which they live are poorly understood and often mean inadequate care; thus the visit to the hospital has been wasted. Sometimes it is possible to find simple defects in personal hygiene that have been overlooked, the correction of which permits a return to health. All chronic cases cannot be treated in large institutions, so the study of possibilities of home treatment is likely to be one of the important lines of progress in the future. The author discusses sanely the difficulties of single consultations, consultation fees, divided responsibilities, and the peculiarities of human nature. A very prevalent mistake, when progress is not being made as it should be, is to search for some new kind of treatment and to forget quantitative defects. Appropriate remedies may have been used for too long or too short periods of time, or with too long or too short intervals, or in too small or too large doses, and such an error may be responsible for failure. The lack of appreciation of this he considers a very important obstacle to progress that is overlooked because of its uninteresting and commonplace nature.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

October 17, 1914.

Anociassociation in Relation to Operations on the Gallbladder and Stomach, by G. W. Crile.—This paper was abstracted in our issue for July 4th, page 43.

Experimental Surgery of the Heart, Lung, and Trachea, by A. Werelius.—This paper was abstracted in our issue for July 4th, page 43.

A New Method of Treatment of Lupus vulgaris, by M. L. Heidingsfeld.—This paper was abstracted in our issue for July 4th, page 51.

The Use and Abuse of the Tonsils, by J. H. Comroe.—This paper was abstracted in our issue for July 4th, page 49.

The Influence of Starch on Infant Digestion, by T. S. Southworth.—This paper was abstracted in our issue for July 4th, page 49.

Nervous and Mental Disturbances Following Castration in Women.—Alfred Gordon observes: These disturbances, of a purely functional nature, are somatic and psychic. The psychic manifestations do not constitute any of the well established classic forms of psychasthenia. True insanities are not disclosed. The symptoms generally observed are restlessness, with a tendency to move from place to place; difficulty of self control; dissatisfaction with all and everything; difficulty in finding contentment in one's own efforts; want of interest in all absorbing subjects and objects; indifference, indolence, and pessimism. Sometimes there are outbreaks of anger with a tendency to attack. Among other symptoms may be mentioned insomnia, gastrointestinal disturbances of a functional nature, headache, vague pains of paresthesias, and occasionally glycosuria. In some patients there is a tendency to obesity. The logical conclusion seems to be that one must be very cautious in advising operative procedures on the generative organs, and the tendency should be to preserve as much as possible of any amount of normal tissue found in the uterus or ovaries. No operation should be advised on healthy organs if a woman complains of vague nervous disturbances.

Primary Carcinoma of the Lung.—B. M. Edlavitch concludes: 1. This condition is a distinct pathological and clinical entity, and by no means as rare as generally supposed. 2. The group of symptoms to be regarded with suspicion are progressive dyspnea, persistent cough, hemoptysis, pain, weakness, loss of weight, and pressure or metastatic effects. 3. Signs of solidification of the lung, hemorrhagic pleural effusion, tachycardia without fever, and absence of tubercle bacilli in the sputum are the significant objective findings. 4. A diagnosis on these clinical phenomena may be established by the use of the Röntgen ray, the bronchoscope, or thoracotomy. 5. Resection of the affected parts by radical procedure should be attempted in every operable case. 6. Radioactive emanations may prove to be of therapeutic value, and, if possible, can be given a thorough trial whether surgery is resorted to or not.

The Relation of Heat to the Morbidity and Mortality of Infants from Gastrointestinal Diseases.—H. F. Helmholtz believes that it is a matter of improper adjustment of the individual to its surrounding temperature, rather than the height of the temperature, which helps to swell the total of gastrointestinal deaths during the summer. Our aim must be to educate mothers to a realization that, as infants must be kept warm in winter, so must they be kept cool in the summer.

Percussion of the Lungs.—N. K. Wood presents the following conclusions: 1. Present methods of percussion are of little value, because, far from having any universal standard of dullness, there is not, in most instances, even an individual standard. 2. The following is offered as definite and easily acquired: Normal resonance is F to F sharp below middle C; one line dullness, or impaired resonance, is A below middle C to middle C; two line dullness,

or definite dullness, is E flat to F above middle C; three line dullness, or very marked dullness, is B flat below intermediate C to intermediate C; four-line dullness, or flatness, is E to F above intermediate C. 3. No intelligent idea of diagnosis, prognosis, or the underlying pathological condition can be formed by percussion, without some such definite standard. 4. This standard can be acquired readily by the ear and by the muscle sense of both hands, measured by the force of the plexor blow and the resistance under the pleximeter. 5. Upward percussion is an absolute essential of correct work. The old method of downward percussion should be discarded.

MEDICAL RECORD.

October 17, 1914.

Infectious Diseases and Disinfection.—A. H. Doty says: "We must remember that there are no sane means by which absolute safety can be secured; therefore our efforts should be to secure the greatest protection through measures which are reasonable and practical. This is modern sanitation. The initiative in this important advance must come from public health authorities, for it would not be advisable for physicians in private practice to abandon room disinfection, or the use of germicidal agents in other directions, unless such action has not only the approval but the cooperation of health authorities. In some sections of the United States this has already taken place, with the most satisfactory results." In his opinion it is entirely justifiable, without further evidence, to abandon room disinfection in the case of diphtheria, measles, and scarlet fever, and recognize that it is the discharges in these diseases which constitute the media of infection and which call for the most prompt and careful attention. In the past, so far as prevention is concerned, we have worked on the wrong end of infectious disease, for as a preventive measure the destruction of the discharges and constant cleanliness have been subservient to terminal or room disinfection, which is of very doubtful value. It is unnecessary to refer to the importance of disinfection in connection with the treatment of infected discharges, but beyond this the practical value of germicidal agents is entirely overestimated. Besides, this unwarranted confidence in them goes far to mask the inestimable value of cleanliness. Modern sanitation requires that filth and dirt shall be removed and not treated. This applies equally to the ice box, kitchen, workshop, school, or public conveyance, and can be properly accomplished only by the free and constant use of soap and water and scrubbing the nooks and corners. The method also teaches the public that cleanliness is an exceedingly important sanitary measure, which, if properly carried out, goes far to aid public health officials in the prevention of disease.

Chronic Mucous and Membranous Colitis.—G. M. Linthicum employs fuming crystal iodine, or an iodine salt. The apparatus consists of a 500 c. c. Florence flask with a double perforated stopper connected with pressure tank or bulb on one side, the glass tube entering into and extending to about 2.5 cm. from the bottom of the flask, an exit being provided by a right angle glass tube with its

inside end close to the top. The exit is connected with a short glass tip by a rubber tube about twenty-five cm. long. The patient, if a man, is placed in the knee chest position (if a woman, in the Sims position) and, a proctoscope having been introduced, the gas is blown through it into the bowel until the patient complains of cramps or considerable distress. It is then allowed to escape, and the insufflation repeated until the vapor from two grams of iodine crystals, or 1.5 gram of iodoform, has been used. The iodine is vaporized by means of a small electric stove, placed under the flask; though a Bunsen burner or an alcohol lamp may be employed. The proctoscope may be dispensed with, though it is of service in aiding dilatation. For the first ten days this treatment is given daily, and then less frequently.

Diagnosis of Typhoid Fever.—G. A. Rueck states that the most scientific and accurate way of making an early diagnosis is by means of a blood culture demonstrating the presence of *Bacillus typhosus*. The diagnostic agglutination reaction commonly known as the Widal test rarely appears before the beginning of the second week, and is therefore a late indication of typhoid. A diagnosis of typhoid pneumonia, of a double infection due to the typhoid bacillus and the malaria parasite, should not be made unless they are demonstrated by laboratory tests.

Syringomyelia.—H. V. Wildman, Jr., thus describes the characteristics of Morvan's type in a lad aged seventeen years: A marked stoop, due to weakness of shoulder and back muscles, a well developed scoliosis to the left, arms abnormal, right hand and arm atrophied, with loss of muscular power. The left hand had lost the distal phalanges from thumb and first and second fingers, was reddish, swollen, and slightly edematous; shoulder muscles paralyzed on left side, and the limb practically useless; no dissociation of sensation, but complete anesthesia over an area beginning from a line passing between the mastoid processes behind and from the notch in the thyroid cartilage to the mastoid processes in front, down to a line passing from the level of the third rib, in front, to the sixth dorsal spine, and including both arms.

LANCET-CLINIC.

October 17, 1914.

Thomsen's Disease; Myotonia congenita.—Hoppe describes this as a myotonic condition of the muscles associated with atrophy of a degenerative character. The most pronounced factor in its causation is heredity. It usually affects several members of the same family at the same time. Blood relationship between parents has caused the condition in the offspring. Males are more frequently affected than females. It most frequently becomes manifest about the age of twenty years. It has been concluded that it is a disease of defective metabolism, but it is probable that this is only an exciting cause. Pathologically it is primarily a disease of the muscles. The latter are increased in volume and feel firm. On section the fibres show hypertrophy. Another view is that it is due to an embryonal development disorder of the nerve cells. It may be due to

a deficiency of parathyroid action. The muscles appear to be powerfully developed, but they are weak. The chief clinical manifestation is the occurrence of tonic spasms in muscles whose use is attempted. The spasms can not be relaxed by the will, but after fifteen to thirty seconds relaxation sets in. Passive movements do not bring on the spasm. The spasms are never painful. Fatigue, hunger, extremes of cold and heat increase the violence of the spastic contractions. On the other hand, mental quietude, the moderate use of alcohol and hot tea, moderate exercise, and warmth diminish the spasms. The muscles of vital functions are not involved. Objective examination reveals an increase of the mechanical irritability and a change in the electric reaction. The latter is characterized by the fact that it is sluggish, tonic, and of excessive duration. Sensation and the reflexes are usually normal. The diagnosis is based on the arrest of voluntary movements by the occurrence of spasms of a tonic character, and the presence of the myotonic reaction in the muscles. Prognosis as to cure is bad. It lasts throughout a patient's life, but it is not progressive. In the treatment of this condition, if a gouty diathesis is present, treatment along this line should be carried out. If hypothyroidism is present, calcium treatment should be instituted. Milk and eggs, which are rich in calcium, should be given. Stretching the nerve trunks has temporarily improved the spasms, but as a result paresis of the muscles sets in and sensory defects develop. Moderate, regular exercise, especially walking, is beneficial. Tonics and sodium iodide are of some value. As a prophylactic measure, exposure to cold, emotional disturbances, and excessive fatigue should be avoided.

Filters in X Ray Treatment.—Goosman maintains that, as soft rays can produce a severe surface reaction without causing the hair to drop out, any pathological exudate situated in the corium would be little benefited by rays of this character. After a series of experiments it has been concluded that very hard filtered rays act in a more selective manner than the softer ones. They affect the hair papillæ and the germinal layer of the epidermis, while the bloodvessels and papillæ of the skin escape. A radioepidermatitis, which heals readily, is obtained instead of a radiodermatitis. The reaction closely resembles that of radium.

Transplantation of Fascia in Hernia.—Hiller has used a simple method in the treatment of ventral, umbilical, and epigastric hernias. The fascial opening is closed by a pursestring suture and a fascial flap superimposed. In operating for ventral hernia and umbilical hernia, he used the fascia of the external oblique to make the flap, and in a case of a hernia midway between the anterior superior spine and the umbilicus the fascia lata was used. If many stitches are taken in the flap there is much inflammation and more granulation tissue will be formed, and the latter determines the density of the fibrous plane which results in the cure.

Alcoholic Psychosis and Psychopathic Drinkers.—Williams concludes that alcohol is not the cause of the psychosis in a great many asylum cases. The chief characters of the psychosis of alcohol are visual hallucinations, fantastic recitals, impulsive acts, and automatic suggestibility. The majority of

persons who drink to excess do so because they are psychopathic. Some take it to overcome a feeling of discomfort, of inadequacy, of restless discontent, or even acute misery. The roots begin in childhood and the prevention of nervousness in children is the key to the prevention in the adult of a psychopathy which may lead to an addiction to alcohol or other narcotic. If a craving for the drug for its own sake has not replaced the taking of the drug as a solace, a cure can be effected.

INTERSTATE MEDICAL JOURNAL

September, 1914.

Duodenal Catheterization and Feeding in Infants.—A. F. Hess considers this measure of great value in diagnosis. There is, he says, perhaps no group of cases more puzzling at times than that characterized by persistent vomiting; in these the duodenal catheter has been of assistance. It differentiates best between spasmodic obstruction of the pylorus and hypertrophy of the musculature; whenever it is possible to insert a No. 15 French catheter into the duodenum, organic stenosis is so slight that it can be disregarded from a clinical point of view. As to duodenal feeding, persistent vomiting occurs most frequently in cases of pyloric stenosis or of pylorospasm, but is met with in others without apparent cause or where it complicates an acute infectious disease and threatens the life of the infant. In addition to various dietetic methods of treatment, duodenal alimentation is now employed in these cases, with the object of sparing the irritable stomach.

Physical Diagnosis of Displacements of the Colon.—J. H. Musser, Jr., states that routine outlining of the colon in the course of a physical examination is neither necessary nor important. In connection with other findings, however, such an examination may be indicated. There are certain methods, namely, inspection, palpation, percussion, and auscultation (auscultatory inflation), which will give accurate and valuable information when for any reason it is impossible to make use of the fluoroscope and plate.

Functional Ileus.—R. J. Behan describes the symptoms as follows: Vomiting, becoming fecal in character; temperature generally low, often subnormal; increasing rapidity of the pulse; slight increase in respiration; hiccough. Locally, distention of the abdomen may be noted. This may not be marked, but generally a more or less definite, tumor-like swelling can be found in some part of the abdomen. If the ileus is of the gastroduodenal type, the swelling will be in the epigastrium and slightly to the right side; if of the intestinal, to the right. Over the mass vermicular, progressive motion (peristalsis) may be noticed if the abdominal wall is not too thick, and, on auscultation, gurgling may be heard. If the ileus is of the gastromesenteric type, the tumor mass (stomach and duodenum) may give rise to a splashing sound on shaking. In these circumstances, on passing the stomach tube, large quantities of greenish liquid may be removed. As a rule, the abdomen is not painful, and this frequently deceives the inexperienced observer. In all forms of ileus, the essentials of treatment are to relieve the distention and fill up the depleted vessels.

Thorough stomach washing is to be recommended. All food and drink should be withdrawn, and copious injections of salt solution given, with the bag one and a half foot above the rectum, the pelvis elevated. If, after twelve hours, no bile is seen in the fluid expelled, operation should be undertaken. The continuous Murphy drip is of value, while saline solution should be given also subcutaneously or, if the patient is very ill, intravenously. The prone position, with the patient slightly turned to the right and his hips elevated, may be of service. Heat should also be applied to the abdomen. The high frequency current is thought to have sometimes done good. Cathartics are absolutely contraindicated. Morphine and atropine are useful in spastic ileus, and eserine, pilocarpine, strychnine, and adrenaline in the paralytic form.

JOURNAL OF CUTANEOUS DISEASES.

July, 1914.

Lichen planus of the Tongue Alone.—Douglass W. Montgomery describes a case of lichen planus of the dorsum of the tongue; the two patches were dull white in the centre, could not be removed by wiping, and had a lace network periphery. After another week papules were seen in these patches, some of which were umbilicated. There were practically no subjective symptoms. There were no lesions on the mucous membranes of the cheeks. Treatment consisted of weekly applications of ten per cent. chromic acid, and internally of small doses of mercuric chloride. The author remarks the frequency of this disease on mucous membranes, and the possibility of mistaking it for leucoplakia or syphilis.

Industrial Skin Diseases.—H. H. Hazen emphasizes the fact that trades are the cause of a comparatively large number of inflammations of the skin. Trades aggravate disease by the effect on the general health; the work causes the individual to live in unhealthy surroundings. Disease is often due to direct effect of work on the skin of the individual.

Cheilitis exfoliativa.—Henry Kenedy Gaskill says: This disease, which is rather uncommon, is characterized by scaliness of the lip, usually the lower, and crusts. Inflammation of the lip when present is very slight. The author reports three cases. As yet there is no cure.

Noguchi's Luetin Test for Syphilis.—William Allen Pusey and Arthur W. Stillians, after considerable experiment with luetin reaction, come to the conclusion that it is of comparatively little value in the diagnosis of early syphilis, but of marked value in the late manifestations of the disease where it may be positive, when the Wassermann reaction is negative. It may also be of some value as an indicator as to when treatment may be discontinued.

August, 1914.

Syphilitic Heredity and Congenital Syphilis.—William P. Boardman, after exhaustive arguments based upon clinical, laboratory, and experimental evidence, shows that hereditary syphilis is almost invariably maternal. The malformations which seem to depend on a syphilitic origin may be either maternal or paternal. Abortions due to syphilis are uncommon. This is confirmed both by clinical

and serological evidence. Miscarriages occurring about the seventh month, particularly when the fetus is dead, are frequently syphilitic. Stillbirths at eight months are also frequently syphilitic. Syphilitic children born alive, if they show symptoms in the first four weeks of life, nearly always die. The author describes the physical stigmata of inherited syphilis. The child may be normal, or it may have the appearance of a wrinkled little old man with snuffles. There is enlargement of the abdominal organs, especially liver and spleen, and inflammation of the epiphysis of long bones; latent ossification of the bony structures; optic atrophy, tendency to acquire complicating diseases owing to weakened resistance, these being, among others, tuberculosis and otitis media. It is rare for late symptoms of hereditary syphilis to occur without some evidence of early congenital lues. The parietal bosses, the saddle back nose, irregularities of the skull, face, and ears, and high arched palate all occur. Hutchinson's triad is rather rare. The peg shaped teeth are not common. The separation of the upper middle incisors is fairly common. With regard to skin manifestations, the most interesting is one resembling eczema, occurring about the angles of the mouth. This eruption is congenital. The lesions are dry and scaly, but may become crusted, and even show some induration. Treatment must be continued for at least three or four years. Most good is accomplished by combining salvarsan or neosalvarsan intravenously, with hypodermics of mercury intramuscularly.

JOURNAL OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

August, 1914.

The Stammering Child.—E. S. Kenyon states that the understanding of stammering depends upon a knowledge of child psychology. Stammering seems to occur after a certain stage in the mental development of the individual. Following this period, the child appears to become socially emotional, which is thought by the author to be the fundamental factor in the etiology of speech impediment. As the child grows, stammering sometimes improves without treatment, or as the mature adjustment of social environment takes place. Other children are less fortunate and struggle for years. Effective cure seems to be one of education and training, of treating the perverted speech function itself and conditions that arouse emotion.

LONG ISLAND MEDICAL JOURNAL.

September, 1914.

Physiology of the Thyroid.—H. C. Jackson presents the phenomena of hyperthyroidism and hypothyroidism, in a light rather different from the ordinary view. He directs special attention to the close relationship between thyroid activity, or the reverse, and functional activities of many other organs of the body. Many symptoms of hypothyroidism are not directly due to the want of thyroid secretion, but are the expressions of the effects of its absence upon the functions of other structures. There is a diminution in the mydriatic power of the blood, a decrease in the general body tone, in the velocity of the circulation, and in the blood pressure. These symptoms are directly referable to an inhibi-

tion of adrenal secretion, which, in turn, results from the lack of the hormone normally derived from the thyroid. Certain symptoms from the pressure by an enlarged pituitary gland are also encountered, such as disturbance in vision, and are probably due to the fact that this gland acts to a certain extent vicariously with the thyroid and the diminution or absence of the thyroid secretion leads to a compensatory hypertrophy of the pituitary. Sexual perversion, infantilism, atrophy of the genitals, and the like are encountered in marked hypothyroidism and are due to the absence of the stimulating effect of the thyroid secretion on the gonads. Conversely, many symptoms of hyperthyroidism are similarly attributable directly to a perversion of function of one or other of the various organs which owe part of their activity, or control of their activity, to the effect of the thyroid secretion. Symptoms more or less opposite to those already detailed are seen in hyperthyroidism; in addition such effects as decreased sugar tolerance, augmented secretion of sweat, increase in general metabolic activity, and the tendency to a rise in temperature are secondary results of the action of an excess of thyroid secretion on other organs and structures. In addition to these suggestions, Jackson goes one step farther and ventures to express the idea: Perhaps what we are considering as a primary disturbance is not primary at all. In other words, the thyroid effect which we notice in exophthalmic goitre may be secondary to some other primary disturbance elsewhere; and that is only a natural assumption, because the thyroid activity can be accelerated or inhibited indirectly by the secretion of other glands in the same way as it may act upon others.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL.

September, 1914.

Blood Pressure Studies; Energy Index and Cardiac Load.—G. W. Norris and J. R. Davies explain these two methods of using the data obtained by pulse and blood pressure observations. The energy index is a term proposed by Barach as a measure of cardiovascular energy indicated by the arterial pressure; the index is determined by multiplying the systolic, diastolic, and combined pressure by the pulse rate. Stone reckons the cardiac load as follows: If the systolic pressure is 120 and diastolic 80, the pulse pressure is 40; the amount of energy required, therefore, to maintain the circulation in excess of that necessary to open the aortic valves is 40. The normal cardiac load may thus be considered as 40/80, or fifty per cent. of the diastolic pressure. Norris and Davies state that several questions suggest themselves as to how much overload the normal heart can stand before the symptoms of broken compensation arise. Can the effects of therapeutics or disease be explained upon or correlated with the foregoing hypothesis? With a view to investigating these questions they have made blood pressure observations in fifty-seven cases, of various character, in their service at the Pennsylvania Hospital, and the results of these are considered in this article. The conclusions reached by them are given as follows: They do not feel that either of the methods studied offer any especial advantages over the routine blood pressure observa-

tion. The calculation of the energy index perhaps helps us to visualize more clearly just how much energy the heart is expending, but the cardiac load feature teaches us nothing that is not evident from the mere inspection of the diastolic and the pulse pressures. 2. When the results obtained by the two methods coincidentally in a given case are contrasted, they are often found to vary, not only quantitatively but often qualitatively. Either method is more useful for the continuous study of a given case than it is for the purpose of comparing different cases or for gathering statistical data. 3. Comparative daily observations of the cardiac load and the energy index throw some light upon the progress of the circulatory function, but identical figures may be obtained from a dying heart and from an organ which still has a good functional capacity and a large reserve force. 4. The diastolic pressure, which is now readily obtained by the auscultatory method, is often of greater importance than the systolic pressure, which varies more widely as the result of psychic processes and other evanescent causes.

Two Attacks of Herpes zoster in the Same Individual.—D. W. Montgomery says that one of the main reasons for considering herpes zoster an infective disease is the rarity of a second attack. Recently a patient had a well marked right sided herpes zoster, and gave a clear history of left sided thoracic zoster over twenty years before. In 1913 Anton Sunde had the opportunity of making a post mortem examination which substantiates the view that herpes zoster is an infectious disease. In the Gasserian ganglion of a man who died from arteriosclerosis three days after the appearance of a herpes frontalis, he found a large number of Gram positive cocci, mostly diplococci in chains. The ganglion was the seat of severe hemorrhagic, purulent, inflammatory changes, and the microorganisms were found chiefly in and about the hemorrhages.

SURGERY, GYNECOLOGY AND OBSTETRICS

August, 1914.

Fractures Near and Into Joints.—H. M. Sherman and D. Tait state that supracondylar fracture of the humerus should be treated after the method introduced by Robert Jones of Liverpool, namely, that the forearm be put in complete flexion on the arm. In this position the forearm falls into a perfectly natural relation to the arm, the lesser fragment of bone is held by forearm muscles, elbow joint ligaments and the interlocking of the bony parts, in a perfectly natural relation to the forearm and therefore to the arm, and the whole region is in the encompassing sling made of the muscles, fascia, and skin on the extensor side of the joint. If proper reposition of the fragments has been attained, the single act of putting the forearm into a position of complete flexion on the upper arm and keeping it there accomplishes the act of redressment and maintenance of the normal relation, so that union finds restored natural alignment, a normal anatomy. Fracture of the humeral external condyle, in which the minor fragment, including not only the capitellum but commonly part of the trochlea, is pulled downward and forward by the supinator longus, if healed in this position, offers a distinct obstacle to the radial head in its motion of

flexion. But this same fragment is pushed upward and backward into its proper place by the radial head if the elbow is dressed in full flexion, and healing then offers no obstacle to flexion. In fractures of the carpal scaphoid, the main disability consists in a loss of the power of extension. It is advisable then to secure the right of way by hyperextending and fixing the wrist in that position. If such a case is seen early and the wrist is kept in hyperextension for about fourteen days an excellent functional result can be assured.

Tuberculosis of the Kidney.—G. E. Macklem summarizes as follows: 1. Ureteral catheterization is uncalled for when the tuberculous lesions about the mouth of the ureter are typically suspicious, and presents difficulties on account of the frequently coexisting tuberculous cystitis. 2. Ureteral catheters demand scrupulous care in cleansing, and should always be tested before introduction. 3. A nephrectomy should never be performed unless an amount of normal renal tissue corresponding to at least one third of the total renal tissue when in good health, is present. 4. Vesical and ureteral tuberculous infection is always secondary to the renal condition. 5. Care should be exercised in diagnosing nephrolithiasis and movable kidney, as a colic similar to that occurring in these conditions may arise from the masses of debris which pass through an infective and narrowed ureter. 6. Interstitial nephritis and renal tuberculosis may easily be confounded with each other if the urinary findings alone are depended upon for diagnosis, as the two conditions resemble each other very closely, especially in the early stages. 7. Tuberculosis occurs in the kidney as frequently as in all other genitourinary organs together. The right organ, in women, in the third decade of life, furnishes the majority of cases. 8. Reflex symptoms are most pronounced, vesical symptoms usually predominating and often pointing in this direction as the seat of the trouble. 9. Tubercle bacilli are usually not found in the urine until the appearance of pus. 10. Renal tuberculosis should always be thought of in any and all cases in which hematuria exists as the only or most prominent objective symptom. 11. Nephrectomy is the most successful operation in the realm of major surgery, and offers the only satisfactory means of dealing with this condition, unless both kidneys are involved or insufficient renal tissue exists. The expectant treatment is but a waste of time and energy in the early diagnosed case.

Dysmenorrhœa essentialis.—T. J. Doederlein believes that the treatment concerns itself with two phases: curative and preventive. The preventive involves a difficult sociological question, which could not be considered in this paper. The curative treatment is general and local. The general treatment, besides hygiene, diet, and tonics, may consist in the administration of tuberculin or thyroid extract, the latter recommended and described by Dalce. For local treatment the intrauterine stem pessaries of the Watkins or Dickinson type have met with some favor. He has used them in a number of cases with rather indifferent results. Dilatation and systematic sounding have been most successful. He uses a male urethral sound No. 13

or No. 14. The main object of pessaries or sounding is blunting the hypersensitive mucosa, and not dilatation as was formerly believed. Treatment of the attack consists, first, in relieving congestion. This is done by hot applications, hot sitz baths, and hot douches. To relieve severe uterine contractions, the well known hydrastis, viburnum, and opiates are used.

Proceedings of Societies.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Twenty-seventh Annual Meeting, Held at Buffalo, New York, September 15, 16, and 17, 1914.

The President, Dr. CHARLES N. SMITH, of Toledo, in the Chair.

(Continued from page 844.)

The Kinetic System and the Treatment of Peritonitis.—Dr. GEORGE W. CRILE, of Cleveland, announced that an analysis of the leading phenomena of peritonitis—pain and tenderness, distention, muscular rigidity, vomiting, intestinal paresis, as well as of the general symptoms of infection—accelerated pulse and respiration, raised blood pressure, fever, and rapid loss of strength and weight, showed that they were adaptive phenomena evolved by the abdomen for the purpose of overcoming infection. The peritoneum, through natural selection, had acquired the power of overcoming infection by immobilizing the point infected by (a) inhibition of the intestines; (b) distention of the intestines; (c) rigid persistent contraction of the abdominal muscles; (d) further fixation by the pouring out of a sticky, glue-like fluid. In peritonitis, as in physical exertion of any kind, the transformation of energy utilized for this purpose might be so rapid and extensive that exhaustion—death even—might follow. This exhaustion was further increased by the loss of water due to vomiting and to the diminished intake. As a result of this and of the increased blood supply to the intestines, there was a shrinkage in pulse volume, and the amount of urine was decreased coincidentally with the increased metabolism. Safety, therefore, might lie in the control of the kinetic system by which excessive energy transformation was retarded and the water equilibrium was maintained. Deep morphinization caused inhibition of the intestines, immobilized the body as a whole, prevented both pain and muscular rigidity, held metabolism at a standstill, and thus reduced the drain upon the body's stores of energy. Therefore, if energy transformation was minimized by morphine given in large physiological doses, and if the water equilibrium was maintained by the instillation of water, the point of infection was immobilized, while the phagocytes overcame the infection, and at the same time the brain, suprarenals, and liver were protected and the energy of the patient was conserved.

Ruptured Gastric and Duodenal Ulcer.—Dr. EDGAR A. VANDER VEER, of Albany, preferred a good free incision in the right semilunaris, enabling one readily to inspect the entire right side of

the abdomen. Experience had shown that the majority of perforations had occurred at the pyloric end of the stomach or the first portion of the duodenum, and this incision gave an exposure of the field and plenty of room to work. The perforation having been located, it could be closed in one of several ways. A couple of continuous Lembert sutures seemed to be effective and quick. If possible, the sutures should be inserted parallel to the long axis of the stomach or duodenum so as to interfere as little as possible with the circumference of the gut when the scar contracted. As a rule, the condition of the patient would not permit the performance of a gastroenterostomy, as some advised. If this was necessary it could be done at a second operation, when the patient's physical condition was improved. Drainage of rubber or a cigarette drain should be placed in the lower angle of the wound, leading down to the point of perforation. A secondary incision should be made in the right iliac fossa and a drain inserted in order to remove the fluid. While he did not wish to be considered as criticising the internist too much, if these cases could be reached by the surgeon sooner, the number of perforations would be far less.

A Year's Work with the Abderhalden Reactions.—Dr. A. J. SKEEL and Dr. W. C. STONER, of Cleveland, said of eleven cases, that eight were positive to placental and cancer albumin. Two were negative to both. One was not tested for cancer albumin. Among nine eclamptics and severe pre-eclamptic cases, eight gave positive reactions of unusual intensity. One was negative. Syphilitics both before and after salvarsan showed the usual reactions. Of sixteen sexual perverts from the Cleveland State Hospital, all nonpregnant, eight were positive and eight negative. Of the positive nonpregnants, nine were cancer, three fibroids, one pseudocyst, four inflammatory conditions, eight sexual perverts, two unexplained; total, twenty-seven. The reaction in their small series of sexual pervert cases suggested further investigation along this line. Might it have to do with tissue system reactions? In future cancer cases they would endeavor to specify the location of the growth and the source of the cancer albumin. Their conclusions were: 1. The Abderhalden ferment test was delicate and required great care and considerable experience for successful work. 2. Because of the great variety of conditions which might give the reaction positive results, it could not be taken as conclusive evidence of pregnancy. 3. The negative reaction, if repeated and well controlled, was quite reliable as an indication that the patient was not pregnant.

Two Cases of Cancer of the Uterus Apparently Cured by Postoperative Infection.—Dr. JOHN W. POUCHER, of Poughkeepsie, said in both cases the laboratory reports showed the disease to be adenocarcinoma, and in neither of them could he be sure that he had removed all the diseased tissues, consequently the cure must be attributed to suppuration and the formation of a toxin that destroyed the cancer cells. There were areas of broken down tissue filled with masses of dead cancer cells. The operation opened up fresh fields for their consideration. Might they not have here a genuine auto-inoculation of dead or modified cancer germs? In

the literature he had found several instances of spontaneous cure of cancer, and several pathologists had found post mortem evidences of such cures.

Operative Findings in Chronic Intestinal Stasis.—Dr. WILLIAM SEAMAN BAINBRIDGE, of New York, said that, in addition to the usual symptoms as observed in a fairly typical case, Lane had called attention to a series of symptoms and diseases which he believed to be the outcome of chronic intestinal stasis, and which had been called the end results. He had enumerated a fairly comprehensive list of diseases which he believed to be traceable to chronic intestinal stasis, or to the lowered resistance which resulted therefrom, among which might be mentioned rheumatoid arthritis, tuberculosis, goitre, and cancer. It was to the last named disease that he wished to direct especial attention. He was not prepared to say, at the present time, how far chronic intestinal stasis affected the development of cancer. The whole problem was so involved that they could merely speculate concerning its etiology. The interrelationship of ulcers of the gastrointestinal tract and cancer of this region, of chronic irritation, as shown in one of his cases, and cancer, and of those conditions with chronic intestinal stasis, furnished food for thought. The last three cases of the series seemed to be significant in the light of some of the possible end results of stasis.

Factors Determining Morbidity of Surgical Cases.—Dr. CHARLES W. MOOTS, of Toledo, said the mortality rate had long received much attention, while the morbidity rate had been neglected. The surgeon was a factor, together with his personality and general character. The patient should be prepared, not altogether from a technical point of view, but from the psychological also; there should be the removal of all adverse stimuli. A correct diagnosis was of importance before operating. A long preparatory course of treatment should be abandoned. Local or general anesthesia, position of the patient during operation, suture material, time consumed at the operation, and the method of handling the patient during the postoperative period were all of importance.

The Use of Scopolamine-Morphine in Labor.—This paper, by Dr. A. J. RONGY and Dr. S. S. ARLUCK, of New York, appeared in the JOURNAL for September 26th.

Dr. JAMES A. HARRAR and Dr. ROSS MCPHERSON, of New York, contributed a joint paper on the same subject; they said that in this method the profession had a valuable means of abolishing the woman's recollection of the ordeal of labor, in from sixty to seventy per cent. of cases, and they believed in conscientious and painstaking hands, by strictly adhering to the proper technic, the possible dangers might be foreseen and avoided.

Election of Officers.—The following officers were elected for the ensuing year: President, Dr. Charles L. Bonifield, of Cincinnati, Ohio; first vice-president, Dr. Asa B. Davis, of New York; second vice-president, Dr. K. I. Sanes, of Pittsburgh; secretary, Dr. E. Gustav Zinke, of Cincinnati, reelected; treasurer, Dr. Herman E. Hayd, of Buffalo, New York, reelected.

Pittsburgh was selected as the next place of meeting.

THE MEDICAL ASSOCIATION OF THE
GREATER CITY OF NEW YORK.*Stated Meeting, May 18, 1914.*

The President, Dr. THOMAS S. SOUTHWORTH, in the Chair.

Autoserum Treatment of Obstinate Dermatoses.
—Dr. WILLIAM S. GOTTHEIL read this paper, which was published in the JOURNAL for August 8, 1914.

Dr. HOWARD FOX thought that Doctor Gottheil was entitled to great credit as first to introduce the autoserum treatment into this country. His own experience comprised eighteen cases: fifteen of psoriasis, two of eczema, and one of herpetiform dermatitis. In eczema the results had been unsatisfactory, but in herpetiform dermatitis somewhat more encouraging; while in the psoriasis cases the results had been exceedingly gratifying. The newest and best thing in dermatology this year was this treatment; he had found, however, that after the autoserum injections, local treatment was essential. In psoriasis he had employed chrysarobin and in some instances had also covered the lesions with rubber cloth; but the final results were such as could not have been secured by the local treatment alone. He had given rather smaller doses of serum than Doctor Gottheil. From fifty c. c. of blood he had obtained from twenty to twenty-five c. c. of serum. The technic was absolutely simple to anyone familiar with such injections as those made with salvarsan.

Dr. GEORGE M. MACKEE, at the Manhattan Dermatological Society, had shown its remarkable results in two severe cases of psoriasis. This success had led him to introduce the method at Doctor Fordyce's clinic; fourteen cases had been treated, and between fifty and seventy-five injections made. These cases were of psoriasis, pemphigus, and dermatitis herpetiformis. In the psoriasis cases they had not been able to modify the disease by the serum treatment alone, but after the course of injections (usually about six, at a week's interval) the lesions would commonly disappear rapidly under the use of extremely mild local measures. In the local treatment they had employed novorobin, a recently introduced derivative of chrysarobin which had the advantage of not staining, and it was found that under the use of a half per cent. ointment, after the injections, lesions would disappear which without the autoserum would not be affected by even twenty per cent. ointments. That the lesions should disappear under this very mild local treatment showed unquestionably that some change in the system was brought about. In two cases of dermatitis herpetiformis where the patients had been treated for from twelve to fourteen years without benefit, the skin had become entirely clear after six injections. Whether or not the result would be permanent remained to be seen. There had been only one case of pemphigus, and no satisfactory result could be reported. The technic of the injections was very simple, and he had not found it necessary to resort to the large doses of serum employed by the German authorities. He had been careful to avoid hemolysis, and he had not observed any serum sickness. The serum acted perhaps through some fer-

ment evolved, but this was only an hypothesis. This treatment was easy to carry out, and appeared to be free from danger. It had already proved efficacious in some diseases, and there was reason to hope that it would prove so in many more.

Dr. DAVID L. SATENSTEIN, at the City Hospital with Doctor Gottheil, before making use of autoserum in dermatological cases, had tried it on some fifty or sixty syphilitic patients, employing it as a vehicle in salvarsan injections, and finding no untoward effects. In the first cases the amount of serum obtained from the blood had varied considerably; later, however, they had always been able to get from forty-five to fifty per cent. of serum from the quantity of blood drawn. They always allowed the blood to coagulate before it was put into the centrifuge, a process requiring from seven to twenty-one minutes. The centrifuge was employed, at high speed, for from thirty to forty minutes, as it was found that the longer the centrifugation, the greater the amount of serum. All the instruments and glassware used should be cold, and a platinum needle was required to prevent coagulation.

Letters to the Editors.

UNJUSTIFIABLE SARCASM.

*NEW YORK, October 20, 1914.**To the Editors:*

In the JOURNAL for October 17th, my contribution on the subject of Heteroplastic Grafting of Testicle included extracts from letters of the patient.

A number of my acquaintances this week have said in jest that I chose extracts for publication which made a pretty good advertisement for me. This was precisely what I feared when I sent on the letters and asked the editors of the JOURNAL if they would kindly make such extracts as seemed to be appropriate.

It will relieve me of some embarrassment if the editors will kindly state that it was not I who chose for publication the lines which praised my work.

ROBERT T. MORRIS, M. D.

[Doctor Morris's statement is correct; it was his idea that we should abstract from his patient's letters merely the facts required to substantiate the good results of the operation. We permitted the patient to speak for himself without reckoning on an outbreak of *invidia medicorum* at the doctor's expense, and we regret that the harmless enthusiasm of the letters has been turned into a weapon of attack on the absolutely innocent surgeon.—Eds.]

PELLAGRA.

*WILMINGTON, N. C., October 17, 1914.**To the Editors:*

The editorial article on the pellagra question in your issue for October 10th is timely, especially that part which calls attention to the importance of the further investigation of this disease along dietetic, metabolic, and biochemical lines. My experience with this disease (and I have seen numbers of cases in different stages) is that it is a dietetic cachexia, similar to scurvy; not due so much to a deficiency of proteins, but rather to an excess of carbohydrates and fats. The excessive ingestion of fats leads to an unusual loss of calcium salts from the body, and as in scurvy certain degenerative changes occur. A profound anemia develops, the blood clots poorly, changes occur in the nervous system, and the mucous membrane of the gastrointestinal tract becomes inflamed. Changes akin to these occur in scurvy, rickets, beriberi, and even in the malnutrition and marasmus of infants.

Assuming this to be the correct theory, I have fed my patients on milk, red meats (not overcooked), green vege-

tables, and fruits. For the anemia I have used an easily assimilable iron preparation, and have also given calcium in the form of the glycerophosphate, as it is supposed to be the best for internal administration. This applies to cases seen early. Results have so far been satisfactory.

Like any other disease tending to chronicity, the longer treatment is delayed the less favorable the prognosis, as tissue once damaged cannot be replaced. This is a big problem and its settlement lies along educational lines. People of all classes, in the South especially, must be taught the importance of applying promptly for medical aid when there is the slightest suspicion of this disease. I am of the opinion that the day is not far distant when this problem will be solved, and that it will be found that pellagra is a dietetic cachexia. CHARLES P. BOLLES, M. D.

THE ETHICS OF ABORTION.

NEW YORK, October 24, 1914.

To the Editors:

In today's issue of the NEW YORK MEDICAL JOURNAL there appears an article by Dr. M. Rabinovitz entitled *End Results of Criminal Abortion*. I read the paper with extreme interest, and I wish to congratulate the author for the stand he takes in the matter, and you for granting him the space to express his opinions, which to some timid souls may seem ultraradical or even shocking.

Never having performed an abortion in my life (for which I do not ask the Montyon prize, because my conduct in this matter was not guided by high moral considerations, but partly by moral cowardice and partly by a feeling of disgust which I could not overcome), I can speak freely of the ethics of the question, and I will say frankly that numerous cases have come to my personal notice in which not to perform an abortion was much more criminal than to perform one—and they were not pathological cases either. I have taken that stand and publicly defended it on many occasions. In a paper read nearly five years ago before the Eastern Medical Society, before the American Society of Medical Sociology, etc., I discussed the question from every possible point of view; and in the discussions that followed no arguments could be presented except the religious one, to which of course there can be no answer.

Many European authorities and societies have within the last few years advocated both a change of public opinion and a change in the laws concerning abortion. Professor Kocks, of Bonn, boldly proclaims his allegiance to the old Roman dictum, *infans pars viscerum matris*, that the fetus is a part of the mother's viscera and that she has a right to do with it as she pleases. Few will subscribe unqualifiedly to this dictum, but this is the opinion of Kocks, a man of high standing in Germany. The Pirogoff Society of Russia, which consists of physicians of the highest standing, recently demanded the total abolition of all laws against abortion. This may also be an extreme position, but as a sign of the times it is interesting.

But whatever one's opinion on the ethics of abortion may be, any thinking man ought to perceive that the making of laws, laws, and more laws will not influence the prevalence of this evil. Wherever there is a demand there will be a supply, and that there is such a great demand, a demand which is growing from day to day, must have some deeper causes than the mere wickedness of human nature; for women who are in every respect the sweetest, the gentlest of their sex, devoting themselves to charity and self sacrifices of all kinds, are also demanding abortion.

What these causes are is too big a subject for a letter to the editors, but of one thing you may be sure; burning rhetoric and sulphurous philippics directed against abortionists will not diminish the evil one jot. It happens not infrequently that the man who is most vociferous against the abortion evil in public has little hesitation in practising it on occasions, let us say well paying occasions, in private.

As to the remedies for the abortion evil, they are also too many to be discussed in detail in a letter to the editors. One, however, I may mention. Freedom to teach the people the proper means of preventing conception would at once do away with seventy-five per cent. of all abortions. Wouldn't it be worth while?

WILLIAM J. ROBINSON, M. D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Philosophy of Radioactivity or Selective Involution.

By EUGENE COLEMAN SAVIDGE, Member New York Academy of Medicine, New York Obstetrical Society, American Medical Association, New York State Medical Society, Society Alumni Roosevelt Hospital, and Sloane Hospital for Women; former Assistant Gynecologist, St. Mark's Hospital, author of *The Problem of Cancer*, or *The Philosophy of Malignancy*; *Unclassified Diseases*, or *The Prolongation of Life*, etc. New York: William R. Jenkins Company, 1914. Pp. 151.

Radioactivity is a subject of which we hear much at the present day. The volume before us is evidently intended to aid in the understanding of the subject, but the author does not seem to have been particularly successful in his efforts to enlighten the reader. In the publisher's announcement which accompanies the volume, we read: "There is no other volume published wherein may be grasped so quickly and easily the laws and significance of the vital subject of radioactivity, as in *The Philosophy of Radioactivity*." We are sorry not to be able to indorse this statement. As a matter of fact this volume seems rather to befog the reader, and presents him with words and sentences which, quite frequently, are about as intelligible as the writings of the late lamented Mrs. Mary Baker G. Eddy. As a sample of the author's style we may quote the following: "The diamond, the supreme carbon crystal, the sparkling emblem of vegetation's journey up Duration and down Space—is but an isomer of the other carbon: the marriage of the sun ray with vegetation, in a long 'gyrostatic rest.'" And: "We have seen the tip cell of the vine, by internal crystal stress and cell parts preparation, finally finding its needed color ray and sun glassed into the animal digression. Perhaps the same jungle darkness stressed the two sex bearing individual at a later period. The same color starvation may have induced similar internal stress at crystal turn, similar adapting of parts. The most active part would take greater rapidity of stress, and break away from the part retarded by reproductive processes, just as one subcomponent is invested with greater velocity than its fellow subcomponents when entering the short orbit; and another quality is reached thereby." And again: "From the ultraviolet we touch the threshold of unfenced immeasurable infinity, where vibratory quality rises in steady velocity, until in the supreme vibratory expression of heat, in the spiral finality of motion, imagination beholds its disappearance toward the centre of the sun. The latest photographs of the sun spots plainly show the spiral torsion to a point—the involved journey from full evolution back to involution. Thus, from the remotest circle of completed evolution, at the minimum of spent velocity in tranquil space, up to the vanishing point of the involved spiral—each degree of velocity marks a constant quality of the thing which changes; but the thing itself is ever mobile." And once more: "We may say that the ultra material is the Cause which orders the Associative Force and marks the Eternal Constants; and tendencies of unerring sureness and justice are retained in the non-material reservoirs of the cosmos. What the tendency passes to the subtendency, and to the still further subcontained—each preserving its precise difference of duration, its precise multiplying of mass, its precise proportional relation to the others—is more important than any mass of matter indwelt and moulded thereby." The book has neither table of contents nor index.

Thomas Shortt. (Principal Medical Officer in St. Helena).

With Biographies of some other Medical Men associated with the case of Napoleon from 1815-1821. By ARNOLD CHAPIN, M.D., Author of *The Illness and Death of Napoleon*. With two portraits. London: Stanley Paul & Co., 1914. Pp. 70. (Price, two shillings.)

This unpretentious work by a deep student of Napoleon and gathers together what little is known, not only of Thomas Shortt, but of other physicians who met the great con-

queror, George Henry Rutledge, Walter Henry, James Roche Verling, Archibald Arnott, Francis Burton, Alexander Baxter, and the celebrated and much discussed Barry O'Meara. The biographies are inevitably lacking in detail, but they are made as interesting as circumstances permit. We do not see how any physician can fail to be inquisitive concerning the history of the profession; we are too apt to forget how much our predecessors knew and how keen they often were in diagnosis, relying on sensitive fingers and sharpened senses in the absence of our scientific aids. This book can be read in an hour and no doctor will begrudge the time.

On the Effects of Volcanic Action in the Production of Epidemic Diseases in the Animal and in the Vegetable Creation, and in the Production of Hurricanes and Abnormal Atmospheric Vicissitudes. By H. J. JOHNSTON-LAVIS, M.D., D.Ch., M.R.C.S. Eng., L.S.A. Lond., F.G.S., Late Professor of Vulcanology in the Royal University of Naples; Fellow of the Royal Society of Medicine, etc. Author of many works on Medicine and Vulcanology. London: John Bale, Sons & Danielsson, Ltd., 1914. Pp. xii-67. (Price, 3 shillings.)

Physicians residing in volcanic countries such as Italy and New Zealand will find this little book of more than ordinary interest. The author has gleaned the most useful facts from a somewhat wide field of literature, and has added observations of his own. The subjects dealt with in this essay, are: Physics of eruption; chemistry of eruption, physical effects of eruptions on human beings and animals; supposed relationship of eruptions to epidemic diseases of man, animals, and plants; physical effects of eruptions on plant life; and influence of eruptions in the production of hurricanes and abnormal atmospheric vicissitudes.

The Apsley Cookery Book, containing 503 Recipes for the Uric-Acid-Free Diet. By Mrs. JOHN J. WEBSTER and Mrs. H. LLEWELYN. New Edition. Tenth Thousand. London: J. & A. Churchill, 1914. Pp. xxxi-268. (Price, \$1.40.)

The uric acid theory of rheumatism has still many adherents among the medical profession in Great Britain, we believe, while among the laity both here and abroad it remains an article of faith. As this book, however, bases its recipes upon the absence of meat and stimulating spices from the food, it may prove valuable and helpful to the gouty, the rheumatic, the lithemic, and the obese, for many of whom meat is almost a poison. The expurgated dietary herein set forth fits Sir Arbuthnot Lane's theories quite as well as those of the expounder of the uric acid diathesis. The reader may be astonished and pleased to see how many appetising and delicious dishes can be served without meat, which is rapidly becoming a luxury in this country as it has long been abroad. There is some amusing patronage of the doctor in the preface, wherein he is told that when he masters the principles of diet, he will cease to prescribe so many drugs.

I. K. Therapy. With special reference to Tuberculosis. By W. E. M. ARMSTRONG, M.A., M.D., Dublin. Bacteriologist to the Central London Ophthalmic Hospital, Late assistant in the Inoculation Department, St. Mary's Hospital, Paddington, W. New York: Paul B. Hoeber, 1914. Pp. x-83.

Radical departures and new methods in the treatment of tuberculosis, like those in the treatment of cancer, are capable of leading to overenthusiasm and are often exploited more or less shamelessly. It is therefore refreshing to read this small volume by Armstrong, not only on account of the valuable subject matter, but because of the conservatism which is manifest in every page. Armstrong set himself the task of presenting to the English speaking medical profession a concise description of the epoch making work of Carl Spengler, and his success is such as to instill envy into the breasts of many an author. I. K. therapy derives its name from an abbreviation of the German *Immunkörper*, or immune bodies, and in itself carries the suggestion of the nature of the treatment. Armstrong introduces his presentation with a very brief chapter in which he acquaints the reader with the character and the work of Spengler. He then proceeds to give short outlines of the principles of immunity and immunization in

order to lead up to a discussion of the nature of I. K., its preparation and standardization, and its physical, chemical, and biological characters. Then follows the evidence of an experimental nature upon which the belief in its activity is founded, and this, in turn, is succeeded by a chapter relating the clinical evidence of its activity. The practical administration of the preparation is discussed with fair completeness, and the last chapter is devoted to certain technical procedures which are employed in the treatment. One cannot read Armstrong's fascinating sketch of this new method of therapy without unconsciously becoming enthusiastic over its possibilities and without feeling almost impelled to read the originator's own account of his work in the book entitled *Carl Spengler: Tuberculose- und Syphilis-Arbeiten*. Whether or not I. K. therapy will be proved to be of value, it can never be said that Armstrong prejudiced its case, for he has succeeded in giving an entirely neutral presentation, leaving it to stand on its own merits or fall from lack of them.

Interclinical Notes.

T. D. A. Cockerell, who writes the review of Cramb's book, *Germany and England*, in the *Dial* for October 16th, after summarizing Germany's views and ambitions, concludes as follows:

"It remains for America, with all her imperfections, to make the great sociological discoveries. We are demonstrating to an astonished world that alcoholic liquor is not necessary for happiness. We are able to live unafraid next door to Canada, with no forts or standing armies on the border. Not without difficulty, it is true, we have shown that it is possible for a great nation to have at its head one who is as much of a gentleman in his public as in his private capacity, and who is, above all, a genuine representative of the spirit of peace. Never before has 'political necessity' counted for so little and decency for so much. We do not agree with everything our government does. It requires little knowledge of public affairs to discover stupidity or worse in high places; we reserve our right to criticize, and will not indorse all the actions of any party or man in advance. In science one discovery opens the way to a hundred others; so also in National affairs every advance points the way to others, and 'divine discontent' is the motive force of progress. The labor is incessant and there is no haven of rest, but we have at least the hope and belief that it is possible to progress from good to better, without periodically relapsing into the barbarism of wholesale murder."

* * *

There is a picture in the *Outlook* for October 21st of Edison testing his new invention, the telescribe (shades of all conscientious etymologists!), concerning which he knows very much more than he does of physiology, toxicology, and dietetics. There is one other peaceful illustration, but artillery and dilapidated cathedrals occupy the remaining art pages. The *Outlook* continues to discuss the roots of the war from various viewpoints, but it has very positive opinions of its own concerning the responsibility for the outbreak and states them fearlessly.

* * *

Now that New York has grown too big for anything of the kind, it is more than interesting to read about such people as Madame Jumel, who is described as New York's first official heart breaker by Albert Payson Terhune in the October *Ainslee's*; it is droll to read of her squabbles with Aaron Burr, rows like those of children, but resulting in estrangement. We suppose that society leaders will in the future be syndicated; there will be an amalgamation of cliques into one terrifying trust which will decide Who shall be Who.

* * *

There is a patent medicine called Tonoelixo in A Most Extinguished Person, by Bonnie R. Ginger, in the October *Ainslee's*, but a preliminary search through the magazine fails to disclose the presence of any regular practitioner. There must be at least sixty dramatic personæ, taking all the stories together, and it seems hardly safe not to have at least one practitioner among them. From

the usual viewpoint, however, the tales are all right, including the forty-eight page one, *Her Serene Highness*, Limited, by Charles Saxby. Would you believe it at this time of day, this story depends largely upon an identification scar for its plot?

* * *

That skilled raconteur, Morley Roberts, tells of the Dancing Faun in the October *Strand*; the story involves sexual ethics to an extent hitherto unprecedented in our experience of English popular magazines. There are other less daring tales by Berard Reid—a prize story, Arthur Morrison; G. B. Lancaster, and Sir Douglas Mawson.

* * *

Why do the Freudian disciples insist on spelling it "phantasies?" It looks phoolish to us.

Meetings of Local Medical Societies.

MONDAY, November 2d.—Clinical Society of New York Throat, Nose, and Lung Hospital; German Medical Society of the City of New York; Utica Medical Library Association; Niagara Falls Academy of Medicine; Brooklyn Hospital Club; Hornell Medical and Surgical Association; Clinical Society of the New York Polyclinic Medical School and Hospital.

TUESDAY, November 3d.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Amsterdam City Medical Society; Lockport Academy of Medicine; Society of Alumni of Lebanon Hospital, New York; Syracuse Academy of Medicine; Buffalo Academy of Medicine (Section in Surgery); Ogdensburgh Medical Association; Oswego Academy of Medicine; Medical Association of Troy and Vicinity; Clinical Society of the West Side German Dispensary and School for Clinical Medicine; Medical Society of the County of Yates.

WEDNESDAY, November 4th.—Brooklyn Society for Neurology; Society of Alumni of Bellevue Hospital; Harlem Medical Association, New York; Bronx Medical Association, New York; Elmira Academy of Medicine; Psychiatrial Society of New York; Society of Alumni of St. John's Hospital, Brooklyn; Schenectady Academy of Medicine.

THURSDAY, November 5th.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society; Practitioners' Club, Buffalo; Geneva Medical Society; Glens Falls Medical and Surgical Society.

FRIDAY, November 6th.—New York Academy of Medicine (Section in Surgery); New Utrecht Medical Society; New York Microscopical Society; Gynecological Society, Brooklyn (annual meeting); Manhattan Dermatological Society; Practitioners' Society of New York; Corning Medical Association; Saratoga Springs Medical Society.

SATURDAY, November 7th.—Benjamin Rush Medical Society, New York.

Official News.

Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending October 21, 1914:

Clark, Taliaferro, Surgeon. Directed to attend the meeting of the Medical Society of Virginia, to be held in Washington, D. C., October 27 to 30, 1914, for the purpose of presenting a paper on trachoma. **Corbitt, H. B.**, Sanitary Bacteriologist. Relieved from duty at Portsmouth, Ohio, in the investigation of the pollution of the Ohio River, and directed to proceed, about October 22, 1914, to Washington, D. C., and report to the director of the Hygienic Laboratory for duty. **Derivaux, R. C.**, Assistant Surgeon. Upon completion of present studies of malaria in Virginia, relieved from duty at the Marine Hospital, Mobile, Ala., and directed

to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory for temporary duty. **Foster, A. D.**, Passed Assistant Surgeon. Directed to report to the chairman of the board of commissioned medical officers convened to meet at the bureau, Tuesday, October 27, 1914, for examination to determine his fitness for promotion to the grade of surgeon. **Frost, W. H.**, Passed Assistant Surgeon. Directed to attend the meeting of the Mississippi Valley Medical Association to be held in Cincinnati, Ohio, October 27 to 29, 1914. **Guiteras, G. M.**, Surgeon. Leave of absence for ten days from October 1, 1914, amended to read "seven days" leave of absence from September 30, 1914." **Knox, H. A.**, Assistant Surgeon. Directed to attend the meeting of the Mississippi Valley Medical Association to be held in Cincinnati, Ohio, October 27 to 29, 1914, for the purpose of presenting a paper on Mentally Defective Aliens. **Lanza, A. J.**, Passed Assistant Surgeon. Directed to proceed to Jasper County, Missouri, and such other places in the State as may be necessary for the investigation of the prevalence, cause, and methods of control of tuberculosis in mines and metallurgical plants in that district. **Lloyd, B. J.**, Surgeon. Directed to proceed to Bremerton, Wash., for conference with the commandant of the Puget Sound Navy Yard in regard to fitting up the ship *Concord* for station ship at the Columbia River quarantine station; redetailed for duty in charge of the Service at Seattle, Wash., under paragraph 168 of Service Regulations. **McIntosh, W. P.**, Surgeon. Granted fourteen days' leave of absence from October 19, 1914; leave of absence for five days from October 5, 1914, amended to read "two days" leave of absence from October 5, 1914." **McMullen, John**, Surgeon. Directed to attend the meeting of the Medical Society of Virginia to be held in Washington, D. C., October 27 to 30, 1914. **Neill, M. H.**, Assistant Surgeon. Leave of absence for one month from October 11, 1914, amended to read "one month's leave of absence from October 13, 1914." **Oakley, J. H.**, Surgeon. Directed to attend the meeting of the Ohio Valley Medical Association to be held in Evansville, Ind., November 4 and 5, 1914. **Paine, Liston**, Assistant Surgeon. Relieved from duty in connection with the investigation of the pollution of the Ohio River, and directed to proceed to St. Louis, Mo., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. **Parcher, George**, Assistant Surgeon. Granted twenty-five days' leave of absence from October 19, 1914. **Pettus, W. J.**, Surgeon. Relieved from temporary duty in the Hygienic Laboratory and directed to proceed to Charleston, S. C., and assume charge of the Service at that port. **Preble, Paul**, Passed Assistant Surgeon. Relieved from duty at Pittsburgh, Pa., and directed to proceed to Cincinnati, Ohio, for duty at the headquarters laboratory of the investigation of the pollution of the Ohio River. **Robertson, H. McG.**, Passed Assistant Surgeon. Directed to report to the chairman of the board of commissioned medical officers convened to meet at the bureau, Tuesday, October 27, 1914, for examination to determine his fitness for promotion to the grade of surgeon. **Rucker, W. C.**, Assistant Surgeon General. Directed to represent the Service at the meeting of the National Funeral Directors' Association, to be held in New Orleans, La., October 27 to 30, 1914. **Safford, M. Victor**, Assistant Surgeon. Directed to proceed to Providence, R. I., and Portland, Me., for conference with medical officers of the Service relative to the establishment of uniformity in the medical examination of arriving aliens. **Smith, F. C.**, Passed Assistant Surgeon. Redetailed for duty in charge of the Service at Fort Stanton, New Mexico, under paragraph 168, Service Regulations. **Sweeney, Alvin R.**, Assistant Surgeon. Granted one month's leave of absence from November 10, 1914.

Boards Convened.

Board of commissioned medical officers convened to meet at the Bureau, Washington, D. C., Monday, October 19, 1914, for the examination of candidates for appointment as assistant surgeon. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Assistant Surgeon General L. E. Cofer, member; Surgeon Taliaferro Clark, recorder.

Board of medical officers convened to meet at the Marine

Hospital, Louisville, Ky., Monday, October 19, 1914, for the examination of candidates for appointment as assistant surgeons. Amended detail for the board: Surgeon J. H. Oakley, chairman; Surgeon S. B. Grubbs, member; Acting Assistant Surgeon J. F. Crane, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending October 24, 1914:

Caspar, Joseph L., Captain, Medical Corps. Granted leave of absence for one month and fifteen days on arrival in United States. **Cowles**, Calvin D., Jr., Captain, Medical Corps. Now temporarily at Fort Sam Houston, Texas, is relieved from further duty at Fort Clark, Texas, and will report to the commanding officer, Fort Sam Houston, Texas, for duty. **Cummings**, Royal E., First Lieutenant, Medical Corps. Relieved from temporary duty at Fort Huachuca, Arizona, and further duty at Fort Sam Houston, Texas, and will report for permanent station at Fort Huachuca, Arizona. **Gandy**, C. L., First Lieutenant, Medical Corps. Reports arrival at Fort Myer, Virginia, for duty. **Murray**, Alexander, Captain, Medical Corps. Granted one month's leave of absence on relief from present duties. **Pyles**, W. L., Captain, Medical Corps. Reports arrival at Chicago, Illinois, as attending surgeon. **Usher**, F. M. C., Major, Medical Corps. Reports en route to Fort Terry, New York, for duty.

United States Navy Intelligence:

Official list of changes and duties of officers serving in the Medical Corps of the United States Navy for the week ending October 24, 1914:

Hargrave, W. W., Assistant Surgeon. Commissioned an assistant surgeon in the Medical Reserve Corps from October 2, 1914. **Stephenson**, C. S., Assistant Surgeon. Commissioned an assistant surgeon from October 2, 1914. **Taylor**, S. N., Assistant Surgeon. Commissioned an assistant surgeon from September 28, 1914. **Treibly**, Assistant Surgeon. Commissioned an assistant surgeon from October 2, 1914. **Waterhouse**, R. N., Assistant Surgeon. Commissioned an assistant surgeon from October 2, 1914.

Births, Marriages, and Deaths.

Born.

Toland.—In Pottstown, Pa., on Friday, October 16th, to Dr. and Mrs. W. A. Toland, a daughter.

Married.

Blair—Wilson.—In Des Moines, Iowa, on Saturday, October 10th, Dr. Charles P. Blair, of Monmouth, Ill., and Miss Blanche Wilson. **Blossom—Copeman**.—In Jackson, Mich., on Monday, October 12th, Dr. Harry S. Blossom, of Middletown, N. Y., and Miss Abby Evelyn Copeman. **Boord—McLaughlin**.—In Pottstown, Pa., on Wednesday, October 7th, Dr. Paul C. Boord, of Maryland, and Miss Frances McLaughlin. **Compton—Dumesnil**.—In Louisville, Ky., on Saturday, October 17th, Dr. Wheeler W. Compton, of Bessemer, Ala., and Miss Genevieve Dumesnil. **Conterman—Buley**.—In Syracuse, N. Y., on Thursday, October 15th, Dr. Frank Beeby Conterman, of Iliion, and Miss Beatrice Thornton Buley. **Cox—Hoyt**.—In Malden, Mass., on Thursday, October 15th, Dr. James Elliott Cox and Miss Helen Florence Hoyt. **Culver—Galley**.—In Montreal, Canada, on Saturday, October 10th, Dr. Cyrus W. Culver, of Lowville, N. Y., and Miss Florence Mary Galley. **Dwight—Buttlar**.—In Oakland, Cal., on Thursday, October 22d, Dr. Wilder Dwight and Miss Hilma A. Buttlar. **Flagg—Hulburd**.—In Burlington, Vt., on Wednesday, October 7th, Dr. Rowley S. Flagg, of St. Johnsbury, and Miss Harriet Gertrude Hulburd. **Freeze—White**.—In St. John, New Brunswick, on Wednesday, October 14th, Dr. David D. Freeze and Miss Della White. **Fuhrmann—Rittenhouse**.—In Flemington, N. J., on Wednesday, October 14th, Dr. Barclay Stokes Fuhrmann and Miss Alberta Rittenhouse. **Hays**

—**Herron**.—In Monongahela, Pa., on Thursday, October 15th, Dr. George Kennedy Hays and Miss Ethel Herron. **Leininger—Edgington**.—In Delong, Ind., on Wednesday, October 21st, Dr. Elmer C. Leininger, of Chicago, and Miss Myrtle Edgington. **Loop—Myers**.—In Saratoga Springs, N. Y., on Thursday, October 15th, Dr. Harry L. Loop and Miss Emily Myers. **Lowney—Whiteman**.—In Fall River, Mass., on Tuesday, October 20th, Dr. Jeremiah J. Lowney and Miss Effie May Whiteman. **Masson—Knowles**.—In Worcester, Mass., on Friday, October 16th, Dr. James C. Masson, of Rochester, Minn., and Miss Alice M. Knowles. **Mayock—Smoulter**.—In Nanticoke, Pa., on Thursday, October 15th, Dr. Peter P. Mayock and Miss Elizabeth Smoulter. **Moore—Thornton**.—In Philadelphia, on Wednesday, October 21st, Dr. William Frederick Moore, of Lanerch, and Miss Marjory Quin Thornton. **Riddick—Ziegler**.—In New Orleans, La., on Wednesday, October 28th, Dr. Willard James Riddick and Miss Adrienne Ziegler. **Sullivan—Simon**.—In Mount Airy, Pa., on Saturday, October 24th, Dr. Edward Vincent Sullivan, of New Brunswick, and Miss Marie Louise Simon. **Wilcox—Bell**.—In Joliet, Ill., on Wednesday, October 14th, Dr. Bert G. Wilcox and Miss Lillian Marie Bell. **Wittich—Wetterau**.—In Westminster, British Columbia, on Saturday, October 24th, Dr. Frederick M. Wittich and Miss Jean Wetterau. **Zelle—Kane**.—In Springfield, Ill., on Tuesday, October 20th, Dr. Oscar Lewis Zelle and Miss Elizabeth Kane.

Died.

Amis.—In Fort Smith, Arkansas, on Thursday, October 15th, Dr. John C. Amis, aged fifty-five years. **Barrett**.—In Covington, Tenn., on Thursday, October 8th, Dr. William L. Barrett, aged eighty-two years. **Brallier**.—In Alexandria, Pa., on Sunday, October 18th, Dr. James P. Brallier, aged thirty-two years. **Carleton**.—In New York, on Tuesday, October 20th, Dr. Bukk G. Carleton, aged fifty-nine years. **Crider**.—In Columbus Junction, Ia., on Monday, October 12th, Dr. J. Jackson Crider, aged eighty-three years. **Hall**.—In Dover, Me., on Monday, October 19th, Dr. Crowell C. Hall, aged sixty-one years. **Hamilton**.—In Pittsburgh, Pa., on Thursday, October 15th, Dr. William Ray Hamilton, aged eighty-six years. **Irwin**.—In Crystal River, Fla., on Monday, October 5th, Dr. J. A. Irwin, aged seventy-six years. **Jenkins**.—In Washington Court House, Ohio, on Saturday, October 17th, Dr. Harry Jenkins, aged thirty-two years. **Johnson**.—In Salt Lake City, Utah, on Sunday, October 11th, Dr. Everett L. Johnson, aged sixty years. **Johnson**.—In Chester, Pa., on Wednesday, October 21st, Dr. William W. Johnson, aged seventy-seven years. **Jones**.—In Clinton, Wis., on Wednesday, October 14th, Dr. John W. Jones, aged eighty years. **Kimball**.—In Roxbury, Mass., on Wednesday, October 21st, Dr. Levi Houghton Kimball, aged sixty-one years. **Lagan**.—In San Francisco, Cal., on Tuesday, October 13th, Dr. Hugh Lagan, aged forty-three years. **Leslie**.—In Hamilton, Canada, on Sunday, October 18th, Dr. James Leslie, aged eighty-two years. **Magill**.—In Pittsburgh, Pa., on Saturday, October 17th, Dr. Arthur C. Magill, aged fifty-two years. **McCutchan**.—In Waco, Texas, on Thursday, October 8th, Dr. John M. McCutchan, aged forty-two years. **Mellard**.—In St. George, S. C., on Monday, October 12th, Dr. J. P. Mellard, aged seventy-six years. **Miller**.—In Brooklyn, N. Y., on Saturday, October 17th, Dr. Franklin Pierce Miller, aged fifty-nine years. **Morelen**.—In Bangor, Me., on Sunday, October 11th, Dr. Alonzo W. Morelen, aged forty-three years. **Neff**.—In Syracuse, N. Y., on Tuesday, October 13th, Dr. Daniel D. Neff, aged forty-five years. **Niles**.—In Chicago, Ill., on Saturday, October 17th, Dr. John Whiting Niles, aged fifty-three years. **Parke**.—In Elmira, N. Y., on Friday, October 9th, Dr. Floyd B. Parke, aged fifty-eight years. **Parker**.—In Bay City, Texas, on Friday, October 16th, Dr. Philip E. Parker, aged fifty-six years. **Ruddick**.—In Seymour, Ind., on Tuesday, October 20th, Dr. Lindley L. Ruddick, aged seventy years. **Stout**.—In St. Augustine, Fla., on Wednesday, October 14th, Dr. Henry R. Stout, of Jacksonville, aged seventy-two years. **Van Matre**.—In New Castle, Ind., on Saturday, October 17th, Dr. Cassius E. Van Matre, aged forty-six years. **Vebber**.—In Clayton, N. Y., on Tuesday, October 20th, Dr. Frank M. Vebber, aged fifty-eight years.

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GENERAL ANESTHESIA, WITH SPECIAL REFERENCE TO THE SURGERY OF THE GENITOURINARY TRACT.*

BY JAMES TAYLOE GWATHMEY, M. D.,
New York.

Before considering any special operations, let us first review inhalation anesthetics and the methods of their administration in common use, and state the general principles underlying them. We must bear in mind that the standards of a few years ago are not the standards of today, and no anesthetic or method of administration should be tolerated that is not both safe and pleasant.

Chloroform. In considering chloroform, we should remember that all evidences of untoward effects of this anesthetic, in both physicochemical and animal laboratories, and also clinically, were obtained under conditions that are now considered crude and improper. When a high grade anesthetic chloroform is administered, warmed, oxygenated, and with rebreathing to maintain the carbon dioxide in the blood, no unpleasantness is experienced by the patient in the induction of anesthesia, the respiration, pulse, and color are approximately normal during the administration; the awakening is the same as from a good nitrous oxide-oxygen anesthesia, and the relaxation is better. These statements have been verified in thousands of cases by users of the Roth-Drager apparatus, in which the anesthetic is warmed by constant rebreathing, and with which definite amounts of air, oxygen, and chloroform are given. Since impure chloroform as well as crude methods of administration have undoubtedly contributed to untoward effects in the past, and as Baskerville and Hamor have determined that oxidation products are entirely removed when chloroform is swept by oxygen currents through water, it is an additional element of safety to follow this procedure.

In outlining the difference between chloroform properly safeguarded and as formerly used, I do not wish to be put in the attitude of an advocate of the more general use of chloroform, but desire simply to emphasize the importance of administering it under correct conditions.

Ethyl chloride. A greater difference of opinion exists as to the value of ethyl chloride than of that of any other anesthetic. As, however, with animals in the laboratory, fatty degeneration follows

the administration of ethyl chloride more markedly than of any other anesthetic, all authorities are practically agreed that it should not be used for prolonged operations. The only question, then, is as to the advisability of its employment in short operations and as a preliminary to ether.

As death under ethyl chloride may be caused simply by an overdose, as well as by intercurrent respiratory embarrassment, and as death from nitrous oxide is caused by a faulty technic only, it seems to an impartial observer that nitrous oxide is a safer preliminary to ether. It is universally conceded that ethyl chloride has its widest field of usefulness with children as a preliminary to ether, and for short operations.¹

Ether. Ether is conceded by all writers to have the widest latitude of safety of any known anesthetic. This is not a good reason for its continued misuse, but, on the contrary, is a very good reason why the technic of its administration should be improved. As will be shown later, "straight ether" by the drop method is not the safest nor the best procedure.

The nitrous oxide-ether sequence, bridging over the second stage with its disagreeable features, was admitted to be a wonderful advance in technic, but occasional deaths from asphyxiation in some of our best hospitals are reported from time to time. Even in the hands of an expert, the pulse jumps from seventy-two to 100 and 150, the blood pressure is raised enormously, and the sensations just before losing consciousness almost invariably leave a dread of future operations. "Gas-ether" should be a thing of the past. By using oxygen, however, with the nitrous oxide, making a nitrous oxide-oxygen-ether sequence, both mortality and unpleasant sensation are eliminated, and respiration, pulse, blood pressure, and color are maintained at about normal. No new nor expensive apparatus is required to administer the ether in this way. The addition of a Y connection to the stopcock of the gas bag of any of the apparatus in common use, to which are attached rubber tubes leading respectively to nitrous oxide and oxygen tanks, with directions to give enough oxygen to prevent the patient from being cyanosed, is sufficient to make this a safe procedure, even in unskilled hands.

Where nitrous oxide is not available, the giving of preliminary medication, as will be outlined later, and the addition of two to six drops of the essence of bitter orange peel² upon an ordinary chloroform mask, surrounded by a towel to promote rebreath-

*Read at the annual meeting of the Section in Genitourinary Surgery, New York Academy of Medicine, October 15, 1914.

¹Dr. Martin Ware reported at this meeting 20,000 administrations of ethyl chloride given under his supervision, with no mortality.

²See this JOURNAL for September 14, 1912, page 543.

ing; followed in one minute by the beginning of the drop method of chloroform, continued until the swallowing reflex is abolished; and then the substitution of ether by the vapor or drop method—form one of the safest and best methods of inducing ether anesthesia, as regards both the immediate and the aftereffects.

The essence of orange-ether sequence by the closed method, consists in filling the gas bag with air passed through two to four ounces of water in which has been placed one to two drams of the essence of bitter orange peel. The ether is then turned on gradually with any of the inhalers in common use, as in the gas-ether sequence, until the patient is in full surgical narcosis, which occurs in from five to seven minutes. A puff of nitrous oxide in the bag hastens unconsciousness. This is a much safer procedure than the gas-ether sequence, as the second stage and all cyanosis are entirely eliminated and the patient remains in a nearly normal condition throughout the operation.

Nitrous oxide is a safe anesthetic, even in unskilled hands, for very short operations, when administered up to the point of asphyxiation and the mask then removed. Such operations would include the extraction of teeth, opening of abscesses, etc. This asphyxial form of anesthesia becomes very dangerous if administered for longer operations. Nitrous oxide and oxygen, when administered warmed—either naturally, as by rebreathing, or artificially, as by the method of Teter and others—is one of the safest methods of obtaining anesthesia of which we have any knowledge. While it is usual to supplement it by small amounts of ether when necessary to obtain the complete relaxation called for in certain operations, this can best be obtained by preliminary medication, omitting the ether entirely—thus making it satisfactory for over ninety per cent. of all surgical operations.

If more than two ounces of ether an hour is used in connection with the nitrous oxide and oxygen, it should be called an ether anesthesia, as we can produce a satisfactory narcosis in all cases with this amount of ether, without the gas and oxygen. That this form of anesthesia is not entirely innocuous, is proved by thirty deaths reported from various parts of the country, collected and reported by Miller, of Providence, Rhode Island. All deaths occurring under nitrous oxide—either alone or in combination with other anesthetics—have resulted from asphyxiation. If the patient is kept free from cyanosis, and the anesthetist knows the difference between asphyxiation and anesthesia, a death from nitrous oxide and oxygen is impossible.

STATISTICS.

The Committee on Anesthesia of the American Medical Association has gathered statistics for the years 1905 to 1912 inclusive. Circulars were sent to all public hospitals in the United States, Canada, Cuba, and the Canal Zone. The information thus gathered may, therefore, be considered as fairly representative of American hospitals in general. Three hundred and eighty-six hospitals reported a total of 488,886 anesthetics—including combinations and sequences—with a mortality of one in 4,404 cases. This small mortality means that a

death from anesthesia results only through carelessness, ignorance, or useless experimentation with new methods before they are thoroughly understood or tested in the laboratories. As this mortality is entirely preventable, it is our imperative duty to eliminate it. It can be reduced by the methods just outlined, and also by a study of these statistics, which are probably the most complete that have ever been collected. As regards ether and chloroform, they correspond in a general way to the European statistics gathered by Hewitt. In his table, the deaths from ether are reported as about one in 16,000; and for chloroform, one death in 3,000. He makes the deduction that, roughly speaking, ether is more than five times as safe as chloroform. The American statistics give for ether, one death in 4,500; and for chloroform, one death in 1,600; showing that ether is approximately over three times as safe as chloroform.

Neither the European nor the American statistics include the latest and best methods of administering chloroform which, by recent improvements in technic, has made more marked advance toward safety than perhaps any other anesthetic during the same period. These same statistics show that the nitrous oxide-ether sequence is safer than the ether alone, only one death occurring in 6,800 administrations. The chloroform-ether sequence, according to these statistics, is one of the safest methods of administering ether, only one death occurring in over 10,000 cases. Local anesthesia has no mortality in over 30,000 administrations. Most of us are aware, however—either directly or indirectly—of deaths occurring from local anesthesia when the patient was not properly prepared.

Ethyl-chloride is a very safe anesthetic for short operations, according to this table, no deaths being reported in over 12,000 cases.

The ethyl chloride-ether sequence has presumably fallen into careless hands, since one death is reported in 2,590 administrations. The ethyl chloride-ether sequence, administered upon an ordinary chloroform mask which is surrounded with a towel, is considered a very safe procedure. If the induction is made with a Martin Ware mask, which allows considerable rebreathing, and if this is later replaced by a mask surrounded by a towel, the narcosis will be safe, and smoother and more satisfactory from every standpoint.

METHODS OF ADMINISTRATION.

There is no special reason for using *endotracheal* anesthesia in surgery of the genitourinary tract. Suffice it to say that while this method shows a high mortality, all of the deaths occurred during the introductory period, and such fatalities will not occur now that the technic is thoroughly understood. Elsberg at Mount Sinai, with 1,000 cases, and Peck, at Roosevelt Hospital with 516 cases and no mortality, have shown beyond all peradventure that this is one of the safest methods of maintaining anesthesia.

The *endopharyngeal* method, however, introduced and perfected by Connell is far superior to the endotracheal method as a routine procedure, avoiding, as it does, the possibilities coincident with the introduction of the tube in the trachea. In a

personal communication, Connell reports over 2,600 cases, with no mortality.

Intravenous anesthesia is a perfectly safe method if the technic of Doctor Honan is followed—that is to say, the introduction of the needle into the vein is the work of the surgeon, the anesthetist regulating the plane of anesthesia as with any other method. Honan has proved that this method is as devoid of unpleasant aftereffects as a local or a nitrous oxide-oxygen anesthesia.

Oil-ether colonic anesthesia is not especially indicated in genitourinary surgery on account of the proximity of the anesthetic to this tract, since these organs are not affected by the anesthetic any more than the brain and other parts of the body. It is a perfectly safe procedure, however, and offers many positive advantages for those who understand it. The absence of gas pains and other unpleasant aftereffects would seem to indicate that the ether placed in the lower bowel aids considerably in bringing about this happy result. Also, as the mixture kills the colon bacillus in one minute, it seems that fermentative and other toxic processes are prevented by this special method. The only cases that suffered the usual aftereffects have been those which were not properly prepared. It may be found therefore that irrigation of the bowel until the return is clear, three hours before the operation, is a good routine procedure, regardless of the method of administration.

As the amount of the oil-ether solution has been reduced one half by using paraldehyde as a preliminary, it seems a good technic to put the patient asleep in this way and to continue the anesthetic endopharyngeally with very low percentages of ether.

The field of usefulness of local anesthesia is considerably broadened by using only one half the amount of oil-ether required for general anesthesia, and a sixty-five instead of a seventy-five per cent. solution, and continuing the operation with novocaine. It will thus be found that the nicety of detail usually called for in local anesthesia will be unnecessary.

PRELIMINARY MEDICATION AND AFTERTREATMENT.

Spinal, local, and intravenous anesthesia, are always preceded by preliminary medication, and according to American statistics over sixty per cent. of all general anesthetics are preceded by preliminary medication. Crile (1) and Buckler (2), in papers read this year before the American Association of Anesthetists, at Atlantic City, gave very definite and specific reasons why all anesthetics should be preceded by preliminary medication and treatment.

In Crile's laboratory, observations on the H-ion concentration—that is, an index of the acidity of the blood—were made under various conditions. It was found that both ether and nitrous oxide produced acidity in the blood, this acidity being automatically neutralized thirty minutes after the stoppage of the anesthetic. This acidity is indicated by acetone, and, later, by acetic acid in the urine. Starvation just before and immediately following an operation, also accentuates this condition. When the administration of morphine preceded the induction of anesthesia, the H-ion concentration test showed that the acidity was markedly less than in

anesthetized animals which had not received a preliminary dose; neither did the morphine interfere with the return of the blood to its normal alkalinity. If, however, morphine was given *after* acidity had been produced by the anesthetic, it delayed the time of neutralization; and if given in large doses it prevented the animal from overcoming the acidosis.

The importance of these findings cannot be overestimated and they may possibly explain some untoward results for which neither the anesthetic nor the operation could be held accountable. Crile recommends the preoperative administration of sodium bicarbonate and glucose, and per rectum of bromides for patients in whom acidosis is present or threatened. Buckler emphasizes the importance of pushing sodium bicarbonate until the urine is alkaline, and also the giving of a carbohydrate both before and after anesthesia. He gives patients one dram of sodium bicarbonate and one dram of lactose every four hours for at least forty-eight hours before operation. If the urine is already acid, the dose of sodium is increased. As a postoperative treatment, he gives a five per cent. solution of sugar per rectum by the Murphy drip, 300 c. c. at a time, also sips of a two per cent. sodium solution for the first day; and upon the second and third days, thirty grains every four hours. In order to prevent starvation, Buckler recommends that patients be given a purge of castor oil forty-eight hours before operation, and an enema the night before, repeating the enema in the morning until the fluid is clear. He also thinks that there is a close relation between nervousness and fright and subsequent acidosis, and states that the results of this treatment have been "most astonishing," decreasing the nausea and vomiting to a minimum.

ANESTHETICS FOR SPECIAL CASES.

Having a clear idea of the limitations of each of the general anesthetics and of the necessity for preliminary and aftertreatment, it will be an easy matter to select the best anesthetic for special cases and for certain operations.

For young adults, some preliminary medication is as necessary as for older persons. Many more short operations can be satisfactorily performed in the doctor's office or in the patient's home than is now customary. For instance, the stretching of the sphincter ani, cystoscopy, fulguration of bladder tumors, urethral catheterization in irritable bladders, etc., can all be done with nitrous oxide and oxygen alone and without any preliminary medication. The patient should not be touched by the surgeon until surgical anesthesia is thoroughly established.

Afterpain can be averted in many of these cases by the continuance of the anesthesia for five minutes after the completion of the operation. Where very great subsequent pain is anticipated, the hypnotic should be administered before the anesthetic. As in many instances small amounts of ether seem to be as distressing as if the anesthetic was entirely of ether, this drug should not be used in these short operations. For longer operations, the choice of the anesthetic will depend upon the conditions and the surroundings.

For circumcision and similar operations on

young children, warmed ether vapor is usually to be preferred. For a child six years of age or older, gas and oxygen are entirely satisfactory. Straight ether should not be used with infants and children, not only on account of the fright and resulting shock, but because the excessive mucous secretion may embarrass respiration and lead to bronchitis and other serious complications. If the child is very nervous, it is better to induce anesthesia while it is sleeping.

Prostatic cases should all have the benefit of the preliminary treatment outlined by Crile and Buckler.

If the patient is an athletic alcoholic with high blood pressure, chloroform administered under the condition outlined is probably safer than any other anesthetic. Such patients come out of the anesthesia in the same way and in as good condition as do ordinary patients from gas and oxygen.

For the very obese, that is, patients weighing from two to three hundred pounds—oil-ether colonic anesthesia is the method of choice (3).

Aged persons with hardened arteries should preferably be anesthetized with ether and chloroform by the open method.

Other patients, especially thin and emaciated ones, can be satisfactorily anesthetized with nitrous oxide and oxygen, and perfect relaxation secured without the addition of even small quantities of ether, *provided proper preliminary medication* has been given. A pint of tap water with one ounce of glucose, one ounce of sodium bicarbonate, and one ounce of olive oil, given immediately before the patient leaves the table, is a good procedure for these patients.

For prolonged and radical operations, such as excision of the rectum, the patient should have more than the usual amount of preliminary morphine, and then only enough nitrous oxide and oxygen to secure unconsciousness will be required to complete the surgical anesthesia.

CONCLUSIONS.

1. Most patients to be anesthetized, either locally or generally, should have the benefit of physiological doses of morphine before anesthesia, and also of an alkali, and carbohydrate treatment both before and after operation.
2. For very weak and feeble patients, for those in the extremes of life, or where exhaustion with acidosis is present; also where the patient is in a state of coma or has acute or subacute nephritis, or any respiratory affection, the morphine should be omitted and bromides, or paraldehyde and olive oil, per rectum, should be substituted.
3. The essence of orange-chloroform-ether sequence, or the nitrous oxide-oxygen-ether sequence should be used instead of ether by the drop method or the "gas-ether" sequence.
4. Chloroform throughout is the anesthetic of choice for chronic alcoholics in fair condition.
5. Oil-ether colonic anesthesia is indicated for the very obese.
6. For office work and short operations, it is both safe and satisfactory to use only nitrous oxide and oxygen, without any preliminary medication or the addition of ether.
7. For major operations in genitourinary surgery,

patients can be narcotized with nitrous oxide and oxygen *alone*, if proper preliminary medication is given, and this combination should be more frequently employed.

REFERENCES:

1. CRILE: *The Influence of Anesthesia in Acidosis*.
2. BUCKLER: *Prophylaxis of Postanesthetic Vomiting*, *American Journal of Surgery*, October, 1914.
3. GWATHMEY: *Anesthesia*, p. 855, etc.

40 EAST FORTY-FIRST STREET.

LOCAL ANESTHESIA IN RELATION TO THE SURGERY OF THE GENITO-URINARY TRACT.*

BY JAMES F. MITCHELL, M. D.,
Washington, D. C.

Local anesthesia as we understand it today was made possible in 1853 by the introduction of the hypodermic syringe by Alexander Wood, of Glasgow. There was available at that time, however, no effective drug, although the desire was evidenced by the employment of morphine and other substances. In 1860, Niemann isolated and described the chemical properties of the active principle of erythroxylon coca, to which he gave the name cocaine. Although this substance was used to some extent by laryngologists, its anesthetic nature was not known. In the *Medical Record* for September 19, 1884, there appeared a letter from Dr. H. D. Noyes, of New York, giving a report of the ophthalmological congress which had just concluded its session in Heidelberg. Doctor Noyes stated that perhaps the most important part of the meeting had been the wonderful demonstration of the anesthetic action of cocaine. Dr. Carl Koller, of Vienna, who had made this discovery, had given to Dr. Brettauer, of Trieste, a small vial of a two per cent. solution of muriate of cocaine for demonstration before the congress. Dr. Brettauer, in the presence of the members, dropped some of the solution into the eyes of two patients and performed painless operations under its influence. This demonstration excited the keenest interest of ophthalmologists, and Doctor Noyes in his letter enters into an interesting discussion as to its future possibilities and dangers.

Immediately the suggestion was adopted in New York, and beginning as early as October 14, 1884, only a month after the first demonstration, we find the *Medical Record* and the *NEW YORK MEDICAL JOURNAL* flooded with reports of successful operations under cocaine by New York ophthalmologists; first Dr. C. R. Agnew, then Dr. W. O. Moore, Doctor Mittendorf, Dr. James L. Minor, and others. In December, 1884, there is reported in the *Medical Record* by Hazen, of Youngstown, Ohio, the first enucleation of the eye under cocaine anesthesia.

New York surgeons were apparently just as active as the ophthalmologists, and remarkable work was done by Halsted, Hall, Roberts, and others. In 1885, Halsted demonstrated the value of weak solutions, and the importance of endermic injections for anesthetizing the skin. He also for

*Read, by invitation, at the annual meeting of the Section in Genitourinary Surgery, New York Academy of Medicine, October 15, 1914.

the first time injected cocaine into a nerve trunk for the production of anesthesia in the course of its distribution, paving the way for the neuronregional method. He utilized for this purpose the inferior dental nerve at the entrance into its canal and painlessly extracted teeth. Doctor Roberts reported successful operations in the field of bone surgery: partial excision of the elbow and osteotomy for genu valgum. In the same year, from the neurological side, came Dr. Leonard Corning's demonstration of the prolongation of anesthesia by the application of a tourniquet and his remarkable contribution, first suggesting and performing spinal injection.

It will thus be seen that within a year after the introduction of cocaine as an anesthetic, New York investigators had established nearly all the underlying principals of local anesthesia. Another interesting historical fragment is a letter appearing in November, 1884, in which Dr. Samuel R. Percy stated that on November 5, 1857, he had read before the New York Academy of Medicine a paper describing a substance which he had isolated from erythroxylon coca and which he called *erythroxylen* identical with cocaine. He had given to the custodian both the paper and a sample of this substance, but unfortunately both had been lost. His report antedated Niemann's discovery of cocaine by three years.

In the field in which we are especially interested cocaine anesthesia was almost immediately adopted for the passage of instruments in the urethra, and as early as 1885 Bruns, of Tübingen, introduced cocaine in the bladder for the crushing of stones. In the advanced and highly developed genitourinary surgery of today, both local and spinal anesthesia have a definite field of usefulness and their employment may convert many a bad risk into a safe operative case.

Drugs. Unfortunately many of the accidents and deaths from local anesthesia come from the genitourinary department. Although this condition has been in part remedied by the substitution of drugs less toxic than cocaine, a word of warning to genitourinary men is still in order. Haste and strong solutions must be avoided. Weak solutions and a little more time will give just as satisfactory anesthesia with a minimum of risk. If cocaine is used at all, it should not be in stronger solution than one per cent. in the urethra or one tenth per cent. in the bladder or for tissue injection, always protected by adrenaline. Novocaine does not seem to be as effective as cocaine when applied to mucous membranes. Alypin is recommended as the most satisfactory cocaine substitute in the urethra and bladder. Many accidents and deaths have been reported from its use; but an analysis of most of these shows that strong solutions are responsible. There is a recent report of one death and two serious though not fatal reactions from injections of alypin into the urethra and bladder. Ten per cent. solution was used and the writer asks as to the proper dose. In answer, it must be borne in mind that it is not so much a question of amount as of concentration, and safety lies in weak solutions. The solution of alypin for urethral injection should not be above one per cent., combined with supra-

renine, and in this strength an actual amount of the drug may be safely used which might prove fatal, if given in ten per cent. concentration.

For the purpose of injection into the tissues for operative procedures, where any amount is necessary, novocaine in one fourth to one half per cent. solution, combined with suprarenine, is the only drug to be considered. Enormous amounts may be safely used—250 to 300 c. c. For nerve blocking, this may be increased to one or two per cent., as the quantity is usually small. For spinal anesthesia the choice lies between stovaine and novocaine with the trend of opinion toward the latter.

External genitalia. Certain operative procedures are so easily accomplished under local anesthesia that its employment should be the natural rule, as in circumcision and the various operations for hydrocele or varicocele. The whole penis as well as the scrotum and its contents may be readily anesthetized by basal injections permitting painless plastic operations, castration, or Hagner's operative treatment of epididymitis. General or even spinal anesthesia for such simple affairs is unnecessary, and what element of danger is offered by either may be eliminated.

Urethra and bladder. The practice of injecting at the meatus a strong solution by means of a syringe and expecting almost immediate anesthesia of the urethra, is not only unsatisfactory but dangerous. By the expenditure of a little time and patience good anesthesia can usually be safely obtained. The deep urethra is especially sensitive. A small catheter is introduced into the bladder and withdrawn until urine ceases to flow from the bladder. Through the catheter one per cent. alypin with suprarenine is then injected and the catheter slowly withdrawn as the injection is made, so that by the time the catheter is entirely out of the meatus, about five c. c. have been introduced. The meatus is now closed and the solution retained for fifteen or twenty minutes, when anesthesia should be sufficient for the passage of instruments or endoscopic examination and treatment. In case of stricture, the catheter is introduced to the point of obstruction and the injection made; but the catheter is not entirely withdrawn and slight pressure on the fluid is maintained. In this way it is often found that contraction of the mucous membrane due to the suprarenine will in time permit the fluid to pass the stricture, and its calibre will so enlarge as to allow a small instrument to pass, and gradual dilatation may be accomplished.

External urethrotomy is quite satisfactorily done in most instances by means of diffuse perineal injection with one half per cent. novocaine and suprarenine. In case of extravasation or infection where a more extensive field of anesthesia is required, parasacral or spinal anesthesia may be more satisfactory. In the uninfamed bladder the fundus is not especially sensitive, but the region of the trigonum is. Great distention causes pain and in the presence of inflammation even slight distention cannot be borne. Even the inflamed bladder can usually be anesthetized by first washing it as clean as possible and then filling it with one half per cent. alypin and suprarenine. After a few minutes it will often be found to relax and more fluid will be

admitted so that after twenty to thirty minutes the bladder will permit such manipulations as cystoscopy or ureteral catheterization. With such a weak solution there is practically no danger.

Suprapubic cystostomy for the removal of stones and other purposes may be accomplished by the foregoing procedure with the addition of a diffuse infiltration of the abdominal wall in the line of incision. For more extensive operations upon the bladder or ureters, where it is desirable to avoid general narcosis, one may resort to spinal or paravertebral anesthesia.

Prostate and kidneys. It is especially in patients requiring prostatectomy or various operations on the kidney, that we find those conditions in which it is most desirable to avoid general anesthesia. They are particularly likely to have conditions of heart, bloodvessels, lungs, or kidneys, in which general anesthesia is dangerous and many postoperative deaths may be attributed to the complications of anesthesia rather than to the operation itself. The three chief factors which contribute to the mortality of prostatectomy are hemorrhage, shock, and the anesthetic. It is not our purpose to discuss the merits of suprapubic or perineal prostatectomy nor to enter into the question of hemorrhage; but with the last two factors we are directly concerned. It has been amply demonstrated by Crile that traumatic shock may be eliminated by cutting off the operative field from the central nervous system. This may be accomplished in four ways: 1. By Crile's method of combining with general anesthesia the injection of the operative field with a local anesthetic, as one half per cent. novocaine; 2, by performing the operation entirely under local anesthesia; 3, by paravertebral or parasacral anesthesia; and, 4, by spinal anesthesia. In considering these various methods one must take into account their efficiency, their ease of performance, and the risk entailed by their employment.

1. Lower gives the details of Crile's methods as evolved after an extensive experience, and with Crile alleges greatly decreased mortality under its use. Cabot raises the objection that he has been unable to obtain a complete "block." In addition, there is the danger from the general anesthetic, be it ether or nitrous oxide, and Cabot states that neither is free from criticism in these cases.

2. In 1905, Tinker reported successful perineal prostatectomy under local anesthesia, using direct infiltration with the old cocaine solutions. From Heidelberg, Franke and Posner, in 1912, presented a method of reaching the nerve supply through deep perineal injections and reported some twenty successful and painless prostatectomies. The method is complicated and requires some skill in its application. It may be used for prostatectomy by either route, and carries no danger.

3. The paravertebral method consists in the blocking of the nerves just after they leave the vertebral foramina. It has a wide range of usefulness and little or no risk. The parasacral modification is especially applicable to prostatectomy. The chief objection to this, as to the other forms of local anesthesia, lies in the fact that considerable time must be expended in the actual anesthetization and some

individual skill is required for the technic. The anesthesia obtained, however, is most satisfactory and extensive, involving the sphincter ani and the rectum, the urethra, prostate, and bladder. Braun and others have used the method satisfactorily for prostatectomy and have observed no unpleasant effects.

4. Spinal anesthesia has passed through its periods of popularity and condemnation, but judged impartially today, it must be acknowledged to be on a more safe and sound basis than it has been at any time since it was first popularized by Bier and Tuffier, in 1900. One has only to read the excellent papers of Allen, Babcock, and Bainbridge, to be convinced that the procedure is not the dangerous affair which many of us have led ourselves to believe. Babcock considers the dangers of ether and spinal anesthesia for ordinary cases about equal in competent hands, but in unskilled hands undoubtedly greater with spinal anesthesia. His report of eleven deaths in 5,000 cases cannot be taken as a fair estimate, for many of these were poor risks, greatly handicapped patients, some of whom had taken ether unsuccessfully. Bainbridge has stated that the indications for spinal anesthesia are the contraindications for ether. Again, it must be remembered that in prostatectomy we are dealing with spinal anesthesia in its most favorable and safest field; for it is in attempts to obtain high anesthesia that disaster most often occurs. It demands a trained anesthetist just as surely as does general anesthesia, but in such hands the present weight of evidence forces us to admit that there is no great danger peculiar to the anesthetic itself. If we can admit this, the method is an ideal one for prostatectomy, for by the nerve block which it offers, one element of shock is entirely eliminated and the dangers to heart, lungs, and kidneys, incident to inhalation anesthesia, can be avoided.

From this survey of prostatectomy we may draw the conclusion that in many prostatic patients there are conditions which make it desirable to avoid general anesthesia and that we have several available substitutes. If we admit the safety of spinal anesthesia, it is undoubtedly an ideal method. If spinal anesthesia is not to be considered, paravertebral, regional, and true local infiltration anesthesia, although somewhat complicated and time consuming, offer a safe means of performing prostatectomy.

Kidney and ureter. The majority of patients subjected to operation upon the kidney or ureter cause no unusual concern as to the anesthetic. The prevention of shock by Crile's anoci method is an important factor in debilitated patients or in those with impaired renal function. There are some cases, however, where both kidneys are involved or in which other complications make it desirable, not only to avoid any general anesthesia, but to protect the patient as well by means of nerve block. This may be accomplished through spinal anesthesia or quite satisfactorily by paravertebral blocking. This method, to which reference has been made before, is an extremely serviceable one and is capable of great variations, serving alike for thoracic, abdominal, pelvic, or perineal operations. It was first suggested by Sellheim, in 1906, and in 1911 was applied to kidney operations by Laewen and Kap-

pis. It is based upon the fact that the abdomen receives its sensory supply from the intercostal and lumbar nerves, and the pelvis and perineum from the sacral. The abdominal organs themselves are insensitive. The nerves are blocked just after emerging from the spinal canal, the particular ones varying with the site of operation. For a nephrectomy it is necessary to block the fifth to the twelfth dorsal and the first and second lumbar. Each nerve is reached by a separate needle puncture, four cm. from the middle line at the level of the tip of a spinous process. The needle is held perpendicular to the skin surface and is pushed straight in until its point strikes a rib, or in the lumbar region a transverse process. The needle is now moved until its point slips over the lower border of the rib, when its projecting end is tilted outward twenty to twenty-five degrees. In this position it is introduced 1.5 to 2.5 cm. deeper. The injection is then begun and continued as the needle is withdrawn until its point reaches the edge of the rib, by which time fifteen c. c. of one half per cent. novocaine with suprarenine has been introduced. The needle is left in as a guide to the introduction of the next. Anesthesia appears in fifteen or twenty minutes.

The sacral nerves are reached through a point 1.5 to two cm. to either side of the tip of the coccyx. A needle twelve to fifteen cm. long is introduced, and the lower edge of the sacrum felt with its point. It is then pushed on parallel to the midline until it meets obstruction (usually at a depth of seven or eight cm.), which marks the second sacral foramen. Here twenty-five c. c. of one half per cent. novocaine with suprarenine are injected. As the needle is withdrawn, thirty-five c. c. more are injected before the lower sacral border is reached, thus surrounding the third, fourth, and fifth nerves. The needle is reinserted, pointed a little more abdominally, and pushed up until obstruction is again encountered (usually at a depth of ten or twelve cm.), marking the first sacral foramen. Here forty c. c. of the solution are injected.

We have given the technic in detail, because it is the safest form of local anesthesia under which the more complicated genitourinary operations may be accomplished. It is absolutely free from danger, has apparently no contraindications, and has proved most satisfactory in the hands of Braun and other European surgeons. In July of this year, Siegel reported from Freiburg 170 recent gynecological operations in which it has been successfully applied.

It must be understood that local anesthesia is not advocated as a method of supplanting general anesthesia in all genitourinary surgery or in any other branch of surgery. Our highly trained and expert special anesthetists in America have placed general anesthesia upon too safe a basis to need this. The scarcity of such experts in foreign clinics possibly accounts for the greater development and wider use of local methods in other countries. There are many procedures in which it is unnecessary to subject patients to the discomfort and inconvenience of general anesthesia, and others where, from the seriousness of the patient's condition, it is unwise to risk the strain and possible aftereffects. For these handicapped individuals, bad surgical risks, the methods which have been discussed offer an extra

protection and a possible means of rendering necessary surgical aid.

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1344 NINETEENTH STREET, DUPONT CIRCLE.

IS THE MODERN ANTITUBERCULOSIS CRUSADE REALLY A FAILURE?

A Reply to Dr. Thomas J. Mays's Communications to the New York Medical Journal for July 4, July 11, August 29, and September 26, 1914,

By S. ADOLPHUS KNOPF, M. D.,
New York.

I have been patiently waiting for some general, some leader in the antituberculosis crusade, some sanatorium director, or superintendent of a great tuberculosis hospital to reply to Doctor Mays's various communications to the *NEW YORK MEDICAL JOURNAL*, in which he denounces our present day methods in the prevention and cure of tuberculosis. Since no one has done so, may I, though only a common soldier in the great army of tuberculosis fighters, say a word in our defense, particularly in answer to Doctor Mays's question, Is the Consumption Crusade Becoming a Burlesque?

Some of my fellow workers have thought it was not worth while to reply to Doctor Mays's accusations—for such they are—and I was of the same opinion after the appearance of his first article. But when he continued his tirade in three subsequent communications in the same *JOURNAL*, when the daily papers, for example the *New York Herald*, reprinted some of Doctor Mays's most sensational statements under such headings as Physician Attacks Phthisis Prisons, etc., I thought it time the question was taken up. While medical men in general may look with indifference upon such writings as Doctor Mays has produced, when statements which are pleasing to careless or ignorant consumptives or agreeable to retrogressive physicians are reprinted in the lay press, they are productive of incalculable harm. Those of us who are working for the establishment of sanatoriums and special hospitals for the care of the consumptive poor by municipalities or private philanthropy will hear Doctor Mays quoted as a great authority on the uselessness of tuberculosis hospitals and the inhuman and unscientific treatment patients are said to receive in such institutions.

I do not believe I have a right to take up valuable space in the *JOURNAL*, nor do I think it necessary to reply to all of Doctor Mays's strange statements. I have selected those which seemed to me most striking among the many which need refutation.

In his first article he asks the question: "Are those who are exposed to a disease more liable to contract it than those not so exposed? This is an infallible criterion, for its converse implies that the less exposed are more liable. What, then, are the practical effects when nonconsumptives are brought into contact with consumptives? Do they contract the disease or do they not?" To this Doctor Mays replies: "Without detailing the multitude of data on which the noncontagious character of consumption is based, it may, in strict accordance with facts, be said that there is no evidence of contagion among physicians, nurses, and other attachés of consumption hospitals, nor among the members and servants of families who lodge and care for consumptives in mountain and health resorts, either in this country or in Europe, nor among married people when either husband or wife is affected, nor among inhabitants of towns in which consumption hospitals are situated."

Doctor Mays may not have them, but there exist a multitude of data which show beyond a shadow of doubt that tuberculosis is very frequently transmitted from husband to wife and wife to husband, from brother to sister and sister to brother, even from servants to families and families to servants, if they have lived in close proximity. How many interns and nurses contracted tuberculosis in general hospitals in the olden days when the communicability of the disease was little understood and no precautions taken, I will leave to the doctor to investigate for himself, by asking his older colleagues, if he is too young to recall those days. He may also ask these older colleagues whether it did not quite often happen in the days when typhoid, pneumonia, malaria, and tuberculosis were treated in one ward, that tuberculosis was implanted upon the pneumonic, typhoid, or malarial patient.

Concerning the fact of the frequent transmission of tuberculosis from husband to wife and vice versa, there are any number of American and European authorities who have related such instances. Cornet in *Nothnagel's Encyclopedia*, translated by Professor Alfred Stengel of the University of Pennsylvania, and edited with additions by Professor Walter B. James of Columbia University, devotes a whole chapter to infection through marriage. Sir Herman Weber reports the infection of several wives by one tuberculous husband; so do Burney-Yeo, Debove, and others. From my personal experience I may say with these authors that the number of cases of marriage infection, often of classical simplicity, runs up into the thousands.

The infection from close contact, as in workshops for example, according to Cornet, is even greater than in the family. He cites the infections as running up as high as sixty per cent. in some instances.

I have already referred to the fact that prior to the era of modern means of prophylaxis in tuberculosis, the infection from tuberculous patients to interns and nurses was not infrequent, and the same holds good among the people in health resorts much frequented by tuberculous patients. That there is now less tuberculosis in communities in the neighborhood of tuberculosis sanatoriums is due to the

very fact which Doctor Mays belittles and ridicules, namely, the great care exercised by physicians, nurses, and patients to prevent infection. The cleanly habits in the institution within their midst are imitated by the inhabitants of such resorts.

There is no difference between the opinion of modern crusaders against tuberculosis and Doctor Mays when he holds underfeeding and bad housing, lack of light, and general bad sanitation responsible for the spread of tuberculosis. It is for this very reason that the physicians interested in the combat of tuberculosis as a disease of the masses have allied themselves with the social workers. No one feels more keenly the need of attacking the social as well as the medical aspect of tuberculosis than the very men whom Doctor Mays attacks. I need only refer him to that splendid institution in his own city—the Phipps Tuberculosis Institute—which has a special department under expert guidance to study the sociological causes and relieve the conditions responsible for tuberculosis in the patients who come under their observation. On the other hand, I may remind Doctor Mays of the fact that there are a goodly number of well-to-do and even very rich people who have and do contract tuberculosis. Any number of tuberculosis sanatoriums and hospitals for the care of the consumptive poor owe their existence to the generosity and gratitude of many a noble man and woman of our wealthy classes who had contracted tuberculosis and who were cured in just such institutions as Doctor Mays denounces. It may also be said here that there have been wealthy patients in private sanatoriums whom medical skill could not save, who, through their sojourn there, were so deeply impressed with these institutions as a means of curing the curable and isolating the hopelessly ill, that they left their fortunes to the furtherance of the modern tuberculosis propaganda or the establishment of sanatoriums for the consumptive poor.

In his second article, Doctor Mays presents a statistical table which tends to show the superiority of home treatment, or of no treatment, to sanatorium treatment. Doctor Mays particularly belittles the achievement of the Saranac Lake institution founded by our beloved Dr. Edward L. Trudeau, the pioneer of the sanatorium treatment in the United States. He compares the results of 670 cases, observed by the elder Flint from 1834 to 1870, to 1,060 cases treated and followed up from 1885 to 1903 by Doctor Trudeau. According to this table, "the Flint collection has 11.60 per cent. more living and 12.16 per cent. fewer deaths" than Trudeau's. No one who has sat at the feet of the elder Flint will question his diagnostic and therapeutic skill, yet up to 1870 we did not have bacteriological tests to corroborate our physical diagnosis, and no modern phthisiotherapist would think it scientific to compare a statistical table referring to morbidity, mortality, and therapeutics of tuberculosis, compiled nearly half a century ago, with the statistics dating from the discovery of the tubercle bacillus and modern and more refined means of physical diagnosis. That great clinical teacher, Austin Flint the elder, was so convinced of the bacteriological origin and importance of tuberculosis, which Doctor Mays belittles, that he not

only accepted this theory, but took up the study of German so as to be able to read in the original all that was written on the subject (1884-1887).

Doctor Mays bemoans particularly the expenditure of millions of dollars consecrated to this new and modern warfare of tuberculosis, especially the establishment of sanatoriums for consumptives by municipal and private philanthropy. To show that the money expended by a municipality for the prevention of tuberculosis is not spent in vain, let me merely speak of the Department of Health of the City of New York. Its work in the prevention of tuberculosis under the leadership of Dr. Hermann M. Biggs has received worldwide recognition. The methods in vogue in New York city, consisting of popular education, registration, sanitary supervision, and care of the consumptive poor, resulted in a decrease in the total tuberculosis death rate between the year 1887 and 1902—a period of sixteen years—of forty per cent.¹ Yet Doctor Mays bemoans “the millions upon millions of dollars lavished by a grateful people who were given the assurance that in less than a score of years this dreadful monster would be wiped out of existence.” It is possible that some wild enthusiasts have made such a promise as to wipe out tuberculosis in twenty years, but I have never seen it so stated in any serious medical periodical or textbook. But to reduce the mortality from this disease by forty per cent. in sixteen years in a great city is well worth while, well worth the expenditure of millions.

Concerning our hopes for the future and what really may be expected if we continue to work along the line of preventive medicine by attacking tuberculosis in just the way that has been shown us by Professor Hermann M. Biggs, of New York, and his followers, the efficacy of which has been questioned by Doctor Mays, let me refer this latter gentleman and also my readers to that admirable address by Frederick L. Hoffman, LL. D., the distinguished insurance statistician, entitled *The Significance of a Declining Death Rate*. This address was delivered last January at Battle Creek, before the National Conference on Race Betterment. Doctor Hoffman says: “During the five years, from 1905 to 1910, there was a reduction in the mortality from tuberculosis in all forms from 192.6 to 168.7 per 100,000 population,” and very justly adds: “Tuberculosis belonging to the preventable class of diseases, there are the strongest reasons for believing that the still further and substantial reduction in the death rate, at least in civilized countries, will be obtained in the near future.”

Now I would like to quote some recent and authoritative statistics to show that the sanatorium or closed institution, the efficacy of which as a life saving institution Doctor Mays condemns and the cost of which he considers a waste of public and private money, produces the very opposite effect. It not only saves lives, but it saves money. The Gaylord Farm Sanatorium, situated near New Haven, Conn., an institution supported by the State and private philanthropy, founded some ten years ago, has accomplished the following during this brief period of time:

Its actual earnings of discharged patients (arrested or cured) up to May 1, 1914....	\$1,400,000.00
Total expenditure to May 1, 1914, lands buildings, and equipment..	\$195,958.08
Interest on above at 5 per cent..	55,178.94
Total maintenance	345,298.64
	\$596,435.66
	596,435.66

Excess of patients' earnings over expenditure	\$803,564.34
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For detailed information concerning the admirable work of the Gaylord Farm Sanatorium, which is only a part of the activity of the New Haven County Anti-Tuberculosis Association, I refer my readers to the society's annual reports. The secretary of the association is Professor Irving Fisher, of Yale University, New Haven, Conn. The physician in charge of the sanatorium is Dr. David R. Lyman.

In Doctor Mays's third article, which appeared August 29th, and which he entitles, *Is the Consumption Crusade Becoming a Burlesque?* he makes the extraordinary statement that the antituberculosis campaign with its distribution of circulars, its exhibits, and lectures held in many of the larger cities, is responsible for “frightening the people into an insane fear and had driven many a consumptive to suicide.” I have in a humble way been quite active myself as a popular lecturer on just such occasions as exhibitions and popular antituberculosis meetings. I have never seen at any of these exhibitions anything that would justify the epithet of “anatomical horror.” What I did see and what I highly approved of, and what may nevertheless be designated as horrible, was the exact reproduction of rooms occupied by consumptives in a tenement house district prior to the cleaning up by the visiting nurse of some local antituberculosis association or health department. The reproduction of the same rooms cleaned and ventilated was, to my mind, the best object lesson in home sanitation and in the prevention of tuberculosis that could possibly be given.

These exhibitions, as a rule, are crowded with information-seeking people, and the clergy and school authorities and employers of large bodies of men and women urge visits to such exhibitions and lectures. Would these intelligent men and women, leaders in large and small communities indorse such exhibitions, lectures, and the circularizing of their people in the interest of the antituberculosis crusade, if they were not convinced of the utility of such movements? Yet Doctor Mays considers all this a failure and speaks of changes in plans and methods adopted in later days in the antituberculosis warfare. To be accurate, let me quote from his third article in the *NEW YORK MEDICAL JOURNAL* for the date referred to, on page 413:

In spite of all the changes in plans and methods which have already been noted, it became more evident than ever that the campaign of education had signally failed to make an impression on the course of consumption, and, as a last resort, it is resolved to enforce a rigid control of the disease, which practically means the imprisonment of all consumptives in closed institutions, so that they will be unable to disseminate their germs of disease among the well. This is the last horrible culmination of a most desperate movement, which, after causing irreparable injury, will end in greater failure than any of its preceding steps.

¹Hermann M. Biggs: *The Administrative Control of Tuberculosis*, *Medical News*, February 20, 1904.

That the antituberculosis crusade has not caused any injury and has not been a failure, but on the contrary, has been an unqualified success, I believe is amply proved by the results obtained in New York city. Sanatoriums or hospitals for consumptives are neither prisons nor penal institutions, and all those who have ever visited such establishments must see the absurdity of such a charge. If the great mass of the consumptives and the public in general shared the opinions of Doctor Mays concerning these institutions, there would surely not be such long waiting lists at all the sanatoriums. The many eager to enter form, I believe, the best argument I can offer to defeat Doctor Mays's endeavors to create a prejudice against sanatoriums and special hospitals. That among the thousands of tuberculous individuals there are occasionally some who will not obey the essential rules and regulations to prevent infecting others, and that there are also numerous consumptive poor people who constitute centres of infection because of their congested and unsanitary home environments, all tuberculosis workers know only too well. Will Doctor Mays deny that for such people the tuberculosis hospital with strict prophylactic measures is the only safe place?

It has been my privilege to take care of poor consumptives in public hospitals and sanatoriums for a goodly number of years, and the result of my experience is that patients removed from unsanitary rooms, often with insufficient food and with little or no medical care, are exceedingly grateful when they are admitted into a hospital and have a clean bed in a well ventilated ward with plenty of good food and careful medical attention and nursing. Even the so called refractory patient, when removed against his wishes to a sanatorium or hospital, will, as a rule, soon learn the error of his ways and becomes a tractable patient, realizing that it is to his own interest to be careful and conscientious and to obey the rules of cleanliness and sanitation.

All conscientious tuberculosis workers avoid creating phthisiophobia. They know as well as Doctor Mays that an exaggerated fear of the presence of the consumptive is not productive of any good, but that firmness with the careless consumptive who willingly propagates the disease is necessary, I hope even Doctor Mays will admit. I wonder, in all fairness, if he himself would really care to be in close contact for days at a time with a consumptive expectorating on the floor and coughing into the air, and be present when the dried sputum mingles with the dust and when the room is swept in the old fashioned way with the dry broom and the furniture cleansed with the feather duster.

To educate the ignorant patient and his relatives or friends living with him, to make the careless be careful by kindly and humane means, is and has ever been the aim of the modern tuberculosis crusader, and I know of no measure contemplated by any State or municipal government, or antituberculosis association "to enforce a rigid control of the disease, which practically means the imprisonment of *all* consumptives in closed institutions." I defy Doctor Mays to state where any such steps are taken by any municipal or State authority.

In his last article of September 26, 1914, entitled,

The Consumption Crusade: A Parallel, Doctor Mays recounts the old Italian antituberculosis crusade which began with the Grand Duke of Tuscany, in 1754. There can be no parallel between the antituberculosis movement based on the presumption of contagiousness, 160 years ago, and an antituberculosis movement of today based on accurate scientific research, which declares tuberculosis not a dangerously contagious but a communicable disease, preventable and curable, and which declares distinctly that the honest conscientious consumptive who is careful to dispose of his infectious secretions in a proper way, is as safe an individual to associate with as any well person.

Doctor Mays, in his last article, attacking the modern crusade against tuberculosis, tries to justify his attitude by quoting a resolution passed by the College of Physicians of Philadelphia in 1890, which reads as follows:

The College of Physicians of Philadelphia believes that the attempt to register consumptives and to treat them as the subjects of contagious disease would be adding hardship to the lives of these unfortunates, stamping them as outcasts of society. In view of the chronic character of the malady, it could not lead to any measure of value not otherwise obtainable.

I have since spoken to some of the venerable members of the college, one of whom confessed to me that he had voted for that resolution, but that subsequent experience had taught him that it was most unwise. Only a few years later, in 1893, the Philadelphia County Medical Society, which to the best of my knowledge represents the largest number of regular practitioners of that city, many of whom are members of the College of Physicians, favored registration of tuberculosis. Since then, the city of Philadelphia and the State of Pennsylvania have made tuberculosis a reportable disease, and Pennsylvania and its principal city, Philadelphia, are in the forefront in attacking tuberculosis in the modern way. The State of Pennsylvania maintains no less than 115 tuberculosis dispensaries, distributed throughout the sixty-seven counties; beside this it has three large sanatoriums. The sanatorium at Mont Alto, Franklin County, has a capacity of 1,158 beds. The sanatorium at Cresson, in Cambria County, has a capacity of 400. The sanatorium at Hamburg, Berks County, has a capacity of 480. The dispensaries and sanatoriums are for the free treatment of indigent sufferers from tuberculosis who are residents of Pennsylvania. There is no charge whatever for dispensary or sanatorium treatment.

While I have reason to believe that Doctor Mays's attacks have done some harm, I hope that this reply, written in the spirit of kindness, will convince him and whatever followers he may have, of the errors of his ways, and that my contribution may counteract Doctor Mays's tirades against the modern ways of preventing and treating tuberculosis. I can vouch that there is not a single one among the modern crusaders who is not imbued with the desire to do the best and wisest thing, particularly for the thousands of the consumptive poor. For them and the poor who are not consumptive we are pleading to have better housing, better food, better social conditions in general, and for all our communities, we plead for better bovine laws and their more vigorous enforcement to prevent tuberculous infection

from meat and milk. For the thousands of the consumptive poor who cannot be promptly cured at home, and who, because of lack of institutions, cannot receive the benefit of sanatorium treatment, we plead to have more special hospitals and more sanatoriums; we address this appeal to statesmen, municipal authorities, and philanthropists alike. There should be no uncared for consumptives. This is the ambition of the modern crusader. And last but not least, I beg to assure Doctor Mays that whatever has been done and whatever we are doing in the line of prevention and in the line of cure, it has always been, is, and shall be the aim of the workers to avoid hardships to the afflicted. Our motto is: War against tuberculosis and all conditions causing it, but never against the tuberculous patient—he is our brother, and we are our brother's keeper.

16 WEST NINETY-FIFTH STREET.

OPERATIVE TREATMENT OF CANCER FROM THE STANDPOINT OF INTERNAL MEDICINE.

By A. L. BENEDICT, A.M., M.D.,
Buffalo,

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The only radical treatment of cancer to be considered at present is early operation. Thermic and chemical destruction, infiltration with metals as by high frequency currents, x ray, radium, and other emanations may be curative in certain cases but are almost limited to superficial cases. All of these methods are either identical with, or closely analogous to irritants that apparently, under other conditions, actually excite cancer. They possess an advantage over excision, mainly with reference to the psychical condition of the patient, being, in general, equally painful, equally mutilating, equally expensive and disabling, and more tedious. All of them, however, offer possibilities of improvement in technic that may supplant excision. The fact that radium is at present in the centre of the stage, should not create prejudice in its favor or against analogous methods.

An important exception, practically the only one, is cancer of the esophagus which, paradoxically, is superficial so far as radium is concerned and deep in the implied sense of being almost inoperable. Exception must also be made in the case of growths otherwise regarded as inoperable, especially recurrent. In these cases, however, the treatment will probably not prove radical, although it carries some degree of hope.

Granted that a cancer has passed the stage of radical operability—and it is of course difficult to make an arbitrary distinction, either in general or in a particular case—the conservative internist's standpoint differs materially from the surgeon's. As it is difficult to classify personal opinions, however, regarding limitations of practice, it is really more modest to present personal views than to attempt to speak for others. Excepting for the removal of foul, offensive masses from a rapidly growing, recurrent or neglected cancer, checking of hemorrhage and relief of certain temporary phases

of suffering plainly due to the presence, size, and state of the cancerous mass, I do not advise any form of palliative operation for cancer, but advise rather taking every risk if there is any conceivable hope of radical removal, than doing a safe, palliative operation. This is an extreme statement and, like every such statement, it is unwise to obey it in every case. But, I advise strongly against operation simply because the patient consents, for the ethical reason that such consent often indicates a desire for justifiable suicide—or rather suicide on another's responsibility. In my own field, I am confident that short circuiting operations do not prolong life materially and that, as a rule, they are unnecessary for temporary comfort, which can usually be afforded by medical methods of treatment.

These diametrically opposite views as to the necessity of radical and of palliative operations, intensify the responsibility of the internist so far as the early diagnosis of cancer is concerned, and indeed, its positive diagnosis at any stage. It is scarcely necessary to state that so far as radical operation is concerned, there is an absolute agreement between medical and surgical practitioners, excepting only unprogressive and incompetent physicians. So far as palliative operations—gastrotomy, gastrododecaltomy, gastroneostomy (let us drop the mongrel terms gastroduodenostomy, and gastrojejunostomy), incomplete removal, short circuiting, artificial anus, etc.—are concerned, there is a conflict between medical and surgical opinion, but it should be remembered that an extreme view has been presented and that this does not even represent in all cases the practice of the writer.

Surgeons generally have accused medical men of delay in referring visceral cancers for operation. These are three factors to be considered in the defense:

1. The unwillingness of many patients to submit to operation, at least unless an absolute statement of necessity and of favorable result can be made. This is a more frequent obstacle than might appear. In regard to the appendix, sexual organs, etc., there is, on the contrary, often an undue readiness on the part of the patient to submit to operation. Cancer affects older, more conservative persons and this, perhaps, accounts in part for the difference. It should also be remembered that a patient, undergoing operation as a last resort, with little hope of success, and realizing that the proper time has passed, cannot be depended upon to give an unbiased account of advice previously offered.

2. The frequency with which clinical manifestations of cancer occur too late, does not seem to be realized by many critics. Here are two cases, for example: Inoperable pyloric cancer, extending along the duodenum and affecting the peritoneum; operated on, on eighth day after first seeking medical advice; patient even then considered it unnecessary to consult her physician, as she had experienced only trivial symptoms for a month. Man, aged thirty years, with perfect general health, gastric contents, etc., normal; scirrhus, size of egg, detected on life insurance examination; operation, a few weeks later, as soon as patient would submit, death on table, details not known.

3. Inability of internist to make an early diagnosis. This is a lengthy subject in itself, so that only the personal statement will be made, that the writer advises operation for cancer only in cases in which he does not know enough about diagnosis to assure the patient that the condition is positively cancerous. The charitable reader will temper this confession with his estimate of the present state of our knowledge of cancer. It should be borne in mind, however, that if cancer is shown to be due to a microorganism, or to some definite metabolic condition, a specific reaction may reasonably be hoped for and, indeed, some form of biological reaction may be discovered that is practically pathognomonic, before the true nature of cancer is discovered. The writer has used some half dozen different sure tests for cancer, at one time or another, and has seen all turn out to be unreliable. Hence, the skeptical attitude cannot be abandoned at the moment the next "certain" test is announced.

There are two considerations that seriously hamper the man who wishes to be careful and conscientious. 1. The average patient, advised to undergo operation, replies that, if the physician is certain that the condition is cancer, he will submit, but that he will not undergo operation on a guess. Now, the conscientious physician is not only anxious to give his patient a fair chance, but he is also truthful. In fully ninety per cent. of his cases, he cannot be positive in his diagnosis till it is too late. 2. An impression or guess that a certain condition exists, is not a diagnosis, even if ultimately shown to be correct, yet such impressions and guesses, when right, add to the demands made on the true diagnostician.

The diagnosis of cancer is, in a sense, supplementary to some other diagnosis. That is to say, cancer, even of the same organ or of the same part of an organ, does not necessarily produce the same symptom complex, while, on the other hand, practically every clinical type of cancerous disease, so situated that the cancer itself is not visible or readily palpable, may be duplicated by some noncancerous process. In other words, a satisfactory diagnosis may be made in almost any cancer case, omitting the term cancer, whereas in many other problems of differential diagnosis, a full explanation of the various symptoms and signs usually settles the diagnosis.

This fact is peculiarly unfortunate for practical, humanitarian reasons. If a given case is cancerous it demands a prompt, radical, sacrificial operation, which would not be indicated if the case was not cancerous. On the other hand, given an obstruction, dilatation, distortion, source of hemorrhage, necrotic focus, etc., we may feel that operation is urgently needed if the case is not cancerous, but scarcely worth while if it is cancerous, unless on account of the preference of the patient. On reflection, it will be appreciated that the same degree of humanitarian urgency does not, as a general rule, apply to other problems in diagnosis. For example, one may be unable to designate the exact pathological state responsible for an obstruction, deformity, central nervous lesion, and a host of other conditions diagnosticable as to position, size, organ, etc., yet the same operative indications exist. Or, one may confound the appendix, Fallopian tube, biliary passages, and a diverticulum in the diagnosis of a septic

abdominal condition, but so long as the general diagnosis and region are correctly found, the lack of a complete diagnosis is not of great practical importance. Moreover, the urgency of operation, so far as time is concerned, is, in most noncancerous conditions, fairly well indicated by symptoms and signs, whereas in cancer the ultimate value of the operation depends upon conditions not usually thus apparent. Again, cancer is almost the only condition in which so sharp a line can be drawn in theory between radical and palliative operations. Any other condition is either not necessarily fatal at any stage or else the inevitable fatal result is pretty clearly indicated. One may say that, in a noncancerous condition, the best time for operation has passed, or that operation is too late because the patient is moribund, or it may be found that the operation of choice is no longer possible, but, up to the time at which death is imminent and even when it is supposed that the patient is *in articulo mortis*, some hope, even hope of actual recovery, persists; one may express oneself emphatically as to necessity of operation, and, even if the operation of choice is impossible, it is still usually possible to do some sort of an operation which has a positive influence toward recovery, while the operation of choice may be done later.

There is also a fallacy as to the plea for exploratory operation in suspected cancer. The conscientious and careful internist hesitates to recommend the short incision and brief inspection described as harmless and simple. From his standpoint, the exploratory operation, if done at all, must be thorough enough to ascertain the real lesion, if the condition first suspected is not manifest. Such an operation, generally speaking, has a purely vivisectional mortality, in a healthy animal, of about one per cent. Individual surgeons may allege better results, deaths may be explained as due to coincidence, but this one per cent. rate remains. In patients of the average general health and age of cancer suspects, one per cent. vivisectional mortality is a low estimate; two per cent. is probably nearer the truth. There is a tremendous difference between a death due to a *laissez faire* policy and one due to direct advice and even urging on the part of the physician. There is also a tremendous difference between the personal and economic reaction of this death upon the surgeon who sees the case only casually, who feels that it is the inevitable result of the law of chance in any large series of cases, and upon the physician who usually has a closer personal touch with the patient and his family, and who assumes the responsibility of prescribing an operation, knowing the general action of the law of chance, and not supported by the feeling that his personal dexterity has reduced the effect of accidental death to a minimum.

It may not be without interest to look more closely into the statistical argument as to operation for cancer. Superficially considered, it seems like an incontrovertible argument for surgical intervention, that the mortality of cancer under medical treatment is 100 per cent. and that, under surgical treatment is may be as low as seventy per cent. in favorable series, up to ninety per cent. in fairly early, but not ideally prompt operations.

The flaw in this argument is that, from the intern-

ist's standpoint, he is not dealing with series of cancer cases, except late ones, after reasonable hope of radical operation is past. So far as prompt operation is concerned, his series of cases include only a few in which diagnosis is, humanly speaking, positive, but a great many in which cancer is more or less suspected. The actual makeup of such a series will vary according to the personal equation. An internist very much impressed with his responsibility and with the dubiousness of the diagnosis, may be imagined to refer for operation a series of a thousand cases, only ten of which are actually cancerous. Considering that, on the average, of all males over forty and up to about seventy-five years of age, about ten per cent. die of cancer and, of females, nearly fifteen per cent., this hypothetical series is not so far fetched as it might seem. In such a series, the vivisectional mortality would be from one up to two per cent., with allowance for senile and actual pathological changes of a general nature. Of the ten supposititious cancer cases, three would be saved, seven would end fatally, though not immediately. In other words, instead of sacrificing ten cases of cancer by neglect of operation, the total deaths would be from sixteen up to twenty-five, ten to twenty traumatically and almost immediately.

A more practical basis of a hypothetical series would be one including ten actual cancer cases in 100 instead of 1,000. Such a series, I think, corresponds quite accurately to my own actual clinical experience with hypochlorhydria, achylia gastrica, hepatic sclerosis, from 2,500 to 3,000 anemia cases, jaundice from gallstones, biliary catarrh, chronic gastric and duodenal ulcer, moderate obstipation, etc., in which the question of malignancy is seriously considered and cannot be set aside until observation has extended over a period which the surgeon would consider unjustifiably long in a case that did prove to be cancerous. It probably corresponds also to gynecological cases at the climacteric, in which the symptoms and physical signs correspond to the warning symptomatology of cancer, to similar experience along the urinary tract, etc. In such a series, the vivisectional mortality will be one or, more likely, two; the uncured cases of cancer about eight, for it must be remembered that, here, we are dealing with more marked signs and symptoms, i. e., with slightly more advanced cases than in the former hypothetical series. In other words, the results of caution and of negligence on the part of the internist are about equal.

If, on the other hand, the internist followed what appeared to be the rational course of promptly referring all cases in which the clinical diagnosis of cancer was reasonably positive, but in which the case did not appear far advanced,—and it should be remembered that, in any one man's experience, at least half of the cancer cases are advanced beyond any reasonable hope of operative cure when he first sees them—I think the following is a fair statement of ultimate results: Mistaken diagnosis (not cancer) ten to twenty per cent.; actual cancer eighty to ninety per cent. The vivisectional mortality for the noncancerous cases amounts to only a fraction, but to about two per cent. for the whole series, representing, except for this fraction,

a hastening of death already ultimately inevitable. The total saving of life is somewhere between ten and twenty, according to the success of radical operation, rated between about ten and twenty per cent., plus the survival of all but a fraction of the non-cancerous cases, compared with a total loss of the cancerous cases.

Now while it is obviously impossible to lay down any general rule or even to amass satisfactory statistics, since many patients will not acquiesce in the advice for operation, there seems to be good mathematical support of the policy of advising operation for cancer only in cases, which, on the one hand, can be diagnosed with a fair degree of certainty, and which, on the other hand, have not developed beyond an early stage.

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IMPLANTATION OF THE GENERATIVE GLANDS AND ITS THERAPEUTIC POSSIBILITIES.

Successful Autoimplantation of a Testis from a Subject Dead Twenty-four Hours. Other Successful Implantations of Testes and Ovaries from Dead Subjects. Experimental Implantations in Various Conditions, and Cross Implantation of Testes and Ovaries Taken from Dead Subjects.

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(Concluded from page 870.)

The action and interaction of the implanted young gland and its senile, or even middle aged environment are worthy of serious consideration. To what extent an aged environment of nerve influence and tissue juices eventually will alter the biochemism of the implanted gland must remain an open question. That the implanted gland will benefit more or less by the improved quality of the blood produced by its own internal secretion seems logical enough. To what extent and for how long a time is problematic.

The integrity of the gland tissue and the quality and quantity of its product obviously are largely dominated by the elements on which it feeds. Implanted young gland tissue possibly may not long remain young when fed only by the blood of more mature, and especially of senile, life. Each sex gland is a laboratory; the gland cells are the workers. These workers select from the blood the materials for the elaboration of both the internal and procreative secretions. Upon the quality and quantity of these materials depend the quality and quantity of the finished product.

The end result of implantation, therefore, possibly may be merely the elaboration and absorption into the blood of a larger quantity of internal testicular or ovarian secretion than the recipient's own glands are capable of producing, this secretion eventually becoming of the same quality as the subject's own secretion. In this event the benefits derived from implantation would be only such as would result from a constant dose of a larger quantity of in-

ternal secretion, of a potency identical with that produced by the recipient's own glands. If it should prove to be true that a gland implanted in an elderly subject becomes greatly modified by its new environment—which modification should not be astonishing, for "the cell is what it eats"—then the same consideration would even more forcibly apply to a gland taken from an elderly donor and implanted in a younger recipient. The nutrition of an old, but still functioning gland probably is more likely to be improved by young blood than a young gland is to be deteriorated by old blood. This suggests more leeway in procuring material. It eventually may be shown that there are special indications for the selection of a gland from a donor of relatively advanced age as best adapted to the condition in hand.

How far the trophic influence of the relatively aged nerve supply of the implantation site may affect the permanence of implantation results would be difficult of conjecture, nor is it possible to say whether a community of nerve supply, sensory or trophic, or both, is likely to be established between the implanted gland and the investing tissues.¹⁷

If, however, we ever succeed in greatly impeding the wheels of time in their remorseless grind upon human life—and I confess optimism—it is most likely to be through the agency of internal secretion therapy, via gland implantation. As to what glands, or combinations of glands, will prove most efficacious, the future alone can show. The sex gland secretion seems to be the most important of all the internal secretions so far as its possible effects in increasing efficiency and longevity are concerned. Indeed, it may be a powerful stimulant to the activity of all the other hormone producing organs. In any event, senility and its control are merely a matter of nutrition.

If a complementary hormone should be found to be necessary to the full physiological action of the sex gland hormone, it may prove to be the thyroid, pituitary, pineal gland, or the suprarenal—or several of these in combination. The thyroid swelling incidental to menstruation and sexual excitation so frequently manifested in cases of hyperthyroidism certainly is quite suggestive. The profound nutritive effects of thyroid internal secretion are familiar enough. Possibly the effects of the sex hormone on the thyroid is in a sense "inhibitory," rather than complementary, the thyroid running riot, so to speak, with resulting hyperthyroidism when the influence of the sex hormone is removed. Granting this hypothesis, Graves's disease would be an indication for sex gland implantation. W. Blair Bell (42) says, in reference to correlation of the internal secretions in regard to their genital functions:

When the reproductive functions cease and the ovaries atrophy at the menopause, the harmony between general and genital metabolism is temporarily deranged, and various disturbances may ensue. The basis of treatment is the administration of the necessary secretions. Some patients react to thyroid extract, some to pituitary, others, again, to combinations, so great are the individual variations.

Strictly speaking, the ovary is concerned only in the temporary function of reproduction, and, by its hormones, of bending the metabolism of the body to its purpose. As

accessory to these functions the ovary has been supposed to be responsible for the beauty of the vessel by means of which its ends are to be attained. But today one is beginning to wonder how far the ovary does influence secondary sex characteristics, and whether full secondary characteristics can be obtained by the influence of the ovary alone. There is evidence that hyperplasia of the suprarenal cortex can upset any influence that the female genital gland may possess, and can produce in a female some of the secondary characteristics of the male.

Any influence the ovary has over general metabolism is, then, related to and dependent on its primary reproductive function. It probably does not influence metabolism except in so far as this special function is concerned. Removal of the ovaries may produce temporary disturbance, but this does not invalidate the view mentioned.

The rest of the ductless gland system is related to the genital functions in various ways. The thyroid, pituitary, and suprarenals influence the development and subsequently preserve the integrity and activity of the genitalia. Others—the thymus and possibly the pineal—appear to prevent sexual precocity. All the ductless glands control metabolism in response to the necessities of the genital functions. In addition they adapt the whole organism to the possibility of the situation, and regulate the secondary characteristics, both physical and psychical, to suit the needs of the individual. Once, however, the reproductive organs are removed or undergo atrophy, the primary genital functions of the rest of the ductless glands cease, and the rearrangement of the metabolism that follows produces what are known as symptoms of the menopause. Contrariwise, insufficiency of the thyroid or suprarenals causes the cessation of the genital functions with atrophy of the uterus.

The possibility of sex gland implantation increasing longevity requires special consideration: A successful implantation may not appreciably alter the structure of the recipient's tissue and organs, although the effect on the skin and blood pressure of the experiment outlined in this paper is naturally suggestive. The viscera in general, and especially the heart, bloodvessels, and the nerve and brain tissues, may remain essentially the same, yet, even granting this, further senile changes should be retarded if, as seems probable, the internal secretions of the generative organs are eventually proved profoundly to affect nutrition. In brief, we may hope to retard senility even if we cannot "cure" it.

The question at once suggests itself, Might not the stimulating effect of the secretion defeat its own ends by exposing to overstrain organs—notably the heart—already senile? Possibly, even probably, it would do so, unless the increased efficiency was conservatively employed. Even if an increased capacity for long sustained and considerable muscular effort and increase in respiratory capacity should result, no one who is out of training should expect endurance of severe stress on heart, wind, and limb. I have made no test of this in my own case, but have observed a decided increase of capacity for mental labor, and a more rapid physical and mental recuperation from fatigue after moderate rest. This, of course, may be merely coincidental.

It has occurred to me that implantation is likely to give the most satisfactory results when employed at or about middle life, with the view of retarding senility and preserving efficiency, or increasing it, if it is below par. The normal man of forty years possibly, might at least retain the vigor of forty years until advanced age. The man past middle age with impaired efficiency, would be likely to have his efficiency restored. Successive implantations, of course, might prove to be necessary. It may eventually develop that implantation of the repro-

¹⁷The results of implantation in Cases VI and VII are interesting and important in their relations to the effects of fatal electrical shock on cell vitality in general, and possibly may have a bearing upon the possibility of resuscitation after supposed death from the electric current.

ductive glands is especially effective in young subjects with defective physical sexual and psycho-sexual development, and in subjects who have been traumatically deprived of the generative glands—recently in young subjects, or at any time in subjects past the age of puberty. In connection herewith it is well to remember that the effect should be more marked in young subjects in whom the chief secondary sex characteristics never have been normally developed, than in older subjects.

Granting that the method proves valuable in mental conditions, such as dementia præcox, the degree of benefit and permanence of results of sex gland implantation will depend upon:

1. The age of the patient.
2. The specificity and activity of such infective cause as may be determined.
3. The duration of the disease and the amount of secondary degenerative changes.
4. The degree to which perversions and defects of other internal secretory glands enter into the etiology.

5. The dose and activity of hormone.

The probable efficiency of sex gland transplantation in sexual perverts and inverts, in whom the normal psychical or physical, or both sex characteristics are poorly developed, at once suggests itself. Paresis seems to me to be a suitable field for experimentation with sex gland implantation, and I already have operated in two cases, in which, however, local failure prevented any possible therapeutic results. Syphilis in the donor may here be disregarded. It is an interesting question whether many of the mental vagaries and moral perversions that so often develop after middle age are not due to a lessening or perversion, or both, of internal sex gland secretion. We are wont to attribute these conditions to structural arterial changes, but the justice of this is doubtful. Future experience with sex gland implantation seems to me likely to change our views in this regard. Indeed, even where arterial changes are proved, a defective supply or vitiated quality of hormone sometimes may be the very essence of the etiology.

The possible detrimental action of the secretions of the implanted gland upon the functions of the recipient's own glands has in a way been decided by Metchnikoff's experiments. In 1898, he produced "serums" from both human and lower animal semen. He killed the spermatozoa in the serums by heat. When injected intravenously, these serums destroyed the spermatozoa through the medium of a cytotoxemia. This toxemia was temporary, the spermatozoa finally acquiring immunity. Since the experiments herein reported, examination of my own seminal secretion—July 15, 1914—and that in Case III, showed the secretion to be normal in each instance.

Obviously, if destruction of spermatozoa resulted from implantation because of toxicity of a large dose of alien secretions, the evil could be only temporary, unless the anatomical and physiological machinery of their elaboration was destroyed, and this would involve, first, impairment of testicular structure in the recipient; second, aberration of nervous supply; third, perverted blood constitution or, fourth, a combination of two or more of these conditions.

Should sex gland implantation prove to be as great an advantage in therapeutics as the author is inclined to believe, we soon will relegate certain gland extracts to the dead lumber room and use only the physiological living extracts, administering them continually via implanted gland tissue. And who shall say how far the principle may be applied if tissues from dead bodies can often be successfully used? Sex glands, thyroid, liver, pancreas, brain, spleen, kidney—it is impossible to say where vito-organotherapy will end, for it is by no means certain that all tissues have not a selective action on the blood, or a special biochemical, the fresh products of which are of therapeutic value. In brief, each tissue possibly manufactures its own special ammunition—antibodies—with which to combat disease, and even if growth of the implanted tissues should not occur, it is possible that a sufficient dose could be given and a sufficiently prolonged action secured, to accomplish valuable results.¹⁸

In the light of Abderhalden's wonderful work, it may eventually be shown that, by a special, selective, trophic action, every highly specialized tissue and organ of the body, whether glandular or not, elaborates an internal nutritive metabolic product—"secretion"—of its own. I would suggest especially the advisability of experimental subcutaneous administration of emulsions of fresh human brain tissue in certain derangements of the brain and nervous system, splenic tissue in certain anemias, heart tissue in cardiac disease, thyroid in hypothyroidism, kidney tissue in renal diseases, lung in pulmonary disease, liver and pancreas in diabetes¹⁹ and of sex glands in various conditions.

Possibly the hormone of the internal secretion of glands, or certain metabolic products, elaborated by certain other tissues, is taken up by the blood, returns to the tissue, and stimulates its ordinary vital functions. This "secretion-nutrition-cycle"—if I may be so bold as to coin a term—perhaps may be necessary to the normal life of the tissue itself.

How far one internal secretion may supplement another, is a fascinating field for speculation, that already has received attention in this paper. The author is especially inclined to believe that, in certain cases, the sex gland secretion may be a powerful adjuvant to thyroid or other hormone therapy, especially where simultaneous implantation of sex glands is performed. As for extracts of glands of the lower animals, their field of usefulness probably always will be limited, while as for implantation of such alien tissues, failure naturally should be expected. *A priori* it would seem as illogical as was the old method of transfusion of blood from the lower animals—yet such implantations may possibly have a certain range of therapeutic usefulness.

In addition to the implantations already recorded in this paper the author has now (August 1, 1914), performed twelve operations in both sexes, using material that had been refrigerated from three to seven days. The cases comprised two females and

¹⁸In passing, it is worthy of comment as a medical curiosity that the much derided Cabanis, in the latter part of the eighteenth century, asserted that the brain was a secretory organ, "secreting thought just as the stomach secretes bile."

¹⁹The author has experimented in this manner with emulsions of renal tissue from a recently dead human body, on the guinea pig, and on one human subject. No harm resulted, save a transitory orchitis in the guinea pig. As already stated he also has experimented extensively with human brain emulsion.

eight males, suffering from various conditions, three senile dement, two cases of dementia præcox, two of epilepsy, and three of general paresis. In two subjects a double implantation was made. In one an anastomosis of the vas was performed. In one case, a male, a cross implantation was made. None of the subjects was promising, and as all were institutional cases, a discriminating selection was not practicable. Fully appreciating this, as well as other unfavorable environmental conditions which are inseparable from experimental work in large public institutions, and while hoping for beneficial therapeutic results, I feared that in all the cases the principal result would likely be the acquirement of a better knowledge of the limitations of sex gland implantations *per se*, and I was only too glad to avail myself of such material and conditions as were obtainable. The result in the majority of the operations can be recorded very briefly.

The implantations failed in all of the males and in one of the females, with varying degrees of local infection and temperature. The environmental conditions, the bad condition of the subjects, and the difficulty of preventing mentally deranged subjects from handling the implantation sites, probably had much to do with the failures, but I am disposed to charge them chiefly to the material used. Different results possibly might have been obtained if the implanted glands had been preserved by complete freezing. This, however, remains for subsequent solution. I do not believe that the results could fairly be ascribed to the heterologous source of the glands. In the part of this series of cases mentioned in my letter to the NEW YORK MEDICAL JOURNAL, March 23, 1914, the local conditions were favorable for some days.

The case of anastomosis in an old man of seventy-five years, a senile dement, was rather interesting. The implantation wound healed, the case was afebrile and looked very promising for about ten days, when the gland and the surrounding inflammatory area began to break down and slowly soften. On the fourteenth day I opened up the purulent collection and removed the tunica albuginea, which was all that remained of the implanted testis.²⁰ The gland, a little over half of which was used, had been refrigerated only four days, and as the companion organ was still *in situ*, July 26, 1914, in a female dement subject (Case VI) in whom I implanted it on the same day the anastomosis was performed, the material probably was not at fault. Anastomosis necessarily is a severe test of implantation, even under the most favorable conditions. The donor of the testis was a man of thirty years, dead ten hours from contact with a live wire.

In one of the males I performed a double scrotal implantation, using on one side an ovary taken from a mulatto woman dead eight hours of disease of the heart. The testis was from a subject dead twelve hours of a skull fracture received two days previously. The material had been refrigerated three days. The infection evidently was due to the implanted testicle, spreading to the opposite side, for when the organs were removed from the infected area on the fifth day, the ovary was still

normal and adhesions were already noticeable on its surface.

The other ovary taken from the mulatto was cystic. I excised the pathological tissue, reconstructed a small ovary from the apparently normal glandular remnant, enveloping it in an adherent fragment of broad ligament, and implanted it, March 18, 1914, in the axilla of a female senile dement, sixty-seven years of age. The wound healed aseptically without any rise in temperature. May 11, 1914, the gland apparently was still *in situ*. On July 26, 1914, a small movable body, a little larger than a good sized pea, could still be felt at the site of the implantation. As there was very little gland tissue from which to reconstruct an ovary, and the donor was of a race alien to the recipient, the apparent local result of the foregoing experiment is at least noteworthy. There has been no change in the patient's physical or mental condition.

No studies of the physiological effects of the implantations were made in any of the implantation institutional cases, for reasons which should be obvious to those familiar with the unfavorable environments afforded by large hospitals for the insane, where even the most intelligent, progressive, and enthusiastic staff physicians are handicapped by overwork and scanty resources in the matter of laboratory and instrumental equipment.

All of the implantations performed were understood by the relatives of the subjects to be experimental, and were done with their knowledge and full consent.

CONCLUSIONS.

1. At least temporarily, probably permanently—and indubitably therapeutically—successful total or partial implantation of human sex glands in both male and female is practicable.

2. Glands taken from the living subject are most desirable, though rarely obtainable. The closer the blood relationship of donor and recipient the better, but such relationship is not necessary for purely therapeutic purposes.

3. Judging by my own autoexperiments and heteroexperiments, and with due respect to Carrel's observations, I conclude that, while glands frozen before decomposition may be available, they must be used without freezing and very promptly after removal from the body, to obtain a fair average of successes. Glands taken from the healthy dead body at any time prior to the beginning of decomposition are of therapeutic value equal to that of those taken *in vivo*, if implantation succeeds. Portions of glands are to a certain degree therapeutically serviceable, according to conditions and dose.

4. Where we are not warranted in incurring risk, the subject from which the glands are taken should be selected with extreme care.

5. The ovary and the testis probably are alike in their susceptibility to implantation, both from the living to the living and from the dead to the living. If any difference exists, it seemingly is in favor of the ovary. In human beings, the gland of one sex is transplantable upon the other, and it is possible that the hormone of the one is useful to the other. My experiments apparently show that the tissues

²⁰Note how this differed from the condition of the implanted testis on removal in Case VII.

of the female are more hospitable to the implanted male sex glands than are the tissues of the male.

6. The benefits of implantation probably accrue irrespective of the site of the implantation, but the vicinity of the peritoneum (extraabdominal) in the female, and of the tunica vaginalis in the male, are the sites of election.

7. The internal sex gland secretion is stimulant, nutrient, tonic, and reconstructive, and should increase resistance to disease. Certain chronic infections, notably tuberculosis, serious anemia, neurasthenia, and conditions of profound debility should be benefited by implantation.

8. The development of senility possibly can be retarded and longevity increased by internal sex secretion derived from implantation. The climacteric may be postponed by it, or the disagreeable features of the climacteric relieved.

9. Used at a very early period in the disease, internal sex secretion should theoretically be the logical remedy for dementia præcox and allied conditions.

10. The internal sex gland secretion via implantation, has a very useful field in the treatment of impotence in the male.

11. Implantation, with or without anastomosis in the male, possibly may have a certain range of usefulness in sterility in both sexes.

12. Defective and aberrant psychical or physical sex development and differentiation—inversions and perversions—are definite indications for sex gland implantation. Certain cases of cryptorchidism and imperfect testicular development are an especially promising field for it.

13. Chronic diseases of the skin due to, or modified by nutritional disturbances—notably certain types of chronic eczema, psoriasis, and ichthyosis—in a certain proportion of cases apparently are likely to be benefited, and possibly cured by sex gland implantation.

14. That arteriosclerosis will in its early stages be benefited by sex gland implantation is probable. Inferentially, if taken early, senile dementia possibly may show beneficial results.

15. All conditions incidental to sex gland mutilations in either sex afford a positive indication for sex gland implantation, the probability of benefit being inversely as the length of time that has elapsed since the mutilation, and dependent on the age at which it occurred.

16. The most important point of all is that, in properly selected cases, successful implantation ought inevitably to increase physiological efficiency, with all the benefits accruing therefrom. With increased physiological efficiency come individual and social efficiency.

17. Opportunities should be sought in the human subject for histological study of implanted glands at varying periods after implantation, to determine in what degree both generative and internal secretion gland tissues endure.

18. Every effort should be made so to amend our laws that viable tissues of all kinds, notably internal secretory glands, shall become available to science. To this end the public especially should be made to understand that the sacrifice of a portion of thyroid or of a single ovary or testis by a living subject is

not disastrous. The author believes that possibly there are times when such a sacrifice would restore reason, perhaps even save life. Legislation and public sentiment should favor scientific research. Between the antivivisectionists, on the one hand, and popular reverence for the dead human body, on the other, we are in sore straits. Why should there be a waste of material which, if properly used, possibly might add so much to the health, happiness, efficiency, and even to the longevity of the human race? Let us strive for the conservation of biological energy.

As matters now stand, only persons in affluent circumstances, and very few even of these, and a limited number of the poor in our institutions can avail themselves of sex gland implantation.

APPENDIX.

Since my first six experiments were made and the greater part of this paper was written, the author's attention has been called to some very interesting observations which, so far as they go, serve to strengthen the position herein recorded regarding the value of sex gland transplantation hormone therapy.

Leopold-Levi (43) reports a case of rheumatism and psoriasis, associated with hypothyroidism, successfully treated with thyroid extract. In another case of psoriasis excellent results followed the administration of "testicular powders."

Garré, of Bonn, has expressed himself enthusiastically over the prospects of thyroid implantation. He says:

Transplantation of the thyroid will revolutionize the work of the social worker within a few years. Crime, idiocy, the lack of development in children, degeneracy will be lessened through the knowledge of this remarkable organ which is just dawning upon us.

To the thyroid have been traced thousands upon thousands of cases of stunted growth, of mental undevelopment, of idiocy, and such defects. An undeveloped thyroid means an undeveloped child.

Let us take the case of father and son. The father has a normal thyroid, and the son's is undeveloped, hence he is making no progress, mentally or physically. We can remove one third or even two thirds of the father's gland without injuring him in the least, and by transplanting this to the son can soon bring him to positive normal development.

Transplantation of thyroid from the dead to the living under proper conditions probably is quite as practicable as transplantation from the living to the living, unless, as Carrel has stated and Garré seems to believe, and contrary to my experience with the testicle, donor and recipient absolutely must be closely related.

Bandler (44) states that he has used ovarian extract with success in dysmenorrhea, the disturbances of the climacteric, atrophy of the uterus, and amenorrhea. As he usually combines iron with the ovarian extract, comment is unnecessary.

Dubois and Boulet (45) assert that intravenous injections of prostatic extract produce a fall of blood pressure, with an associated increase of brain volume and a lessening of renal tissue volume.

Iscovesco (46) notes the effects of a "lipoid" extracted from the testis and ovary. Clinical trial of this lipoid in the daily dose of 0.02 gram (one third of a grain) for thirty days in eleven patients suffering from hypochondria, or neurasthenia with sexual

weakness, and in eight aged men, resulted in increased general vigor, a better mental attitude, and improved capacity for work. In four of the eight old men the blood pressure was lowered. Vesical tenesmus, due to prostatic hypertrophy, in three of the cases, disappeared completely and permanently after an injection of 0.16 gram (two and a half grains) of the liquid. No toxic effects were noted from the large doses, either in these patients or in the animals. The author lays stress on the erythrocytic properties of the lipid and extols it in the treatment of severe anemia, notably chlorosis, and in severe conditions of innutrition.

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32 NORTH STATE STREET.

PILOCARPINE IN HIGH BLOOD PRESSURE.*

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Just what the official account¹ of pilocarpine ought to include is not clear, but certainly the first named of the two species is a very inferior drug, and its recognition is excusable only on the ground that the market is often devoid of anything better. The leaflets yield four alkaloids, constituting about 0.5 per cent. of their weight, pilocarpine, isopilocarpine, pilocarpidine, and jaborine.

Pilocarpine is the dominant alkaloid and is official, together with its salt the hydrochloride. The

alkaloid jaborine differs from the others in its action, in that it resembles atropine; while the researches of Bastedo conclusively prove that the action of pilocarpine on the end of the secretory nerves is directly antagonistic to atropine, as well as its action on the nerves governing smooth muscle, the termination of the vagus, and the third nerve in the internal eye.

When applied locally in strong solution, it stimulates to a small degree the gland and muscle cells. It does not affect, however, the sensory nerve endings or the striated muscles or their motor end plates. In common with atropine, pilocarpine acts after nerve degeneration, and it is presumed that it affects a material which serves as a receptor of nerve impulses, most likely a colloid. For practical purposes we can omit the reference to the receptor, and say that it acts on the nerve endings.

In full physiological doses, pilocarpine is a powerful diaphoretic, causing a copious flow of sweat, containing an increase of solids. The reaction of the sweat is at first acid, then neutral, and later alkaline; the early acidity is probably due to the admixture of waste products from the sebaceous follicles. If the nerves between the ganglia and the sweat glands are cut, the action of the drug is not inhibited, so that its action must be on the nerve ends in the sweat glands or on the gland cells.

Pilocarpine is the antagonist of atropine; it stimulates those tissues which atropine depresses; in the presence of pilocarpine a much increased dose of atropine is required to produce its physiological action.

The action of pilocarpine is to stimulate all secretions, with the possible exception of that of the mammary gland. In the liver the production of sugar is increased, but not that of bile. The secretions most affected are those of the skin, the salivary glands, and the pancreas, but those of the eyes, ears, and stomach, with the intestines, all share very markedly in the result. There is hyperemia of the tissues, whose activities are increased owing to the direct stimulating effect on the nerve endings in the gland or of the gland cells.

The marked pupillary contraction is due to stimulation of the nerve endings of the third nerve. The vessel walls are not affected, and there is no increase of vessel tension. The terminal filaments of the vagus in the heart are stimulated and the heart action is slowed, the cardiac muscle is directly depressed by full physiological doses. The digestive processes are stimulated by the increased activity of the pancreas, intestinal fermentation is thus lessened, and toxemia, the strong factor in arterial hypertension, is decreased.

The action of pilocarpine on the skin, stimulating both the sebaceous and the sweat glands, its very beneficial action on the hair follicles, increasing the strength, lustre, and quantity; its stimulating influence on the growth of the nails, suggest a broad field for its employment more generally in cutaneous disease. To the kidneys (when used in small doses, grain 1/30 three times daily) it is a direct stimulant; the use by inunction of an ointment, containing pilocarpine, ten grains, wool fat, one ounce, rubbed well into the loins, has a favorable action in acute suppression of urine. Its beneficial action on

*Read before the meeting of the American Climatological and Clinical Association, at its annual meeting, Atlantic City, June 19 and 20, 1914.

¹The leaflets of *Pilocarpus jaborandi*, Holmes, or of *Pilocarpus microphyllus*, Stapf (Fam. Rutaceæ), yielding, when assayed by the process given below, not less than 0.5 per cent. of alkaloids. U. S. P.

the kidney is best noted when given in small doses, as full doses are likely to produce free sweating and nausea. The drug is eliminated by the skin, kidneys and salivary glands. Dangerous amounts of bronchial secretion may be induced by pilocarpine, if given in full doses. By some it is stated that the sugar in the milk and blood is increased. Locally applied, it brings about its physiological results, and it has been stated by some observers that the hair growth is stimulated by it. It contracts the pupil after topical ingestion, by stimulating the third nerve endings.

The foregoing is a fair composite of the recorded observations of the effects of pilocarpine by the writers of the past decades. It shows that not a few persons respond abnormally to the foregoing action, when pilocarpine has been administered. It generally, but not nearly always, slows the pulse rate when given in moderate doses. The pulse rate and blood pressure are both harmoniously reduced in the lower animals, but not always harmoniously so in human beings. The negro race is very susceptible to pilocarpine, and a very much smaller dose is toxic to them than to whites. A number of deaths from lack of knowledge of this fact have been reported. The late Dr. Rowland G. Curtin was probably the first to call attention to this peculiarity of the alkaloid, and he always advised his interns not to administer it to negroes as a diaphoretic, especially in the usual doses used in uremia and in acute or late chronic nephritis.

For the past several years, the writer has used pilocarpine in practically all cases of hypertension of bloodvessels without marked cardiac hypertrophy, and with very gratifying results in nearly all instances. Its use gave evidence of modifying the cause of hypertension. The dose, of course, was a fraction of that usually taught as the normal dose. The records of heart action and blood pressure change were always closely watched, as was also any effect on sensible sweat.

The starting dose for adults in fair condition was one thirtieth of a grain in a glassful of water after meals. This occasionally had to be still further reduced and seldom increased, to secure a gradual decrease in blood pressure amounting to about thirty to forty mm. Hg. after four to six weeks of administration. In one case, an idiosyncrasy seemed to exist, so that the dose had to be reduced to one one hundredth of a grain, well diluted, after meals. The relief it produced of distressing symptoms characteristic of high pressure in this case, was most gratifying. The benefits derived from its use in cases of hypertension where apoplexy had previously occurred, has been uniformly good, in fact better than by any other former treatment, including magnetism and high frequency electric currents at the hands of experts.

S. W. Saunden says that pilocarpine causes rapid improvement in oral and faucial mucous membranes and prevents glandular infection in scarlet fever. Pilocarpine in membranous tonsillitis is of material curative aid. Pilocarpine increases the secretion of digestive juices without disturbing the proportion of hydrochloric acid. Graeme M. Hammond has reported fifteen cases of Menière's disease cured by pilocarpine. Posey (*Transactions of the American*

Ophthalmological Society, 1908) said that pilocarpine was more appropriate than eserine for the local preliminary treatment by miotics in glaucoma. The pruritus of senility is often most satisfactorily treated by nightly doses of pilocarpine. Ocular tension is markedly reduced by local use of a two per cent. solution. It is more effective than atropine one per cent., cocaine ten per cent., novocaine two per cent.

Cheron says it acts as a galactagogue. Walowske recommends it as good for catarrhal jaundice. Ringer states that children are less susceptible to it, even in large doses, than adults. Schwann states that it greatly increases intestinal peristalsis in lower animals. Aural vertigo, or disease of the eighth nerve, is often best relieved by pilocarpine. Pilocarpine causes leucocytosis.

Hypertension in nephritis is due to retention of waste products. Headache is relieved by reduction of pressure by increasing excretion and secretion. The causes of hypertension should be clearly worked out before any course of treatment is decided on. When the thoracic aorta and splanchnics are sclerotic, the hypertension is likely compensatory, and so reduction of pressure, other than by methods directed toward correcting the original cause of a general sclerosis, will be contraindicated.

The intense continuous tension of life as it is lived today reacts on the nervous system in such a way as seriously to disarrange the functions of the body organs, especially by reduction of normal nerve impulse, to the glandular system. So metabolism, elimination, and the condition of the secretions are made constantly abnormal. Vitiating structural change must be the history following such a prolonged abnormal life record.

Chronic interstitial nephritis is practically always interlinked with arteriosclerosis and gives the highest blood pressure showing we meet. This condition of things would be quite impossible, except for impaired nerve force and sustaining power, and the presence of irritating, abnormal, chemical, and bacterial substances long present in the blood stream, and therefore constantly presented to the kidneys for elimination. The hypertension in all such cases is an effort toward compensation by so intensifying the stimulation of the kidney that poisons may be eliminated. Uremia and eclampsia are examples. In pneumonia, typhoid fever, and the like, the toxemia becomes so great as to pass beyond stimulation.

Dr. Samuel West, in *Index of Treatment*, by various authors, 1912, states it as his observation that, "of all drugs for chronic renal disease, I think pilocarpine the most useful. I cannot understand the prejudice that seems to exist against it in some quarters. I have used it very largely and have never seen any disadvantage follow its administration, on the contrary nothing but good. Apart from its general action, many of the symptoms are distinctly controlled by it. Thus headache and the exhaustions and restlessness so common in the later stages of the disease may be relieved by pilocarpine more immediately and persistently than by any other means, and even threatened uremia staved off. I consider it the most useful remedy of all." Pilocarpine increases the activity of probably all glan-

dular tissue of the body, and in general arteriosclerosis, the blood supply to these glands is necessarily reduced. Pilocarpine acts as a vasomotor dilator, and so tends to the reestablishment of normal functions in normal amounts.

The reverse of depression in properly adjusted doses of pilocarpine to respective cases occurs, yet it does not stimulate as stimulation is usually understood, but simply introduces an additional entity to the media, deciding normal glandular functions, which enables such functions to be performed under the existing inability to do so. So probably is the maintenance of normal metabolism assisted with its necessary influence on blood pressure.

Better metabolic action throughout the body ensues, and to such extent a return of approach to health during its action results. Excretion and secretion are markedly increased. Particularly is this true of the sweat glands; there is great increase of the solids of the sweat. This is true, even though the dose stimulates action quite short of sensible perspiration. A harsh, dry skin becomes soft and in good tone, and carefully preserved washings from the body yield the solids in appreciably increased quantity. With the entire glandular system of the body increasing its functional activity so as to bring about the normal balance essential to normal efficiency of metabolism, there must be caused the removal of the most common causes of bloodvessel hypertension.

The effect of pilocarpine on gland substance suggests its playing a part in colloid combination and deciding the to and fro make and break of the giant colloid molecule combination, which receives its impulse charge from the terminal nerve ends, and discharges it in interaction with the gland cell.

Suffice it to say that pilocarpine does establish the activities and conditions necessary to health which are usually wanting in hypertension, and this to such a degree as should assure it a prominent place in the armamentarium for the treatment of that condition.

From private work, the writer has notes of fifty-three cases where distressing hypertension existed, in which he has tested the use of pilocarpine. Short notes on a few will be sufficient indications of the results, as they are cases selected to represent broadly its effects.

CASE I. Miss M. M., aged sixty-eight years, head of a department in a large millinery house. Cerebral apoplexy three years ago; bedridden three weeks. Gradual improvement, enabling return to employment after one year, but with impaired speech, gait and arm and leg power. Distressing vertigo almost constant and headaches very frequent, and at times so severe as to prevent work. Blood pressure, systolic, 214; pulse, 84. Urine, average amount thirty ounces, specific gravity, 1012, urea 362 grains per diem. Few granular and hyaline casts, indican, and acetone. Constipation, intestinal fermentation, and coated tongue constantly present. Feeble perspiration response to hot packs. Pilocarpine, grain 1/30, in glassful of water, after each meal, begun eight months ago, when patient came into writer's care. No sensible perspiration induced, but full evidence of decidedly increased insensible sweat, beginning after two months' administration. Pulse 78, pressure 194, vertigo much decreased. Full perspiration response to hot packs, given twice a week. Appearance and feeling of general betterment. After four months' improvement, continuous in all symptoms, pressure 182, pulse 74, no casts or albumin or indican. Three months later pressure 168, pulse 72, urea 462 grains, and evidence of improved health remark of all acquaintances.

CASE II. J. F. K., man, aged sixty-six years, real estate operator, came into writer's care fourteen months ago. Intensely nervous, insomnia, vertigo at times alarming, tinnitus aurium, constipation, gastric and intestinal indigestion. Headaches frequent and severe. Condition necessitated partial retirement from business. Urine, albumin a trace, many hyaline and few granular casts. Average amount 28 ounces, urea 346 grains. Blood pressure 208. Grain 1/30 pilocarpine muriate with glassful of water after each meal, ordered, also continuation of hot packs, which soon began for the first time to prove effective. Usual orders as to diet, including liquids taken. Improvement began promptly with fall of pressure to 188 after three weeks, and to 166 after eight months, about which place it remained constant. General health and feeling, better than over eight years past.

CASE III. Mrs. T. B. D., aged seventy-one years, slight build, palpable vessels, recognizably very atheromatous. Headaches frequent and severe, intensely nervous, harsh dry skin, bad digestion. Constantly coated tongue, present weight 106 pounds, a loss of 19 pounds since an apoplectic stroke involving the entire left side, twenty months ago. The palsy was profound for some weeks, and it was four months before patient could walk without cane. Some improvement in this continued for six or eight months more, since when the condition had been practically stationary. The gamut of the usual lines of treatment in such cases had been tried with her by three or four different physicians who had her in care at her summer home and other places of temporary residence. These treatments induced a full course of high frequency electricity and magnetism, in an effort permanently to reduce a pressure which persistently remained from 212 to 220. She was three months ago started on one thirtieth of a grain of pilocarpine, with full glass of water after each meal. The improvement in this particular case was surprising in every symptom. After six weeks the blood pressure never recorded above 168 and there was no evidence of unpleasant cardiac depression, cyanosis, nor occurrence of sensible perspiration properly attributed to the drug. A study of this case inclined one to feel that the pressure reduction was at least in part properly attributable to the reestablished normal glandular functions throughout the body, especially of the kidneys, sweat glands, and glands related to digestion.

CASE IV. C. T. C., man, aged seventy years, weight 206 pounds, florid complexion, engorged facial and neck capillaries, bad station at times, staggering on turning movements, and distressing feeling of intense engorgement of head. Blood pressure 190 to 206; usual treatments of no avail. Pilocarpine in one thirtieth grain doses at the end of two months, showed reduction in pressure only to 184; the dose was then increased to one twentieth grain and after two months more, when only ten mm. addition fall was recorded, the dose was made one fifteenth of a grain three times a day. The persistent maintenance of this dose for the past year has been associated with a remarkable reestablishment of normal physical conditions. No ill nor inconvenience seems to have resulted from use of the drug, and the vertigo, tinnitus aurium, and turgid condition of the face and neck disappeared, and a condition of comfort and well being, such as had not been experienced for a number of previous years, became established. One particularly interesting feature in this case was that for the past twelve or fifteen years the man had annually suffered from so distressing a winter cough, more particularly at night, as to disturb his household and make himself wretched, so that several weeks' sojourn in the far south were made necessary at great business and domestic inconvenience. During the two winters he has been taking pilocarpine, he has not been afflicted with the cough, which, by the way, has no associated expectoration.

CASE V. M. A. S., retired nurse, aged fifty-six years, suffering from chronic interstitial nephritis with photophobia, constant eye pain, and intense and distressing headaches several times a week, lasting for a number of hours. The usual treatments failing to give relief, pilocarpine in one thirtieth grain doses, three times a day, was added. A slow but steady improvement continued from the end of the second month, which was two years ago. Early in the treatment, the one thirtieth of a grain dose was followed by rather profuse night sweats and cardiac distress. The dose was gradually decreased to one ninetieth of a

grain, three times a day, at which it was kept constant. Copious quantity of albumin, many granular and hyaline, and some blood casts were the continuous record. For the last three months these were absent. The blood pressure, originally from 240 up to 270, was reduced to from 180 to 190, at which point it remained. On account of the great suffering of this woman, several prominent physicians were associated in trying to secure comfort for her, especially for her eyes and head. The consensus was that pilocarpine should be credited with the very decided improvement in her case which made life quite comfortable.

CONCLUSIONS.

In intelligently selected cases of hypertension, pilocarpine has not failed to be of value, in many instances of very great value. The therapeutic dangers usually accredited to this drug have not been met with in the modified dose in which it has been used, a dose that is not mentioned in works on therapeutics and materia medica. The general feeling that the drug is a dangerous one, the writer feels, is due to the former habit of presenting the maximum dose of from one tenth to one fourth grain. A thoughtful study in selecting cases for the use of pilocarpine and an unprejudiced testing of the possibilities to be derived from its use, will gain for it many friends.

Six colleagues who have been using it as suggested, are all in accord in crediting it with great power for good, if thought and careful study of cases are associated with its use.

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2012 MOUNT VERNON STREET.

THE RELIEF OF GAS PAINS AFTER APPENDICECTOMY.

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The history of most cases of appendicitis includes the symptom of intestinal fermentation with its usual depression and discomfort. It is common knowledge that this is the result of fermentative action due to food, the presence of various forms of bacteria, and their ultimate gaseous products. The incision and nerve section necessary in all abdominal operations cause a shock to the nerve centres and to the normal governing power and control of the intestinal wall, and a local paretic state ensues; in other words, a freer rein is given and we have distention with pressure directed on a highly sensitive wound.

With a tightly applied bandage and vomiting, or with a distended bladder or vermicular intestinal action, we have an ideal arrangement for inflicting a most vicious form of torture.

In a recent paper on abdominal distention, by

Francis Reeder, of St. Louis, the writer asks: "Could an uncomplicated abdominal distention following laparotomy menace the life of a patient?" and answers, "when the factors at work are fully considered, this question must be answered in the affirmative."

Speaking generally, the usual course and ultimate result of most appendicectomies are satisfactory, with the exception of this distention and the so called "gas pains." The latter are peculiarly nagging and demoralizing.

In the capacity of attending physician I have devised various methods and made many efforts to relieve or allay without morphine this state of things. This condition is an independent affair, has no relation whatever to the progress of the wound nor the patient's general physical condition, yet all seemed destined to suffer more or less through this stage.

Bearing in mind the fact that bacteria are the primary factor, the idea of previous sterilization was considered, with the result that fifteen successive cases have now passed this stage night and day with absolute comfort.

The combination of acetyl-salicylic acid ester, grains twenty, with calomel grain one, and sodium bicarbonate grains five, mixed and given in two or four ounces of water the afternoon preceding the operation, followed by the usual enema next morning, has secured this delightful result. The drug is harmless and can be given alone if calomel is objectionable, but the cathartic effect is desirable. The dose of each varies according to the age of the patient.

If, by percussion, the abdomen shows evidence later of beginning distention, ten grains can be given next day when relaxation soon occurs and the threatened tension and distress are aborted and held in abeyance until the tract can be safely unloaded.

78 EAST FIFTY-FOURTH STREET.

SOME ESSENTIAL POINTS IN INFANT FEEDING.*

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Holt¹ has said that nutrition in its broadest sense is the most important branch of pediatrics. No other pathological condition is so common in infants as disturbance of nutrition, none so difficult of satisfactory treatment, and none in which the mortality approaches that due to gastrointestinal diseases.

There are certain fundamental laws of metabolism which must first be studied if we would base our methods of infant feeding on logical grounds. The food requirements of the baby; the purpose of these food elements in nutrition; the amounts needed; derangements of nutrition from improper

*Read at a joint meeting of the Medical Association of the Greater City of New York and the Richmond County Medical Society, St. George, Staten Island, June 1, 1914.

¹The writer does not attempt throughout this article to give detailed credit to such authors as Holt, Chapin, Schereschewsky, from whom he freely quotes.

food and from improper feeding; and some general indications to be met in combating the disturbances of nutrition; these form the rather wide scope of this paper.

We know that five food elements are absolutely essential to the growing child, viz., fat, sugar, proteid, mineral salts, and water.

Fats. Fats are the most important source of animal heat and are necessary to development of bone and nerve structures. The caloric value of fat is more than twice that of sugar or proteid, which have equal values. Fat forms from twenty to thirty per cent. of the fecal mass and preserves its consistence. Fat starvation causes profound nitrogenous waste. Excess of fat appears as fat curds in the stools which become pasty white; the urine becomes ammoniacal; the baby vomits rancid smelling curds, the residue left in the stomach on account of the slow passage of fat into the duodenum. This excess may be very harmful in conditions where production of lipase, the fat splitting enzyme, is deficient. Such a deficiency occurs in all wasting diseases, acute or chronic gastrointestinal diseases, febrile conditions, and in periods of very hot weather. An excess of fat abstracts large amounts of alkaline bases to saponify the fat in the process of digestion, as shown by excessive elimination of ammonia. This depletion from the system of alkaline bases is held to cause scurvy.

Sugar. Sugar cannot replace waste, but it supplies body heat and is readily converted into body fats. Sugar is a more important aid to proteid than fat and can be substituted when there is fat intolerance. Lactose, maltose, and cane sugar are the three forms available. Milk sugar being a natural food for babies, does not ferment in the stomach, but ferments readily in the intestines. The infant under four months has little power to digest starch, but readily digests sugar. Excess of sugar causes a rapid gain in weight, but not a corresponding gain in strength. Continued sugar excess sets up intestinal fermentation, with gas and sour, watery stools. Lack of sugar results in slight gain in weight or none, and an excessive proteid metabolism.

Proteid. Proteid is required as a tissue builder and to repair waste of cellular tissue. It is provided in milk in digestible form. Cow's milk contains twice as much proteid as woman's milk, to supply the greater nitrogenous demand of the calf. Proteid digestion takes place chiefly in the stomach of the calf and in the intestines of the infant. Proteid starvation results in anemia—poor circulation, feeble muscular power, and various nervous disturbances. Excess of proteid or casein helps in a mechanical way to upset digestion when combined with excess of fat or when bacterial changes have altered the digestibility of the proteid.

Salts. Mineral salts, such as phosphates of calcium and magnesium, are demanded in the rapid growth of the skeleton. They are abundant in both human and cow's milk, but very deficient in proprietary foods. Salts are four times as abundant in cow's milk. These salts are essential to cell growth and to the production of blood and digestive juices.

Caloric feeding.—Feeding by exact methods, guided by the caloric values of foods alone, must be done with constant appreciation of the individual peculiarities of the infant. An energy quotient exceeding 100 calories to the kilogram of body weight is followed by nutritional disturbances. We know that the normal breast fed baby varies greatly in the amount ingested at different times while in perfect health. Hence, by insisting on 700 calories a day for a fifteen pound baby, we may overfeed or underfeed that particular infant.

It is wiser to be guided by our clinical observations—of peaceful sleep, keen appetite, contented general appearance, two or three yellow stools a day, limpid, odorless urine, body tissues firm and elastic, steady gain in weight. The weight at birth should be doubled at six months, trebled at twelve months.

On the other hand, we know that nutrition is imperfect if the child sleeps little, frets, and seems hungry all the time, nurses forty to fifty minutes, is apathetic, regurgitates small amounts of undigested milk and mucus, has eructations of gas, small stools, or colic and thin watery stools with flaky masses of undigested milk, and makes no gain or suffers actual loss of weight.

The former ideal picture is about four times as frequent among the breast fed, but when the latter condition supervenes, we must realize that nursing is a failure. Not until we have tried every means within our resources, however, are we justified in weaning the infant. From seventy-five to eighty per cent. of deaths from gastrointestinal diseases are among the bottle fed; in Berlin from 1900 to 1904, ninety per cent. were bottle fed. Breast feeding can be made successful in seventy-five per cent. of cases, but around New York, according to Doctor Holt, only twenty-five per cent. of mothers nurse their babies. Artificial feeding in effect, then, means triple the mortality of breast feeding.

Human milk has a fairly constant composition of fat 3.50 per cent., sugar seven per cent., proteid 1.25 per cent., salts 0.20 per cent., water 88.05 per cent., while cow's milk from a good herd is fat 4 per cent., sugar 4.5 per cent., proteid 3.5 per cent., salts 0.75 per cent., and water 87.25 per cent. The fat and sugar are practically identical in quality, but the proteid of cow's milk has a much lower percentage of the soluble lactalbumin. This accounts for the tougher curd. The quantities in cow's milk we find then are approximately 0.5 per cent. more fat, 2.5 per cent. less sugar, 2.25 per cent. more proteid. On account of these differences, and for various other reasons, many complex modifications and substitutions for milk have been advocated. But clean, fresh, pure raw milk must still be our main reliance in feeding infants. Let me emphasize the essentials of wholesome cow's milk: cleanliness; freshness, not over twenty-four hours old; purity, no pathogenic bacteria and bacterial count not excessive; cold from cow to consumer. Meeting such standards, raw milk, with its vitamins, its hormones, its natural ferments, whatever they may be, is the best artificial food for the baby.

Fully seven per cent. of the cows in New York State are tuberculous, and epidemics of typhoid fever, scarlet fever, septic sore throat, have been traced to contaminated milk. Hence all milk not above suspicion must be sterilized or pasteurized. This should be done just before feeding—at home—not a day or two days before. Sterilization should be used for only short periods of time, as this process undoubtedly alters the milk. Prolonged feeding of such milk may produce scurvy or rickets. Heating to temperatures below 160° F. changes the milk chemically but little.

Vincent concludes in his studies of pasteurization that 140° F. for twenty minutes is uncertain in its effects. Lactic organisms may survive, but the putrefying organisms surely do, even if the temperature is raised to 170° F. One can readily imagine what happens when pasteurized milk is carelessly iced or reaches the consumer warm. Fresh milk always curdles within twenty-four hours at temperature 100° F., eighteen hours being the average time. The purer the milk, the freer the growth of lactic organisms and the more quickly the souring takes place. Under the same conditions the average time required for pasteurized milk to curdle is fifty-five hours.

Not all bacterial change in milk can be detected by sight, taste, or smell. This is one of the grave dangers of pasteurized milk improperly cared for, as no warning is given of the development of putrefactive or proteolytic organisms. If the milk is kept cold these organisms do not propagate to a dangerous degree.

Of the many factors to be considered in cases of deranged nutrition, let us first consider overfeeding, said to be a most common American practice. This condition is found in a baby who makes a remarkable gain in weight one week, is restless and nervous, with sleep light and broken, less active and playful, keen appetite diminished, two or three ounces of feeding left, has to be coaxed to take food, stools become pale gray, hard, and dry, color and consistence of putty, and have strong odor; urine becomes ammoniacal and stains diaper. The child shows pallor; the tissues are flabby and relaxed. It fails to gain on same food and later loses weight. This may go on to wasting, with the belly distended with gas and the marantic baby is the result.

Or again, overfeeding may produce a gastrointestinal catastrophe, with vomiting, diarrhea, fever, prostration, and inability to take cow's milk, often extending into weeks. The more chronic cases exhibit anorexia—constipation with outbreaks of eczema, a roughened patch on the cheek, or an eruption covering large areas. As the child grows older, rickets develops. This picture is not uncommon in the bottle fed baby, that is given too much fat and sugar.

Vincent finds, from his examination of stools, that a second group of cases shows great numbers of acid bacteria with sour, watery, green stools. The enterocolitis here is purely bacterial in origin. Treatment consists in the exclusion of all diet likely to assist the growth of lactic organisms. Raw milk must be forbidden. Cooked milk with lactose reduced to a minimum, a reasonable

amount of fat, and a considerable amount of protein or caseinogen or a precipitated casein is given. Chalk is useful to combat the excessive acid, and opium in small doses to calm the irritated intestines. Albumin water made with normal saline, combined with a few teaspoonsful of diluted meat extract and small doses of brandy, is given at intervals. Very gradually a normal milk diet is introduced.

The dietetic and medicinal treatment is constantly checked by examination of the dejections. Vincent believes that we have tended to exaggerate the value of purgatives. Active stopping of diarrhea is not unsound. To stop the excessive acid production and give rest to the irritated intestines are the immediate indications.

A third group of cases Vincent ascribes to colon toxemia, which may be acute, with headache, vomiting, diarrhea, languor, and great drowsiness, very probably constipation, or sometimes recurrent attacks of vomiting. In older children the condition is more chronic. The toxemia has a profound effect on the general health, causes anemia, and may predispose to tuberculosis. Vincent believes that children fed on boiled milk are more liable to contract tuberculosis, owing to the chronic toxemia from the proteolytic action of the colon bacilli. Lactic acid organisms are indicated here to counteract the putrefactive bacteria and should always be given with raw milk, never with cooked milk.

Another class of deranged nutrition is found in those apparently well infants suffering from bad methods of feeding. The infant may regurgitate a small quantity of undigested milk after feeding, or vomit a large amount some time later. The stools are bulky, pasty, and foul smelling. This usually means too much fat. A change to skimmed milk clears up the symptoms.

If constipation is troublesome, oatmeal gruel usually corrects the condition. If the baby is colicky, and curds appear in the stools, change the gruel to another form and add one to two grains of sodium citrate to each ounce of milk. Sometimes the sugar is too high and the baby's stools are sour and watery. Less sugar of another kind and changing the gruel may be all that is necessary.

The mothers and nurses must be impressed with the importance of having the baby's food fresh and palatable. The gruels should be cooked very thoroughly in double boilers, so that the flavor is not spoiled by scorching. Every utensil used in preparing the food should be scrupulously clean. Lime water is beneficial in vomiting, but should not be given for prolonged periods, as it is held to interfere with the proper development of the stomach. Bicarbonate of sodium in a similar way hinders gastric digestion and throws additional work on the intestines. Authorities agree that proprietary foods should not be used as a routine. Recent experiments have shown that two well known foods alone would not sustain life in mice. Some proprietary foods contain large quantities of starch, which should not be added until after the eighth month in any event, and then only in two or three feedings a day. On account of the starch, these

foods should be cooked much longer than the directions call for.

In using protein milk, Wilcox and Hill report remarkable results in a series of 400 cases at Bellevue Hospital. Protein milk with low fat content was used as a routine in every class of feeding case. No preliminary purgation or starvation, with its consequent loss of weight, was used.

Protein milk was given alone as a therapeutic measure, for three days on an average. It was then combined with breast feeding, plain milk mixtures, or solids up to twelve or eighteen days. As prepared by their method, the composition was fat 0.8 per cent., sugar 2.4 per cent., proteid 2.8 per cent. The method of preparation required buttermilk from skimmed milk (fat 1.75), one quart and one ounce of ordinary buttermilk. It is allowed to stand twelve hours at a temperature of seventy to eighty degrees, is thoroughly beaten every two or three hours, and is placed on ice until used. Junket is made from two quarts of skimmed milk strained through gauze, washed in water, forced several times through a fine sieve with a potato masher, adding the special buttermilk one quart, water one quart, and two grains of saccharin, and the whole is beaten to form a fine suspension.

However we view the question of milk modification, whether we consider the fat or the proteid to be the chief offender against proper infantile digestion, we must agree that one standard only is allowable; the baby should have clean, fresh, pure milk, raw if pure; pasteurized or boiled, if not above suspicion.

Whole milk diluted with barley water, oatmeal gruel, or plain boiled water, meets a majority of the average feeding requirements. It is simple, requires little manipulation, and there is nothing to be added but sugar. There is less chance of the ignorant or careless mothers making serious mistakes, and the results are good. Skimmed milk is especially valuable in fat intolerance. We should remember that calves thrive perfectly on skimmed milk. Top milk and its various modifications undoubtedly are useful in certain cases.

There is no one food and no one method that is applicable in every case. Babies have individual peculiarities of digestion, inherited or acquired, that must be studied and given fair consideration. Modifications must be based, not only on the age, but the weight of the child on its digestive capacity, as indicated by gain in weight and freedom from gastrointestinal symptoms.

91 BARD AVENUE, WEST NEW BRIGHTON.

HODGKIN'S DISEASE.

BY A. K. YOOSUF, M. D.,
Worcester, Mass.

The etiology of this disease has not been determined, but it is surely an infection of the glandular structure, of unknown origin; a group of glands may be involved, or the glands throughout the body. When the infection is general, the mediastinal and retroperitoneal glands may be the first involved. Anemia, chills and fever, and symptoms of intrathoracic and abdominal pressure may be present. Sometimes there are no indications of the nature

of the disease, and in a short period superficial glands become enlarged, and the other glands follow. The histological changes resemble, in certain forms, those of tuberculosis, and some writers go so far as to state that pseudoleucemia is a modified form of lymph gland tuberculosis.

Hodgkin's disease, when it occurs, is common among young people, sixty per cent. of the cases being those of persons under forty years of age. There is no doubt of its infectious nature. Klebs was the first to point out the changes in tissues; Virchow and Cohnheim both believed "the mode of formation of metastasis as an evidence rather of an infectious than of a neoplastic process."

Dreschfield, in a recent article, lays stress on the probable infectious nature of the disease, and calls attention to the pyrexia and hemorrhage in some acute cases. The chronic relapsing fever, described by Ehstein and commented upon by Tel, of Amsterdam, is probably an acute form of pseudoleucemia.

The following case is sufficiently interesting to report:

CASE. S., man, aged forty years, about the middle of last October had malaise with a chilly sensation, followed by a feeling of warmth and nausea. Within a few days he noticed some eruption on his wrists and ankles, with swelling, and two or three days later these rashes appeared on his knees with itching. He began to have chills at irregular intervals and the rash became general. Bowels regular, appetite good. *Family history*, good. *Personal past history*. Twenty-three years ago he had fever lasting nearly a month, since then had not been sick. Habits good, used tea and coffee in moderation. Had smoked very little, and two years ago left off the use of tobacco entirely. *Examination*. Pupils equally dilated. Mouth and teeth in good condition. Tongue moist. Knee reflexes present and equal, and no abnormality. Skin presented a general erythema, papular variety. At the apex of left lung there was a little harsh breathing at expiration; no rales. Apex in the fifth space just outside of nipple line, no thrill felt, apex beat a little more. Systolic bruit heard all over pericardial region, loudest at the apex, transmitted to the axilla. Abdomen soft and tympanitic and of good character. No masses or fluid. Spleen easily felt two cm. below ribs. Liver not enlarged.

Blood: White corpuscles, 26,000; polynuclears, 74 per cent.; large lymphocytes, 6 per cent.; small lymphocytes, 19 per cent.; eosinophiles, one per cent. October 24th, white corpuscles, 20,000; polynuclears, 74 per cent.; large lymphocytes, 6 per cent.; small lymphocytes, 19 per cent.; eosinophiles, one per cent. Blood pressure, systolic, 106 to 110; diastolic, 70. Wassermann negative. No increase of uric acid.

At the beginning of the disease, it was diagnosed by some as endocarditis, and by others as septicemia because of the chills and fever at intervals. During this time he felt well and strong enough to be out. For two or three weeks he felt considerably better, but the chills and fever recurring, he was confined to bed.

From January, I noticed enlargement of submaxillary glands, also of cervical glands; a little later of axillary and inguinal glands. There was general enlargement of lymphatics.

In the course of his sickness there were three cardinal points noticeable for diagnosis: 1. Chill and fever from 102° to 104° F. during chill, erythema during the attack, remittent or intermittent fever with regular or irregular pauses, sometimes lasting from three to four days; 2, profuse sweating; 3, freedom from pain.

In the early stages, the blood was nearly normal, and there was no anemia. Later on there was leucocytosis. With the advance of the destruction of red cells, there was diminution of hemoglobin in proportion. He was cachectic. During the latter stage of the disease, there was edema of the lower extremities and dropsy, and this was due to 1, venous stasis; 2, displacement of the lymphatic trunks; 3, the progressive anemia of cachexia.

Syphilis may give rise to enlargement of the

lymphatics, but the patient's past history and the negative Wassermann clear the case. Tuberculous glands usually occur in younger persons, and generally suppurate. In Hodgkin's disease they rarely, or never suppurate. In tuberculous glands, only one series of glands is involved, usually the sub-maxillary. In Hodgkin's disease the anterior and posterior cervical glands are affected.

No tuberculin test was employed. In tuberculous adenitis, the liver and spleen are not enlarged in so great a degree as is the case in Hodgkin's disease. The prognosis is grave; this patient died within five months.

The autopsy did not show hemorrhage as in Werlhof's disease, but there were numerous lymphomata in the thorax and abdominal cavity. Lymph glands also were found in the digestive canal. Spleen and liver were enlarged and nodulated. There were small foci at the left apex. The heart was hypertrophied, but no valvular lesion was found. The microscopic examination proved the diagnosis of lymphosarcoma.

18 WALNUT STREET.

Abstracts and Reviews.

THE EXCITATORY PROCESS IN THE HEART.*

BY PROFESSOR THOMAS LEWIS,
University of London.

As a result of the collective observations which have been made in the last few years, we have come to believe that the seat of impulse formation in the heart lies in the region of the sinoauricular node of Keith and Flack. But these observations, while rendering this view probably correct, have not established it upon an incontrovertible basis as the pace maker of the heart. Further than this, the mode of transmission of the impulse from its seat of origin to the various portions of the heart muscle has not been definitely determined, although we have certain facts fairly well established. Our present remarks will deal with the recent work which we have carried out with a view to the perfection of our knowledge of the precise location of the inception of the cardiac excitatory process and its transmission through the several portions of the heart.

If a single strip of muscle is taken and its two ends are connected with nonpolarizable electrodes, and the current produced during its contraction is read off by the deflection of a galvanometer string, we shall get the simplest form of curve and one which can be most readily analyzed. Under these conditions we find that the end of the muscle strip at which the excitation wave originates, becomes relatively negative to the opposite end, and our galvanometer gives a deflection in an upward direction. As the excitation wave passes from one end of the muscle to the other, a condition arises in which the two poles are isoelectric, and at this time the deflection of the galvanometer string passes off, the string returning to rest. The curve thus pro-

duced is downward to the base line. Finally the distal end of the muscle strip becomes relatively negative to the proximal end, and there is a deflection of the string in a direction below the base line. With the return of the muscle to rest the string resumes its normal position and an upward curve is described, reaching the base line once more. Whether a muscle contracts spontaneously, or as the result of an electrical stimulation, the galvanometer curve always shows a state of relative negativity at the point of origin of the excitation wave. Activity of contracting muscle is, then, always associated with relative negativity, and the direction of the deflection of the string of a galvanometer gives evidence of the starting point of the excitation wave. As the excitation wave is followed at once by the contraction wave, the curve also gives the direction and passage of the contraction through the portion of muscle studied.

With this information available we were able to approach the determination of the precise location of the inception of the excitation wave in the animal's heart, for it merely became necessary to discover that region in the heart which invariably became negative to all other regions at the inception of an excitation wave. In carrying out these observations we adopted a standard lead with which to compare the times of our waves obtained directly from the exposed heart. The standard lead was one taken from the right fore to the left hind foot of the dog. This was recorded simultaneously with the direct readings taken from different regions of the heart's surface.

In this way we were able to give positive confirmation to the belief that the excitation wave always arises normally in the node of Keith and Flack in the sinus terminalis of the right auricle at the base of the superior vena cava. This region alone was invariably initially negative to all other regions of the auricle.

By comparing the standard lead curves with those obtained by placing one pole over the sinoauricular node and the other at definite distances from it on the surface of the auricle, we were able to measure the transmission time of the excitatory wave in all different directions. Our observations showed that the wave travels over all portions of the auricular musculature at a rate varying from 800 to 1,200 mm. in each second, irrespective of the direction from the sinoauricular node.

We were next led to test the conduction time of the excitation wave along the course of the specialized tissue which runs from the sinoauricular node to the nodes of Tawara and the bundle of His. We were able to demonstrate that the transmission time of the excitation wave along the course of these specialized fibres was no faster than along any other strand of auricular muscle fibres.

One electrode was then placed over the S-A node and curves were taken with the other placed at different points equally distant radially from the first electrode. To amplify this we also placed one electrode at points on a circle having the S-A node as its centre and the second electrode at points on a larger circle concentric with the first. By these two methods we were able to demonstrate that the excitation wave was transmitted radially in all di-

*Summary of a lecture delivered before the Harvey Society at the Academy of Medicine, New York, October 24, 1914.

rections from the S-A node at a uniform rate. The wave was also found to ascend the great veins for some distance outside of the pericardial line, and here, too, its rate of transmission was the same as in the auricle proper. We concluded that the transmission time from the S-A node varied directly with the distance from the node. There was no evidence of the existence of special conducting tracts in the auricle, the impulse spreading at a uniform rate over the entire chamber by way of the muscle strands themselves.

Our attention was next devoted to a similar analysis of the excitatory process in the ventricles. Here we were struck by the fact that all points of the ventricle received the excitation wave at approximately the same moment. Two portions alone were found to receive the wave slightly earlier than the rest. The first of these was situated on the anterior wall of the right ventricle and corresponded to the region overlying the end arborization of the right branch of the Purkinje conducting system. The fact that this area corresponded to the arborization of the auriculoventricular bundle suggested that this was the cause of the earlier arrival of the excitation wave at this point. This was shown subsequently not to be the correct explanation.

Methods similar to those employed to test the conduction rate of the auricular fibres were applied to the ventricular tissue, but the conduction rates were found to be very variable. Further study provided the explanation of this variability as well as of the fact that the region already described received its excitation wave slightly in advance of the rest of the ventricle. It was found that when a strip of ventricular muscle tissue was connected with the galvanometer so that one pole was on the endocardial surface and the other immediately over it, and a third electrode was placed on the epicardial surface at the opposite end of the strip, a stimulus initiated at this third electrode did not pass along the muscle fibres on the epicardial surface, but directly penetrated the muscle, passed along the Purkinje fibres to the opposite end, and again penetrated the muscle to reach the second epicardial electrode. It was found that the impulse always took this long course when the strips of muscle were of any material length, but that the impulse might, in exceedingly short strips, pass along the epicardial surface. The conduction rates of the excitation waves were then determined for the ventricular muscle and for the Purkinje system. The rate for the former was found to be only 300 mm. to the second, for the latter between 2,000 and 3,000 mm. a second. This afforded the explanation of our observation that, the thinner the ventricular muscle the faster the spread of the excitation wave. The delay was found to depend on the thickness of muscle tissue which had to be penetrated before the impulse reached the Purkinje system. This explanation also accounts for the earlier appearance of the excitation wave at the site of end arborization of the right branch of the A-V bundle, for this is the thinnest portion of the right ventricular wall. A second similar area was found at the extreme apex of the left ventricle, and here again this was found to be the thinnest portion of this chamber.

saying that we have been able to bring forth con-

Our findings with regard to the excitatory processes in the heart may be summarized briefly by firmatory evidence of the sinoauricular node's being the seat of impulse initiation. That in the auricle the excitation wave is conducted radially from this point along the muscular strands at a uniform rate of about 1,000 mm. a second to all portions of the auricular musculature. That there is no evidence of a specialized conducting mechanism in the auricles. That in the ventricles the impulse is conducted along the fibres of the Purkinje system to all portions of the endocardial surface of the heart practically simultaneously, and at a rate of from 2,000 to 3,000 mm. in the second. That the ventricular muscle conducts the excitation wave at about 300 mm. a second, and that, hence, the thickness of the ventricle accounts for the earlier appearance of the wave in the thin portions. And, lastly, that the impulse is not conducted normally through the ventricular muscle from one portion to another, but only in a direction vertical to the surface of the heart from the endocardial to the epicardial surface.

A final point of considerable interest in connection with the conduction rate of the excitation wave in the different tissues studied, is the chemical relation between them. It was found that the conduction rate bore a definite relation to the glycogen content of the several tissues. The Purkinje fibres, which have the most rapid conduction rate, contain the largest proportion of glycogen; the muscle fibres of the auricles, which conduct next most rapidly, contain less glycogen; and the glycogen content of the ventricular musculature is the lowest, corresponding to the slowest conduction rate.

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLI.—How do you treat whooping cough? (Closed.)

CLII.—How do you treat bedsores? (Answers due not later than November 16th.)

CLIII.—How do you treat prostatitis? (Answers due not later than December 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

PRIZE QUESTION NO. CL.

THE USE OF BELLADONNA OR ATROPINE IN THE TREATMENT OF ALCOHOLISM.

The history of the treatment of alcoholism, even in an age when the dark room and the whip are not orthodox medicine, is of appalling stupidity and cruelty. It was such a consideration that suggested our question. We are therefore sincerely sorry to

observe that our readers have not seen fit to bestow sufficient exertion on the answer to justify us in awarding a prize. It is up to us in the present circumstances to perform what we should gladly have had others do.

The precise causes which induced physicians many years ago to employ atropine in alcoholism, and especially how a modern school has come to look upon atropine and belladonna as specifics, have long exercised scientific minds, and yet no explanation has been given of such a kind as to satisfy, on the one hand, the advocates of the continuous warm bath and cold affusions, and, on the other, those who look upon drugs as the ill conceived remedies of the empiric. The truth doubtless strikes a happy mean. That atropine is sometimes a pleasant and effective anodyne; that doctors have often grievously blundered in ignoring those by effects of intoxication and delirium which have confounded them when they employed it unwisely, are sure and undoubted truths. They are agreeably set forth in Astley Cooper's little book, *Pathological Inebriety*, by McBride in the *British Medical Journal* for April 30, 1904, by Francis Hare in the *British Journal of Inebriety* for January, 1907.

What these writers say of atropine is what thoughtful physicians feel; and that they at the same time can recognize its medicinal value is a matter of rejoicing to us. Cautious teaching concerning atropine and even belladonna is sound and good. The delirium they cause is an instance of what medical dogma has done for humanity hitherto, and has often in its hideous effects shown whence we draw our asylum cases. We do not agree with Francis Hare that atropine and strychnine do no harm to inebriates; we believe they generate a craving in a susceptible system. Experience has shown to all that patients cannot come in contact with these drugs without danger. Atropine and belladonna have done and do this good; they float the inebriate through the perilous period of initial sobriety, when the animal cravings need control and transmutation. It is true that atropine and belladonna have somewhat different effects; we agree that to practise an injection on the body and to administer a remedy by the mouth may be, and perhaps are, quite distinct in their results. The idea, however, in treating alcoholism is a figment. We have only to look through case histories for scientific assurance of it. These histories reveal the fact that these drugs must usually be given in increasing doses, and that when the original habit is cured, the process of ridding the patient of another requires long and costly effort. To set a balance innumerable other drugs are proposed, and nowadays psychotherapy is an up to date association with the care and cure of the inebriate who has lost one habit and taken up another.

Tuvin, a Russian author, has collected the most interesting evidence in support of the atropine treatment. Indeed, he has the honor to be its founder, and may be called chief president of the guild. His first article appeared in *Roussky Vrach*, xviii, 1439, 1897, entitled *The Effect of Atropine in Delirium Tremens and Similar Affections*. His opinion is that cold ablutions to a patient in a warm bath stimulate the nervous centres, especially those depressed by alcohol. He proceeds to argue that atro-

pine stimulates in the same way, and in many of the cases he reports, a subcutaneous injection of 0.0009 gram. produced sleep in twenty minutes. He states his results in another paper, *Clinical Studies of Delirium Tremens and Similar Conditions, and Their Treatment with Cold Baths, Excitants, Atropine, Diuretin, and Alcohol* (*Roussky Vrach*, 1375, 1411, 1513, 1898). An injection of sulphate of atropine reduced the pulse and temperature, and allayed the restlessness. A similar effect was produced by diuretin—the reason is not clear. We have gone through the wilderness of detail and speculation in another paper, *Effect of Alcohol on the Central Nervous System, Causes and Treatment of Chronic Alcoholism: On Producing an Aversion to Alcohol* (*Ibidem*, 1427, 1490, 1694, 1725, 1912). What is being done in the Norwood Sanatorium, for instance, and elsewhere, is efficacious, and does strengthen, while it modifies, the arguments of Tuvin. There is an aversion to alcohol produced by atropine, but it saps the structure of the nerves and works its way with cost. Tuvin seeks to show by the works of Flechsig, Bianchi, and Luciani, that atropine excites certain centres, in the frontal lobes, for example, while it leaves others, which are in their nature more tolerant of alcohol, unaffected. It appears to us that he finds himself at variance here with the pharmacologists; if atropine has a selective action on nerve centres, it is exerted on the centre of respiration, and only during narcotic poisoning—facts established by Bezold and Husemann. But how long are the brain centres under the influence of alcohol or the narcotic? It is not easy to say. At the Norwood Sanatorium the injections are not begun until "patients have quite ceased to take alcohol for a week or several days before admission." Under this plan of treatment, as Francis Hare tells us (*Alcoholism*, page 231, 1912), the initial dose of atropine is much smaller, the rise in doses more gradual. What we have to anticipate from such a plan really takes place; there is, and will further be, a prolongation of the sanatorium treatment; this lasts usually six weeks, but the cases are "becoming much more numerous" which remain for eight, twelve, or more weeks. There were some cases of atropine delirium, but whether it turned on atropine wholly or on the rapid withdrawal of alcohol, is a matter of reasonable doubt. One case, however, was certainly an instance of atropine delirium. It is in such cases, to our mind, that we find the clear indications of what we abhor in medical dogma. It is perhaps worth while to look for the real signs of physical and moral deterioration produced by this treatment in the insomnia, apprehension, especially at night, which "may demand the constant services of a special attendant" (Hare, *Ibidem*, page 229).

It would be mere pedantry to complain of all this cloudy routine, if it was honestly a recognition of the complexity of disease and the inadequacy of medicine. Unfortunately this is not so. The more conscientious of our physicians are afraid of atropine, not because their skill is faulty, but because the action of the drug in narcotic poisoning is not clearly understood. In no other treatment can anything harsher be found than the brutal disharmonies produced in the system by such agents. The atro-

pine treatment does indeed reflect the modern mind and ambition, and in a way none the less striking because it cannot be analyzed and defined in a clear and general summary. We can truthfully say that it is repugnant to the humane physician.—Eds.

Therapeutic Notes.

Treatment of Dyspnea in Pulmonary Tuberculosis.—A. Robin, in his book on the *Treatment of Tuberculosis*, refers to the dyspnea sometimes appearing in tuberculosis without apparent cause, at other times after fatigue or excessive eating, or again, at the menstrual period. The temperature rises somewhat, expectoration is abundant, and the sputum is often streaked with blood. Percussion causes a little pain at the site of the disease focus, and auscultation reveals an area of blowing respiration with fine or moist rales. The patient, if constipated, should be given five to eight drams (20 to 30 grams) of castor oil. Leeches may be applied to the base of the thorax on the affected side. Next day a mustard foot bath should be taken. Revulsion should be effected over the focus itself by means of mustard poulticing, dry cupping, or even small blisters two inches (5 cm.) square. The following should be ordered:

R̄ Quininae sulphatis, ...gr. iv (0.25 gram);
Ergotæ pulveris, ...gr. iss (0.1 gram);
Opii pulveris, ...gr. ss (0.03 gram).

M. et pone in cachetam No. i.

Sig.: One cachet to be taken morning and evening.

There should also be taken four or five times in the twenty-four hours a cachet made up thus:

R̄ Scillæ pulveris, ...
Digitalis pulveris, ... } ãã gr. ¾ (0.05 gram).
Ipecacuanhæ pulveris, }

M. et pone in cachetam No. i.

As soon as streaks of blood in the sputum have entirely disappeared and local signs of congestion have diminished, both varieties of cachets should be discontinued. Quinine sulphate, however, should be taken alone a few days longer.

Meningitis in Syphilis and Its Treatment.—Jeanselme, Vernes, and Bloch, in *Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, January 1, 1914, lay stress on the frequency with which a meningitic reaction occurs in syphilis and on the important bearing of such reactions on the prognosis and therapeutic management of all syphilitic cases. The danger that mild meningeal involvement may rapidly pass into grave nervous disease, the circumstance that syphilitic foci in the nervous tissues are most difficult to reach by anti-syphilitic treatment, the fact that early meningeal syphilis can seldom be detected through ordinary clinical observation, demand that the cerebrospinal fluid be directly examined and tested. The authors consider it necessary to make sure in all cases of syphilis, as early as the secondary stage, that the meninges are not involved. As regards treatment, they have become convinced that salvarsan, used cautiously, can be administered without danger in syphilitic meningitis, and moreover, that in a certain proportion of cases a complete cure can be thereby

effected, all signs of meningitis, as revealed in the cerebrospinal fluid, including the Wassermann test, remaining constantly negative after the treatment. They report a small number of cases showing their contentions to be well founded; the effects of treatment on the blood Wassermann as well as on the lymphocytes, albumin, and Wassermann of the cerebrospinal fluid are tabulated in each instance. In every case of syphilis they now give weekly intravenous injections of 0.3 to 0.5 gram of salvarsan until all tests in both blood and cerebrospinal fluid have returned to normal. As it is known that salvarsan enters the arachnoid space only with great difficulty and in minute amount, they have lately also been administering neosalvarsan in subarachnoid injections. A preliminary solution is made (extemporaneously) of 0.01 gram of salvarsan in fifteen c. c. of distilled water; one c. c. portions of this solution are then mixed with nine c. c., four c. c., and one c. c., respectively, of distilled water, thus yielding solutions containing in each c. c. 0.001, 0.002, and 0.005 gram of the drug. Small doses of 0.00025, 0.0005, and 0.001 are at first injected, then larger doses, increased from the previous amount at weekly intervals; 0.005 has been the largest dose used so far. On the whole, they consider it proved by their results that energetic treatment, begun at the beginning of the secondary stage and continued under Wassermann and lumbar puncture control, possibly preserves the syphilitic patient from subsequent manifestations of parasyphilis.

Salvarsan Treatment in Rhinoscleroma.—A. Galebsky, in *Archives internationales de laryngologie, d'otologie, et de rhinologie* for March and April, 1914, is stated to have injected 0.35 gram salvarsan in a patient with rhinoscleroma in whom the Wassermann reaction was negative. The affected parts, nose and pharynx, began to soften after the injection.

Therapeutic Value of Digitalis in Complete Heart Block.—Rudolf and Longhead, in the *Archives of Diagnosis* for April, 1914, report a case of complete heart block, ultimately fatal, due to fibrosis of the bundle of His, apparently of non-syphilitic origin. Although in a previous case the pulse rate had risen from 38 to 68 in four days upon administration of 15 minim (1 c. c.) doses of tincture of digitalis every three hours, in the present case a purified digitalis powder given in approximately equivalent doses for twelve days had practically no effect on the rate, the auricular rate remaining constant at 75 and the ventricular increasing only from 23 to 25. A great improvement occurred, however, in the patient's general condition. Before the digitalis was given he had been having several fainting attacks daily, but during the twelve days of the administration and for two days after the drug was discontinued, he was quite free from them. They then returned and the patient begged to have the drug given again. It was resumed (though given only twice daily instead of three times as before), but six days after the original full dose had been discontinued the patient died in an attack. On the day before death the pulse rate had been about 70 and the rhythm irregular.

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MEDICAL SERVICE AT THE FRONT.

Obviously, the most important as well as the most arduous duties devolving upon the medical department of an army in active operation are the care and treatment of the wounded during and immediately after battle, and their transportation to points from which they may be promptly transferred to the rear. In modern armies the medical department units constitute a part of the divisional organization. Battle casualties in modern wars have varied from twelve to twenty per cent. of the number engaged, and since the killed constitute about twenty per cent. of the total casualties, the wounded of a division of twenty thousand men will vary from ten to sixteen for every hundred men engaged. In an efficient army every soldier is equipped with a first aid dressing, and is instructed in the method of its application, essential requirements, since in the vast majority of instances the fate of the wound depends upon prompt and intelligent first aid. It is manifest that in order to care for this large number of wounded, the assistance must be systematized, and the different sanitary units composing the medical department organization must be coordinated in their operations.

The various lines of assistance employed extend from the battle line in front to the base in the rear.

The first line of assistance is furnished by the regimental sanitary personnel; in battle, a regimental aid station is established immediately in the rear of each regiment, under such cover and protection as the terrain may afford, but as near the firing line as possible. As the personnel must be prepared to move with the regiment, the station is but little more than an assembly place for the wounded. Here only emergency treatment is administered, application of the first aid dressing, arrest of hemorrhage, and the administration of restoratives; those able to walk are directed to the station for slightly wounded, and those unable to walk are taken over by the bearers of the ambulance company for transportation to the dressing station, which is established in the rear of the regimental aid stations. The treatment given at the aid stations is practically a preparation for the transportation of the wounded soldier to the rear, and in order that it may be efficiently carried out and the morale of the troops sustained, the sanitary personnel is often exposed to fire and may meet with considerable loss.

The second line of assistance on the battlefield is the dressing station, established and operated by the ambulance company. These stations, one to each brigade, are usually placed near roads so as to be accessible to both front and rear, and as near the line as the character of cover afforded by the natural features of the country will permit; they should not be placed where they would be subject to the enemy's fire or overshots, or where they might interfere with the military operations. The equipment of the dressing station is more elaborate than that of the regimental aid station, and affords better facilities for surgical treatment. Water and fuel should be available for the preparation of light nourishment and the sterilization of water for surgical purposes. Here every wounded man receives an occlusive antiseptic dressing, and splints are applied when necessary. Only emergency surgery is done, such as ligations, though these will be rarely necessary, as primary hemorrhage in modern warfare is apt to be fatal before the dressing stations can be reached. The character and extent of the treatment will depend largely upon the number of wounded that may arrive at the station. Excepting defensive positions, dressing stations are not usually established until it has been determined where the greatest casualties will probably occur; here records of the wounded are prepared and cases are classified.

From these stations such wounded as are in need of further surgical treatment are transferred to the field hospital by the ambulance company; those able to walk are sent to the station for the slightly wound-

ed, or if facilities are at hand, such as railroads or water transportation, are sent back directly to an evacuation or an advance base hospital. Those who require no further treatment are returned to their organizations for duty.

Final assistance at the front is given at the field hospitals, of which, in our service, there are three to a division. These are well in the rear of the battle line, some three or four miles, beyond danger from the enemy's fire, and as near the dressing station as the military situation permits; good water and fuel should be available. They should be accessible both from the front and rear, so as to permit the prompt receipt and evacuation of their wounded; the field hospital is a mobile unit and evacuates its wounded to the rear on the line of communications, thus enabling it to accompany the division to which it pertains. At these establishments better facilities for surgical work are provided, and more serious surgical operations may be performed with reasonable safety. While their equipment is comparatively simple, it is sufficient to permit any surgical operation that may be required. They are also supplied with appliances for cooking, and patients are fed, sheltered and rested, and prepared for further transportation to the rear. They may be placed in buildings if such are available; if not, tentage is employed.

It is usual also to establish a collecting "station for the slightly wounded" at a point between the firing line and the field hospitals. This serves for the wounded who do not require immediate surgical treatment or shelter, and who are able to march. A small personnel is usually designated for service with them from organizations not in action, as most of the wounded arriving there will probably already have received the first aid dressing at the aid or dressing station. These establishments relieve the field hospitals and dressing stations of the slighter cases and receive the sick who may be sent from the troops at the front. No surgical work of any importance is performed at these stations. Such men as are able to rejoin their organizations are returned to duty; the remainder are sent to the evacuation or base hospitals in the rear.

This may seem a somewhat complex scheme of assistance, but it has been evolved from the experiences of past wars, and is essentially that adopted by well organized armies of the present day.

CHANGES IN THE CHARACTER OF DISEASE IN THE LAST FORTY YEARS.

There can be little question that in New York, and also probably in the country at large, there has been in the last four decades a marked change in the character of the diseases met with. In 1873 the

mortality from true diphtheria amounted to eighty-five per cent., while at present it is perhaps twenty-five per cent. Since the introduction of the Flexner antimeningitic serum, the mortality from cerebrospinal fever has been reduced from between seventy and eighty to twenty-three per cent. It is true that in these two affections, the discovery and adoption of specific remedies has had much to do with the results; but in regard to various other diseases the same cannot be said.

Flint, writing in 1865, mentions that typhus fever had prevailed continuously in this city from the year 1861, and Loomis reports that between January 1, 1861, and November 1, 1864, 1,428 cases were treated at Bellevue Hospital. A decade later, the records of the health department show that during the year 1874 forty-eight cases of typhus were reported in New York, and in 1875, fifty-six cases. Afterward there was a small number of cases each year until 1881, when a serious outbreak of the disease occurred, 603 cases being reported. In 1893, the last year in which typhus was prevalent, the number was 473. Since then, while an occasional case has been imported from Europe and detained at quarantine, but four cases altogether have been reported in the city—three in 1896 and one in 1898, and in the report of the Bureau of Records for 1907 we find the statement, "Typhus fever has been entirely wiped out as a factor in the mortality tables." Since then Anderson and Goldberger have demonstrated an apparent etiological identity of typhus and Brill's disease, but it must be acknowledged, notwithstanding the occurrence of four cases of the latter in a single family in Chicago, one of which is reported to have presented the characteristics of typhus fever (*Journal A. M. A.*, August 17, 1912), that for the most part the manifestations of Brill's disease are different from those of the classical type of typhus. Cases of fulgurating smallpox—black smallpox, as it used to be called—appear to be no longer met with, and Dr. Edward Waitzfelder, who has a large hospital service in the city, informs us that he has not seen a case of genuine cholera infantum for at least fifteen years. These are some of the diseases in which there has been a marked change for the better.

On the other hand, it is universally recognized that in recent years there has been an enormous increase in cardiovascular diseases, naturally including kidney affections, and in some other classes of disorders. Bulkley (*Medical Record*, October 24, 1914) is confident that the steady increase in cancer is not wholly, nor even largely due to more accurate diagnosis and public attention, and among the other affections which have notably multiplied are nervous diseases, insanity, and a variety of lesser psychoses. For this increase numerous and varied

causes have been assigned, and one cause has been emphasized by Alfred Gordon (*Journal A. M. A.*, October 17, 1914), in a paper on the nervous and mental disturbances following castration in women. While Gordon asserts that true insanities are not observed as a result of castration, other authorities differ, and within the knowledge of a single physician in general practice in this city, there have been committed as insane some twenty women on whom oophorectomy had been done.

THE VALUE TO RULERS OF SLOGANS.

Readers of the editorial article on war in our issue for August 15, 1914, to the effect that the real cause of conflict lies in the heart of man, will enjoy a remarkable article by Professor Jacques Loeb in the socialist *New Review* for November, entitled Freedom of Will and War. Professor Loeb naturally goes to embryology for his argument and instances the apparent freedom of movement in a jar of certain small water crustaceans. If one adds a trace of weak acid to the jar, however, the whole mass of animals are instantly filled with one will; all rush madly to the side of the jar whence the light comes. We cannot say exactly that a freedom of will has been abolished which the crustaceans never possessed, but the number of their degrees of freedom has been diminished by making their sensitiveness to light so preponderant that all other agencies which are able to influence their movement are annihilated. Loeb also instances the feminization of male rats by the implantation of ovaries, which makes them act like females toward other males. In human beings, the so called "blinding effect of passion" is similarly the setting free of definite chemical substances by some agency—e. g., those which cause the complex of reactions called fear; such men are "mad" in the same sense as the crustaceans and the altered rats. Their freedom of action is cut off save in one direction.

All great movements in history have been produced by the discovery of means by which all degrees of freedom but one were suppressed; the Crusaders were rendered unfree by filling their minds with the idea of liberating the tomb of Christ. Treitschke, supported by Bismarck, in Germany, Kipling in England, similar writers in France and Russia, have seen to it that the minds of the young were belabored in schools, barracks, and through the press, in such a way that when the rulers declared that Slavic or French "culture" or "honor" was in danger, the men rushed madly and enthusiastically to the front. The slogans of business expansion and territorial expansion could no longer deceive the European socialists, but they were taken

in by a new battle cry, racial superiority, the same which is able to inflame Americans and which apparently has the power long to delay the coming of genuine civilization.

Rulers, says Loeb, backed up by politicians, armament mongers, army contractors, and international traders, will clamor for war whenever they consider it to their interest and will be supported by medieval historians and a part of the press. It behooves all men who work for a living, and who in war are the main dupes, to free themselves from the grip of inflammatory catchwords, many of which are extremely subtle—"peace without honor," for example. Once a militaristic government is sure that it has the necessary slogan to abolish freedom of will, it will not fail to blunder into war. Let the salary or wage earner keep his balance when he hears the intoxicating slogan, ponder long what war will do for him, and how improbable it is that a desolating conflict can increase his welfare, and especially that of his children.

TETANUS, VACCINATION, AND QUININE.

In spite of clinical experience to the contrary, one of the stock arguments of the antivaccinationists is the danger of tetanus following vaccination on account of the contamination of the vaccine used. There have been fatal cases of tetanus, and although the most probable method of infection has been by contamination of the abraded area, yet it has been constantly averred that the tetanus spores were in the material used. *Bulletin No. 95* of the Public Health Service dealing with laboratory studies on tetanus by Francis, contains some valuable data in refutation of this statement. During the past two years the hygienic laboratory has made an extensive study of vaccine virus with the view of determining whether or not it was free from tetanus organisms. For some ten years preceding, vaccine virus had been obtained under the greatest variety of circumstances and examined. During these twelve years no instance was found of the contamination of the virus with tetanus. This includes cases of tetanus reported to have followed vaccination where on investigation the original package, which contained the virus used on the patient, could usually be found. As a rule the package still contained unused virus. Indeed, in order to obtain material for the reported tests and experiments, it was necessary in every case artificially to contaminate the virus.

Another interesting point brought out is that tetanus spores in pure culture, and free from tetanus toxin, when injected subcutaneously into guineapigs and white mice, do not give rise to

tetanus, but lie dormant as an inert body at the point of injection. Here they remain, awaiting either destruction by the phagocytes or an awakening into activity and toxin production by the irritation of some foreign body, particularly quinine or staphylococci. It was shown that if at the time of injection of tetanus spores into one part of the body of a guineapig, there was injected into another part either quinine or staphylococci, the animal would usually contract tetanus, and cultures made from the quinine lesion or the staphylococcus lesion might be positive for tetanus. This obviously indicated that the tetanus spores had been transported from the original site of injection. This is particularly important, as tetanus occasionally occurs in man after a hypodermic injection of quinine. Based upon the foregoing studies on guineapigs, it has been suggested that in a case of this kind the tetanus toxin is produced in the quinine lesion by dormant tetanus spores picked up in another part of the body and transported by phagocytes to the site of the injection.

SEPTIC SHELL WOUNDS.

Such fragmentary reports as find their way into print in the European medical journals from the military hospitals accentuate the preponderance of shell wounds over those from bullets, thus giving additional evidence, if that were needed, that this is a war of artillery rather than of infantry. The wounds from shells are nearly always septic by the time the patient reaches the hospital, while many of the bullet wounds are free from infection. In the Belgian hospitals tincture of iodine has been used so freely and in such strength, that excoriation of the skin is said to be common. Reports from Belgian hospitals indicate extreme nerve exhaustion on the part of patients, some of whom remain unconscious and with subnormal temperature for several days. The great range of the modern weapons has necessitated the removal of the patients to long distances before they can receive adequate medical attention. This and the lack of proper ambulance facilities seem naturally to have increased the danger of sepsis. It is as yet too early to expect comprehensive reports, as the surgeons are too busily engaged on the fields and in the hospitals.

PUBLIC LECTURES FOR HEALTH DEPARTMENT EMPLOYEES.

A course of lectures on matters relating to public health has been arranged by the Bureau of Public Health Education of the Department of Health of the City of New York for the benefit of the various inspectors and nurses employed by the department, in order to keep them informed concerning the activities of the different bureaus, and also to render

them familiar with progress in medical and sanitary science. The lectures will therefore constitute a sort of school of sanitary science. Although attendance is not compulsory, employees are expected to be prepared, when the course ends, to pass an examination on the subjects discussed. The lectures will be held weekly, on Thursday afternoons, at four o'clock, the lectures for medical inspectors and field nurses in Hunter College, the lectures for lay inspectors on the fifth floor of the department of health building, and the courses for hospital nurses in their respective hospitals. The course opened on October 22d and will close on March 3d. Dr. Charles F. Bolduan is director of the Bureau of Public Health Education.

News Items.

Medical Association of the Southwest.—The ninth annual meeting of this association will be held in Galveston, Texas, on Tuesday and Wednesday, November 10th and 11th, under the presidency of Dr. S. S. Glasscock, of Kansas City, Kansas.

Northwestern Ohio District Medical Association.—At the seventieth annual meeting of this association, held in Tiffin, October 21st and 22d, the following officers were elected: President, Dr. R. R. Hendershott, of Tiffin; first vice-president, Dr. F. B. Kaynor, of Bellefontaine; second vice-president, Dr. M. A. Darbshire, of McComb; secretary, Dr. Sidney D. Foster, of Toledo; treasurer, Dr. E. H. Porter, of Tiffin. The next annual meeting will be held in Kenton.

Genesee Health Officers Organize.—Health officers of Genesee County, N. Y., have formed an association, which will be a branch of the State association, and have elected the following officers: President, Dr. Joseph B. Miller, of Alexander; vice-president, Dr. Ward Beecher Whitcombe, of Batavia; secretary, Dr. Robert M. Andrews, of Bergen; treasurer, Dr. George H. Davis, of Le Roy; county representative to the State association, Dr. Edwin Chopin Richardson, of East Pembroke.

The Alvarenga Prize.—This prize for 1914 has been awarded to Dr. H. B. Sheffield, of New York, for his essay entitled *The Fundamental Principles Involved in the Use of the Bone Graft in Surgery*. It is also announced that the next award of the prize will be made on July 14, 1915, provided that an essay deemed worthy of the prize shall have been received. Full details regarding the conditions of competition for this prize may be obtained from Dr. Francis R. Packard, 19 South Twenty-second Street, Philadelphia, secretary of the College of Physicians of Philadelphia.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, November 9th, Aid Association of the County Medical Society (annual), Samaritan Hospital Medical Society; Tuesday, November 10th, Wills Hospital Ophthalmic Society (postponed from November 3d), the Pediatric Society, and the Physicians' Motor Club Reception; Wednesday, November 11th, County Medical Society; Thursday, November 12th, Polyclinic Ophthalmic Society, Pathological Society; Friday, November 13th, Psychiatric Society, Northern Medical Association.

West Side German Dispensary.—At the regular annual meeting of the board of directors of this institution, held on the evening of October 28th, the board of officers was reelected, as follows: Dr. James P. Cohen, president; Mr. Bernard T. Karsch, vice-president; Mr. Julius Cohen, secretary, and Mr. William Friedman, treasurer. Dr. Homer Gibney was named president of the medical board to succeed Dr. John L. Adams, recently deceased; Dr. Max J. Schwerd, vice-president, and Dr. E. L. Kellogg, secretary. This institution, which is situated at 328 West Forty-second Street, cares for between thirty-five and forty thousand patients annually.

Nevada State Medical Association.—The following officers were elected at the annual meeting of this association, held recently in Reno: President, Dr. J. P. Mangan, of Winnemucca; first vice-president, Dr. J. C. Ferrell, of Fallon; second vice-president, Dr. Arthur J. Hood, of Elko; secretary and treasurer, Dr. M. A. Robinson, of Reno (reelected). Dr. Raymond St. Claire, of Reno, was reelected trustee.

New York Neurological Society.—A combined meeting of this society with the Section in Neurology and Psychiatry of the New York Academy of Medicine will be held at the Academy of Medicine on Tuesday evening, November 10th, at 8:15 o'clock, under the presidency of Dr. Smith Ely Jelliffe. Clinical material will be presented as follows: Scleroderma with Contractions, by Dr. S. P. Goodhart; Dystonia musculorum progressiva, by Dr. H. Climenko; Pilous Cerebral Adiposity, a new syndrome, by Dr. W. M. Kraus; Wilton's Lenticular Degeneration, by Dr. C. E. Nammack. Dr. F. J. Conzelmann will read a paper entitled Treatment of Nervous Syphilis with Salvarsan in Frankfort and Hamburg Clinics, and Dr. Leo Buerger one on Pathology and Symptomatology of Thromboangitis. Dr. C. E. Atwood, 14 East Sixtieth Street, is secretary of the society.

New York a Good Place to Live.—The mortality for the week just passed was remarkable for the extremely low point reached, observes press bulletin No. 313 of the department of health. There were 1,134 deaths, which gave a rate of 10.60 per 1,000 of the population. The lowest rate in the history of the city was for the week ending October 3, 1914, during which there were 1,132 deaths, a rate of 10.58. Compared with the corresponding week of last year the rate was almost nine tenths of a point lower, equivalent to a decrease of 95 deaths.

The months of October and November are the healthiest of the year, and it is now that the mortality from infectious diseases, as a whole, reaches its ebb. The only infectious disease showing a slightly increased mortality was pulmonary tuberculosis.

The death rate for the first forty-four weeks of 1914 was 13.59 per 1,000 of the population against 13.88 for the corresponding period in 1913, a decrease of 0.29 point. If this saving in the death rate is continued throughout the year, there will be an approximate saving of 1,620 lives.

Changes of Address.—Dr. Warren Hildreth, to 495 West End Avenue, corner Eighty-fourth Street, New York.

Dr. Miner C. Hill, to 422 West End Avenue, New York.

Dr. Cyrus J. Strong, to 525 West End Avenue, New York.

Dr. Katherine Arends, to 646 West End Avenue, New York.

Dr. Grace M. Kahrs, to 511 West 113th Street, New York.

Dr. Louis Jacobs, to 118 West 118th Street, New York.

Dr. O. C. Reeve, to 431 West 120th Street, New York.

Dr. H. B. Adler, on or about November 1st, to 55 West 113th Street, New York.

Dr. D. T. Quigley, to 728 City National Bank Building, Omaha, Nebraska.

Dr. George Dock, to 611 West Jefferson Avenue, St. Louis, Mo.

Dr. J. W. Brandeis, to 156 West 121st Street, New York.

Dr. L. Hubert, to 31 West 115th Street, New York.

Dr. S. F. O'Day, to 126 West 127th Street, New York.

Dr. A. D. Campbell, to 128 West 126th Street, New York.

Personal.—Dr. Frank C. Hammond, of Philadelphia, has been elected a director of the Philadelphia County Medical Society, to succeed Dr. Henry Leffmann, resigned.

Dr. William Seaman Bainbridge, of New York, delivered a lecture to the students of the medical department of the National University of Arts and Sciences, St. Louis, Mo., on Tuesday, October 27th, his subject being The Surgical Treatment of Chronic Intestinal Stasis. At the conclusion of the lecture the degree of Master of Surgery was conferred upon Doctor Bainbridge by Dr. A. R. Kieffer, president of the university.

Dr. David M. Marvin, of 12 West 130th Street, New York, has returned from a three months' hunting trip in Alaska. He was accompanied by Dr. C. G. Coakley.

Dr. Joseph C. Doane has been appointed chief resident physician of the Philadelphia General Hospital.

The marriage of Dr. Ransom Smith Robertson, of 271 Jefferson Avenue, Brooklyn, to Miss Mary Doing, of 389 Macon Street, took place at the bride's home on Tuesday, October 6th. They will reside at 92 Decatur Street, Brooklyn.

News of the Medical Schools.—Dr. Henry K. Gaskill, of Philadelphia, has been appointed assistant professor of dermatology at Jefferson Medical College.

Miss Sue Watson, of Pittsburgh, artist of the department of anatomy in the school of medicine, University of Pittsburgh, has been appointed by Governor John K. Tener, to make four panels, which will stand above the main entrance of the Pennsylvania State Building at the Pan-Pacific Exposition. The appointment carries with it a stipend of \$500. This is the second award that Miss Watson has received for public work of this kind, the first one having been the award for decorative work on the new Schenley Theatre.

The New Orleans Postgraduate School of Medicine began its first session on Monday, October 26th. The board of directors is composed of the following physicians: Dr. Homer Dupuy, president; Dr. Wilhelm Kohlmann, vice-president; Dr. Joseph A. Danna, secretary; Dr. Oscar Dowling, Dr. A. Nelken, Dr. C. G. Cole, Dr. Joseph M. Elliot, Dr. O. L. Pothier, and Dr. T. J. Dimitry. The faculty consists of twelve full professors, eleven clinical professors, ten adjunct professors, eighteen instructors, and eleven clinical assistants, a total of sixty-two.

Interesting Lectures in Philadelphia.—Under the auspices of the Rush Medical Society, the College of Physicians of Philadelphia, the University of Pennsylvania, the Pathological Society of Philadelphia, the Mutter Museum, and the Philadelphia Pediatric Society, the Frederick A. Packard Lecture of the Philadelphia Pediatric Society will be given in the College of Physicians building by Dr. Rufus Cole, of the Rockefeller Institute for Medical Research, his subject being Pneumococcus Infection and Immunity. The medical profession is cordially invited to attend.

On Thursday evening, November 12th, in Thomson Hall, College of Physicians building, Dr. Otto Juettner, of Cincinnati, will be the guest of the Section in Medical History of the college, and will give an address, illustrated by lantern slides, on the Beginnings of Medicine in the Middle West. Dr. Edward B. Krumbhaar, of Philadelphia, will open the program with a paper on Splenectomy in Ancient and Modern Times.

American Fund for Belgian Physicians.—A committee has been organized which will undertake the collection of a fund for the relief of physicians in Belgium. An appeal is made to all physicians to cooperate with the committee in its effort to raise a sum sufficient to relieve as much as possible the suffering and distress of the hard working doctors whose needs are likely to be overlooked on account of their activity for others. All contributions should be addressed to the Fund for Belgian Physicians, care of *American Medicine*, 18 East Forty-first Street, New York. Make checks payable to the Belgian Medical Committee. This committee will work with the Belgian Relief Committee and arrange with that body to dispose of the funds collected. The committee is composed of the following members, the names being given in alphabetical order: Dr. William Seaman Bainbridge, of New York; Dr. H. Sheridan Baketel, of New York; Dr. Otho F. Ball, of St. Louis; Dr. J. Wallace Beveridge, of New York; Dr. Louis F. Bishop, of New York; Dr. Samuel Horton Brown, of Philadelphia; Dr. A. S. Burdick, of Chicago; Dr. W. P. Carr, of Washington; Dr. Henry W. Coe, of Portland, Ore.; Dr. David M. Cowie, of Ann Arbor; Dr. T. D. Crothers, of Hartford, Conn.; Dr. Howard Crutcher, of Roswell, N. Mex.; Dr. Charles J. Drueck, of Chicago, Ill.; Dr. Charles Wood Fassett, of St. Joseph, Mo.; Dr. Samuel G. Gant, of New York; Dr. Bayard Holmes, of Chicago; Dr. John B. Huber, of New York; Dr. Smith Ely Jelliffe, of New York; Dr. LeGrand Kerr, of Brooklyn; Dr. Bransford Lewis, of St. Louis; Dr. Frank C. Lewis, of New York; Dr. J. MacDonald, Jr., of New York; Dr. H. O. Marcy, of Boston; Dr. Ellice McDonald, of New York; Dr. Douglas W. Montgomery, of San Francisco; Dr. Robert Tuttle Morris, of New York; Dr. William H. Porter, of New York; Dr. Beverly Robinson, of New York; Dr. Charles E. de M. Sajous, of Philadelphia; Dr. Parker Syms, of New York; Dr. E. A. Vander Veer, of Albany, N. Y.; Dr. I. W. Voorhees, of New York; Dr. Ralph Waldo, of New York; Dr. Claude L. Wheeler, of New York; Dr. Orrin S. Wightman, of New York; Dr. Reynold Webb Wilcox, of New York; Dr. Henry Smith Williams, of New York; Dr. Charles E. Woodruff, of New Rochelle, N. Y. Dr. H. Edwin Lewis, of New York, is secretary for the committee.

Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

August 17, 1914.

Histology of Irradiated Carcinomas.—Fritz Heimann exposed the lesions in five cases of carcinoma of the female genital tract to radiation with large doses of x ray and mesothorium before operation and then subjected the entire tissue to histological examination immediately after its removal. He draws the following conclusions: The effect of the radiation was extensive and indicated an active penetration of at least three cm. No definite conclusion could be drawn from the histological findings as to the healing powers of the ray on the growth, but even when the radiation had been very intensive there could always be found some intact cancer cells. Further radiation might have destroyed these cells. Time alone can tell whether the use of the ray will prove to be curative.

August 17, 1914.

Diagnosis of Beginning Secretory Insufficiency of the Stomach.—M. Ehrenreich calls attention to the variability of opinion as to the significance of a deficiency of hydrochloric acid in the diagnosis of cancer of the stomach, and concludes that this deficiency alone, as usually tested, is of no diagnostic value. He finds, however, that determination of early secretory insufficiency is of some value. This he determines by aspirating the fasting stomach and determining both the total amount of contents and the quantity of free hydrochloric acid present. Immediately after a test meal is given and withdrawn in one hour. The same observations are made upon this, and the two findings are compared. He found that in ulcer the second test always gave a higher content of free hydrochloric acid than was found in the fasting stomach, or at least one equally high, whereas in cancer the reverse was found. The explanation is that the secretion in the fasting stomach constitutes a mild stimulus to further secretion, and if there is an insufficiency this will be brought out by deficiency in the secretion in response to a second stimulus in the form of the test meal.

WIENER KLINISCHE WOCHENSCHRIFT.

October 8, 1914.

Diathermia in Gynecology.—J. Kowarschik and H. Keitler point out that various forms of heat have been used in the treatment of gynecological conditions for some time. Of late diathermia, electric warmth obtained by high frequency alternating current, has been used. Instead of producing heat by superficial application to the skin or epithelium of the vagina, diathermia produces heat in the tissue itself, every individual cell being affected. The first experiments performed by Sellheim showed that with a current of one ampere, temperatures of over 40° C. were recorded in the vagina, bladder, and rectum. Therapeutically it was first used by Bruehe, and the best results were seen in old cases of perimetritic and parametritic adhesions. Burns can be produced, but in a great number of cases treated under the authors' direction none were seen. Diathermia can

be used in two ways in the treatment of the uterus and annexa. One method is to place one electrode over the symphysis and the other over the sacrum; the other is to place one electrode in the vagina and the outer electrode can be placed anywhere over the lower abdomen or sacrum. In carrying out the treatment a bolster is placed in the bed and two plain lead electrodes are used, the larger one, measuring fourteen by twenty-two cm., being placed over the sacrum, and the other, measuring twelve to eighteen cm., anteriorly. If both electrodes are of the same size, the posterior one becomes warmer because of the greater resistance of the sacrum and because of its position it has less chance to cool. The current is begun at 0.5 to one ampere and gradually raised to 1.5 ampere. The average duration of the treatment is twenty minutes daily; later, every second day. If this method gives no reaction with a current of one to 1.5 ampere, the vaginal electrode is used. It is of nickelled metal and can be readily sterilized. The strength of the current tolerated in this method is 1.5 ampere, but it is better to start with a lower amperage and work up gradually. The duration of the treatments and the intervals between them are the same in this method as in the other. The indications for the use of diathermia are inflammatory exudative processes, perimetritis, parametritis, and inflammatory tumors of the tubes, in short, where absorption of exudate is desired. In painful processes it helps to quiet the pain. The contraindications are: 1. Acute inflammations; in these cases when diathermia is employed the pains usually become more pronounced and the temperature rises. A slight exacerbation of pain is seen in fever free patients after the first few treatments, especially if the treatment is too energetic. This can be avoided by beginning with a dose of 0.5 to 0.7 ampere and raising it gradually. 2. The presence of pus. 3. Hemorrhage, even the slightest. The advantages of diathermia over treatment with hot air are that the vaginal temperature is raised more and that the rise of temperature occurs sooner, while the tax on the heart and circulation is less. The authors report a series of fifty consecutive gynecological cases treated with diathermia. In eight the treatment had to be discontinued for various reasons. Of the remaining forty-two, two showed no improvement, but as they had not shown any improvement under other methods of treatment they were considered as subjects for radical operation. Of the remaining forty, twenty-three were cured, eight were greatly improved, and nine showed moderate improvement. As a result of their work the authors conclude that diathermia should be awarded a permanent place in the treatment of gynecological conditions.

Infectious Diseases in Vienna from 1901-1910 (continued).—Siegfried Rosenfeld, in collecting statistics as to deaths after infectious diseases during the different times of the year, found that erysipelas was more fatal during the period from June to December. In regard to deaths between the sexes, the first period showed higher mortality in the female than in the male sex in the proportion of 1000-1058; in the second period it was 1000-1038. In typhoid fever most deaths occur from August to January. Sex proportion: First period, 1000-1038;

second period, 1000-932. For measles the year is divided into three portions: From November to February the mortality increases, reaches its highest point from March to June and then declines from July to October. Sex proportion for corresponding periods: 1000-965, 1000-947, 1000-917. Deaths from scarlet fever occur mostly from March to June, the least number of deaths being recorded in August and September. Sex proportion: First period, 1000-750; second period, 1000-1014; for the remaining six months, 1000-956. Diphtheria shows the lowest mortality between June and October, being higher during the remaining seven months. Sex proportion: First period, 1000-966; second period, 1000-935. In pertussis the fewest deaths are reported to occur from August to December, the most from January to July. Sex proportion: First period, 1000-1267; second period, 1000-1247. These figures show that taking the figures for the entire year, the proportion of deaths is greater in the male than in the female sex in measles and diphtheria; greater in the female than in the male in erysipelas and pertussis. In typhoid and scarlet fever the proportion varies during different periods of the year.

ZENTRALBLATT FÜR HERZ-UND GEFÄSSKRANKHEITEN

September 15, 1914.

Behavior of the Heart in Extreme Bodily Strains.—O. Bruns finds from his observations that if the outline of the heart is diminished after straining bodily efforts, no acute weakness of the organ is present. The diminution in the size of the heart is the result of faulty diastolic filling, due to the markedly increased frequency of its action.

October 1, 1914.

Syphilitic Diseases of the Aorta.—Hermann Thiem divides these cases into three groups; of the first, syphilitic aortitis without insufficiency or aneurysm, is difficult to diagnosticate, while the diagnosis is particularly important because this group includes the initial cases in which treatment may be successful. He bases the diagnosis on the following symptoms: Subjective; a very pale face, a feeling of oppression, pressure and pains in the cardiac region with dyspnea on active movement. In some cases pains in the back, palpitation of the heart, and attacks of acceleration of the pulse with or without arrhythmia. Objective; a ringing second aortic sound, or a systolic murmur over the aorta, sometimes both together.

LYON MÉDICAL.

August 2, 1914.

Gastrointestinal Disturbances in Nephrolithiasis.—L. Jixier describes in a man aged sixty-one years symptoms apparently due to some gastrointestinal disorder—violent intestinal colic, nausea, salivation, and vomiting; marked loss of weight and anemia suggested cancer of the large bowel. At no time had there been any hematuria, renal colic, or other kidney symptoms. X ray examination revealed a large stone in the left kidney. Nephrotomy and removal of the calculus was followed by complete recovery, maintained a year after the operation.

Nerve Supply to the Bladder.—Latarjet and Thévenot report an experimental study in dogs of

the functions of the various nerves supplying the bladder. Cutting of the nervi erigentes and removing the hypogastric ganglia result in muscular paralysis with consequent abnormal distention of the organ and thinning of its walls; the sphincter maintains its tone, and there is retention of urine. When, instead, the hypogastric nerves are cut and the influence of the sympathetic system is thereby removed, the tone of the sphincter is greatly diminished, passage of urine occurs at short intervals, and the bladder becomes small and contracted.

Grafting of Entire Skin.—Tavernier reports a case of extensive burn of the thigh and buttock in which, after part of the denuded area had been covered with Thiersch grafts from the opposite limb and one of the upper extremities, there remained an area measuring twenty by seven cm.; it was decided to graft a piece of entire skin, of corresponding size, from the abdomen. The large strip removed was placed without sutures upon the open thigh surface, after freshening the latter. It was held in place merely by large wads of gauze and a rather tight bandage. A week after the operation the graft was dark in appearance, but at the next dressing, thirteen days after the operation, the greater part of its surface had assumed a pink color, and the ultimate results were entirely satisfactory. Success is less easily attained with a graft of the entire skin than with Thiersch grafts. Grafts of entire skin can, however, be easily taken from the abdomen, while Thiersch grafts are obtained with difficulty from this area; entire skin grafts may heal by first intention.

REVISTA DE MEDICINA Y CIRURGIA PRACTICAS

September 7, 21, 28, 1914.

Study of Digitalis.—Antonio Mut concludes from his own laboratory and clinical observations as follows: Digitalis is indicated when the heart's action is weakened to the degree of insufficiency, that is in adynamia, impotence or incapacity of the heart in its functional activity, whether with or without auricular fibrillation, whether there be stenosis or insufficiency of this or that valve, whether there be increased or lowered arterial tension, rapid or slow pulse, with or without renal alterations. Digitalis acts on the heart as a whole, not only its muscle but on the cardiovascular and nervous control. In arrhythmia, generally conceded to be one of the chief indications of digitalis, it is not by steadying the rhythms that the drug proves efficacious, for this it never does, the author states. It is indirectly by relieving the edema, oliguria, dyspnea, the hepatic and renal stasis, that such excellent results are obtained, and it is by its essentially fortifying effect on the cardiac insufficiency that digitalis works these wonders. As to contraindications, the author believes that this whole chapter could be cut short, for there are no contraindications in reality, unless we reckon as contraindications cases in which the drug does no good, e. g., conditions where the lesions are far advanced or the peripheral resistance is very great or the myocardium in an advanced state of degeneration, and this inefficacy the alert observer will speedily note. Unless digitalis is given in toxic

doses no harm can result. In all digitalis medication caution as to doses, and watchfulness are advised. The author uses by preference Nativelle's crystallized digitalin, hypodermically if gastric disturbances arise. The intravenous use of digipuratum is commended where the stomach is irritable and speedy effect is desired.

BRITISH MEDICAL JOURNAL.

October 17, 1914.

Pinewood Sawdust as a Surgical Dressing.—

Charles W. Cathcart advocates the use of this substance as a cheap and effective dressing for all sorts of wounds and discharging surfaces. Good dust, obtained from soft, absorbent wood should be rubbed through a No. 8 sieve to remove the largest particles and then sifted through a No. 40 to remove the dust, the material left in this sieve being that to be used. Soft muslin bags are then made of sizes suitable for the type of dressing to be prepared, and these are loosely filled with the sawdust and the open end is closed with colored thread for identification. Sterilization is carried out in the ordinary manner used for gauze. To determine the absorptive powers of the sawdust a piece of the wood from which it is to be prepared should be tested by drawing an ink line on it. If the ink spreads out readily and is absorbed freely the wood is suitable; if the ink remains on the surface in a moist line the wood should be rejected. The advantages of these dressings, aside from cheapness, are the ease with which they can be renewed by the refilling of the washed bags, their lightness, their great absorptive powers, the fact that they deodorize the secretions to a very considerable degree, and the fact that the contained resins act to a slight extent as antiseptics.

The Outlook in Epilepsy.—William A. Turner observes that length of time during which a patient may remain free from fits without treatment is not the sole method of estimating a cure. Nor is it conclusive if the patient remains free without the aid of sedatives; for their use may be continued with impunity in many cases, and is often required to control the possible recurrence of fits. A patient may remain free from fits for long periods of time, only to relapse without apparent cause. Very frequently a patient may cease to have attacks but his mental condition be such that he cannot care or provide for himself. The more rational basis of estimating the degree of recovery is to take into consideration the degree of freedom from seizures. The mentality of any patient is a matter of great prognostic importance. Other factors more or less favorable are: Epilepsy which begins in infancy or early childhood; which occurs in the absence of hereditary or exciting causes; and *petit mal*, especially of psychical character, offer the least favorable prognosis.

Rheumatoid Arthritis.—D. Durward Brown states that absorption of septic products is the essential cause of this disease; pyorrhœa alveolaris underlies seventy per cent. of all cases. Joint lesions are not usually the primary ones; the first effect of absorption of toxic substances is manifested by an affection of the spinal ganglia. Lesions in these ganglia are often destructive; they can be demon-

strated and located by tenderness and stiffness of the spine, particularly in the cervical and lumbar enlargements, and by painful spots at various points along the spine, especially in the region of the eighth and ninth dorsal vertebræ. Aside from removal of the seat of septic absorption, maintenance of free catharsis, and regulation of diet, the most valuable measures of treatment are guaiacol, potassium iodide, and thyroid extract; ionization of the affected portion of the spine, and later of the joints; and employment of massage and passive movements.

Treatment of Torticollis.—Paul Bernard Roth advocates subcutaneous section of the sternal head of the involved sternocleidomastoid muscle under general anesthesia. This is to be followed at once, while the patient is still anesthetic, by rupture of all shortened fascial and fibrous bands through rotation and flexion of the head. This latter procedure is to be repeated again on the day after the operation, following which, exercises may be employed, particularly in older children. The subcutaneous operation is advocated on account of avoidance of infection and of the dangers of aspiration encountered in the open method. For this division the bistoury should be introduced half an inch above the sternum and immediately to the inner side of the sternal head of the muscle, thus avoiding the danger of injuring the anterior and external jugular veins. The operation should be limited to section of the sternal head in the majority of cases, because it is only rarely that any resistance will be encountered from the clavicular portion. When this is the case this portion rises as a firm band immediately after the first division. It can then be readily divided in a similar manner. No fixation should be employed after the operation.

LANCET

October 17, 1914.

Incontinence of Urine in Women.—David Newman recommends operative treatment when enuresis is caused by other than vesical injections. His operation consists in diminishing the lumen of the first three quarters of an inch of the urethra and the formation of a firm mound of mucous membrane on the floor of bladder just inside of the neck to imitate the obstruction produced in the male by an enlargement of the middle lobe of the prostate. A special bougie, made of steel with a knob about the size and shape of a horse bean half an inch from its tip, is inserted into the bladder and withdrawn until the knob strikes the neck of the bladder. By elevation of the handle of this instrument the knob throws out the posterior wall of the bladder immediately above the sphincter. The uterus is then dragged downward by means of three stitches inserted into the os, thus giving a clear view of the anterior vaginal wall. A vertical incision, one and a half to two inches long, is then made from the uppermost point of the knob of the bougie downward. The mucous membrane and muscular coat of the vagina are dissected off down to the submucous tissue of the bladder on both sides of this incision. The vaginal mucous membrane is then cut away over a lozenge shaped area having the most prominent portion of the knob of the bougie for its centre. The lower angle cor-

responds to the stem, the upper to the tip of the bougie, while the other two are lateral. A deep row of chromic gut sutures is then placed to invaginate the bladder mucosa over the knob of the bougie and the upper part of its stem. These are tightened and tied after the bougie has been withdrawn. The vaginal incision is then closed by plain gut sutures and the operation is completed. The use of a small soft rubber catheter for six or eight days after the operation is advised.

Multiple Round Celled Sarcoma.—C. N. Slaney reports an interesting case of a man aged forty-three years who first came under notice about two years ago complaining of obstructed nasal breathing. At that time a large, soft, friable nasal polyp was removed from the right naris and the nasopharynx. Three years before this he had a similar polyp removed from the same situation. Following the second removal he had freedom from symptoms for many months, but again came under observation with obstructed nasal breathing. At this time he complained of pains in the knee and the left shoulder. A few months later a soft fluctuating swelling appeared on the scalp over the upper part of the frontal bone; later, one also developed in the region of the inner canthus of the right eye. Both increased in size, but were painless. The eye became displaced by the growth of the mass. His general condition declined and through a most trivial accident he sustained simultaneous fractures of the right femur, both bones of the left leg, the right radius and ulna, and in the region of the left elbow. His course was progressively downward, and after death it was found that he had multiple round celled sarcomas in almost all of his long bones, in the right orbit, and sixteen in the skull. The only metastasis outside of the osseous system was found in the trachea. The primary tumor sprang from the base of the skull, and was the one which had given rise to the recurrent polypi in the nasopharyngeal cavity.

PRACTITIONER.

October, 1914.

Rheumatic Infection.—F. J. Poynton, C. D. S. Agassiz, and J. Taylor present an analysis of 350 fatal cases of rheumatism, which they believe to be a special disease, the result of the invasion of the tissues by a streptodiplococcus. The patients were 195 females, 155 males, 250 of them under the age of twelve years. The age incidence bears out the opinion that rheumatism is at its worst from the sixth to the twelfth year, and that the majority of deaths occur before the twentieth year. Evidence of an attack before puberty was obtained in one half of the 100 patients over twelve years of age. Of the 250 under twelve, fifty-nine died in what were apparently first attacks, and four more were doubtful, making the percentage of fatal first attacks in childhood not far from twenty-four per cent. In the remaining 100 cases only three deaths were recorded in a first attack, and two of these patients were only thirteen years old; the other was twenty-one. An inquiry into the previous state of health in the 100 cases over twelve years reveals a good deal about the life history of the rheumatic infection

and its far reaching effects. These cases were divided into groups according to decades, and in each a very large number of permanent invalids since the first attack were discovered. The authors then turn to the pathology and consider first the cardiac lesions in childhood. Pericarditis was found in 215 of the 250 cases; the lesions are described and from a comparison of the clinical with the post mortem findings, it appears that we may expect to detect the friction sound in at least eighty per cent. of the cases of recent rheumatic pericarditis; we may miss it because the pericarditis is localized posteriorly, very localized in area, or is evanescent. In a few cases it is probable that the inflammation is not severe enough to roughen the endothelial surfaces. Valvular affections in childhood are evidences of active disease, and, in nonfatal cases, lay the foundation for chronic valvular disease in adult life. In the 250 fatal cases the mitral was damaged in all but three, the aortic in 102, the tricuspid in seventy-eight, the pulmonary in six. An interesting comparison was made between the condition of the valvular affection in a series of 100 cases under twelve years of age and 100 over that age. Among the children, eighty-two died with evidence of acute carditis, and eleven with no evidence of an active lesion, but the scars of earlier attacks. Seven died of malignant endocarditis. Among the older ones, nine died of acute carditis of the childhood type, and fourteen with recent endocarditis complicating former valvular lesions; in fifty-five the valves were scarred by old disease and twenty-two died of malignant endocarditis. Of the twenty-three who died of acute carditis, sixteen were under the age of twenty years. This points to diminishing virulence of the rheumatic infection with advance in age. The usual time for the appearance of malignant endocarditis is later childhood, adolescence, and early adult life. An important lesson to be learned from such histories is the need for still further study of the course and behavior of rheumatic endocarditis. There is sometimes difficulty in deciding what should be called a malignant endocarditis; to bring this out this series was divided into three classes: 1. The frankly malignant; 2, those clinically thought to be simple but found by the pathologist to be malignant; 3, cases clinically malignant, but found to be simple. Malignant endocarditis may occur in one valve and simple endocarditis in another. Death from myocardial failure with no valvular lesion occurred in only three of the 350 cases.

BOSTON MEDICAL AND SURGICAL JOURNAL.

October 22, 1914.

Vaccine Therapy in Eye Diseases of Bacterial Origin.—Leon S. Medalia holds the following conclusions to be warranted: 1. The use of vaccine in bacterial infections of the eye, if judiciously carried out, will yield results such as could not be obtained with any method of treatment heretofore known. 2. Autogenous vaccine should be used as soon as possible. 3. In order to obtain good results optically as well, the vaccine treatment should be employed before permanent damage to the eye occurs. 4. When used in infections of the anterior chamber, especially in hypopyon ulcers, repeated

paracentesis, if performed along with the vaccine treatment, will yield better results than when vaccine is used alone. 5. Small and often repeated doses will do away with marked negative phases and minimize the chance of a possible setback, both of which might occur if too big a dose is employed. 6. Vaccine if used in the prophylactic way is of value in connection with preoperative immunization. It is of special value in cataract operations where the conjunctiva contains bacteria that cannot be got rid of in the ordinary way. 7. The bacteriological examination in connection with prophylactic immunization in all cases prior to cataract operations seems to be the logical method of procedure, and will do away, to a great extent, with the risk of postoperative infections.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

October 24, 1914.

Testing the Efficiency of the Collateral Circulation as a Preliminary to the Occlusion of the Great Surgical Arteries, by R. Matas.—This paper was abstracted in our issue for July 4th, page 42.

Aneurysm of the Posterior Tibial Artery; with Report of Two Cases, by A. McGlannan.—This paper was abstracted in our issue for July 4th, page 42.

The Four Common Types of Heart Disease, by R. C. Cabot.—This paper was abstracted in our issue for July 4th, page 41.

The Treatment of Heart Involvement in Syphilis, by H. Brooks and J. Carroll.—This paper was abstracted in our issue for July 4th, page 41.

The Surgical Service in Hospitals.—H. O. Collins believes that the surgical staff of a large public hospital should be divided into three ranks, the chief of service, associates, and assistants, the last named standing in a position between the associate and the intern. All patients should be assigned to the chief, who may take personal charge of the case, reassign it to one of his associates, or assign such part of the treatment as he deems best. Operations should be performed either by the chief himself or by an associate, but no associate should be allowed to do an operation, except in an emergency, without the knowledge and approval of his chief. An assistant should not be allowed to operate, except in the case of a minor operation to which he may be assigned by the chief. When a patient is assigned to an associate the chief should still remain responsible for his proper care and treatment, and should be expected to take personal charge at any time that this seems best for the patient. Service in all ranks should preferably be continuous.

Myositis ossificans Following Single Trauma.—P. Oliver states that the occurrence of true bone in muscle has never been very clearly understood, and even now there is no generally accepted opinion as to its method of origin. The malady, which is found most commonly in vigorous middle aged men, results from some severe traumatism, and nearly all cases occur in the brachialis anticus or the quadriceps extensor. The most typical growth is a somewhat tapering piece of bone, cartilaginous at an early stage, in the brachialis anticus, attached by a

narrow stem to the tip of the coronoid process of the ulna, but not as a rule firmly attached to the ulna or humerus. In the thigh the formation is ordinarily attached to the femur. All cases are said to have attachment to the bone at some time during development, in the nature of a small pedicle. Opinion is unanimous that no operation should be undertaken during the active stage, that is before three or four months have elapsed. The growth should be removed only when an indication such as marked disability is present. Many believe that prophylaxis is important, and advise immobilization for three weeks following an elbow dislocation or a severe blow on the thigh, with gentle massage later and passive motion. After the onset, therapy has no influence.

Surgical Theories of Intestinal Stasis.—A. Bassler says it is time to take account of results of the various surgical procedures of short circuiting the intestine. The end results are of chief importance. The question arises, Has Lane proved his procedure to be wise? To the surgeon calmly observing the results there is but one answer—No. Having discussed the theories of Lane and Jorda and of Kellogg and Case, the author propounds his own theory. Whatever Adami may have said to the contrary, it is nevertheless true that infections of the intestinal contents are the primary factors of the greatest importance in connection with toxemia of the intestinal canal. The primary cause of the conditions in question is mostly bacterial, and it is the food bacterial products that eventually bring about the status which surgeons are endeavoring to remove by drainage, but which cannot be done successfully enough because the infections commonly continue after the operations. He gives an outline of the usual course of these cases, and concludes that as local resistance of the gut wall is assailed, the bacteria may gain entrance into the general blood stream, and, filtering out in remote tissue, proliferate there with the production of local pathological change. In his opinion the subject is a medical one all the way through. Surgical procedures for conditions which occur as complications may be necessary in individual cases, but never the major operations of Lane for simple stasis or toxemia, never his form of abdominal operation for disease in tissues remote from the abdomen, nor operations on the ileocecal valve itself.

MEDICAL RECORD.

October 24, 1914.

Relation of Diet to Cancer, by L. D. Bulkley.—This paper was abstracted in our issue of July 4th, page 47.

Neurological and Psychiatric Aspects of Railway Accident Cases.—Alfred Gordon gives a general survey of this subject. In fractures of the skull the cerebral manifestations will naturally depend upon the area of the brain involved. In all cases prognosis is serious on account not only of immediate but also of remote consequences. In concussion of the brain authoritative records show that, even without the loss of consciousness, symptoms of grave nature may arise immediately or in a few hours or days after the accident. An injury of the spinal cord may follow a trauma of the spinal

column, such as fracture, dislocation, a blow, or a fall on the feet or on the buttocks. In concussion the cerebral symptoms caused may disappear completely; in the other conditions, they usually become permanent. Peripheral nerves may also become involved through a traumatism. The functional nervous diseases most frequently produced or brought out by railway accidents are hysteria and neurasthenia, or a combination of both. Chorea and paralysis agitans may also follow traumatism. Among the mental phenomena following traumatism is amnesia, which may be functional or organic. In the latter case it may be permanent, but as a rule the prognosis of traumatic amnesia is favorable, and in the majority of instances, it is of short duration. Sometimes after cranial traumatism there may be Korsakoff's psychosis, the chief characteristics of which are fabulation, anterograde amnesia, and illusions of identity. The author considers the following problems with which an expert is confronted when called upon to express an opinion regarding disturbances of a nervous or psychical order following a trauma: 1. What exactly is the disorder produced? 2. Is it genuine or simulated? 3. Should the symptoms observed be attributed to the traumatism? 4. If so, what is the incapacity for work: complete, incomplete, temporary, or permanent? 5. What are the prognosis, duration, and termination of the malady?

Modern Treatment of Syphilis.—W. H. Waters reaches the following conclusions: 1. Salvarsan is preferable to neosalvarsan from the clinical and the serological standpoint. When properly prepared, the reactions are not materially more numerous or severe. 2. Salvarsan is less efficient when not accompanied and followed by mercury, preferably in the form of the salicylate intramuscularly. 3. Treatment should always be controlled by repeated blood examinations. It is accordingly best administered by one in close touch with a well equipped laboratory. 4. Treatment of any form of this disease has been inadequate when salvarsan has not been employed. 5. In tabes, and possibly in paresis, a practically hopeless disease has been transformed into one where much benefit can be confidently anticipated. Here the intraspinal route is one of choice; this treatment should be administered only by one especially trained in laboratory technic. 6. Syphilis has been transformed into a disease capable of being accurately watched and efficiently treated.

Acute Leucemia.—August Strauch states that according to present views there are no essential differences between leucemia and aleucemia (aleucemic lymphomatosis) or pseudoleucemia in the stricter sense (Cohnheim's). He reports a case interesting on account of the gradual decrease of the leucocytes to a marked leucopenia. This could not be attributed to the use of benzol, which was administered for only two days, and then discontinued when a decrease was observed, and must be considered spontaneous, as often occurs in this disease. The patient died, and no blood count was possible during the last days of life. No autopsy could be obtained to determine the pathological and anatomical conditions of the hematopoietic organs.

Umbilical Infections.—R. L. Vioran says that umbilical infections which result from neglect in the proper treatment of the cord, are due to saprophytic bacteria; and the condition may remain a local one, leaving a wound with exuberant granulations. In all cases of erysipelas, antistreptococcus serum should be used, though it is apparently less efficacious in infants than in adults. The treatment with erysipelas phylacogen has been reported more successful, and may be given a trial. Locally, warm boric acid compresses, antiseptic dusting powders, and ichthyol ointment, made with petrolatum, are advised. The treatment of bronzed hematuria, a condition said to have its origin in an infected umbilicus, is symptomatic. Tetanus of the newborn, resulting from an infection of the umbilicus, should be promptly treated with antitetanic serum.

LANCET-CLINIC.

October 24, 1914.

Cerebrospinal Meningitis.—P. H. Linthicum reports a case of cerebrospinal meningitis. The early history resembled that of enteritis; on the sixth day of the disease the blood count showed a leucocytosis of 17,000, the differential count being normal. During the afternoon of the sixth day the patient suddenly became worse and comatose and within the next twenty-four hours, the picture of a meningitis was complete. Aspiration of the spinal canal was performed, ten c. c. of faintly turbid cerebrospinal fluid was withdrawn, and ten c. c. of antimeningitis serum introduced through the needle. During the injection the blood pressure fell twelve mm. This was repeated at the end of thirty hours. The child showed greater improvement after the second injection than after the first, and it was repeated for the third time after forty hours and again after another interval of forty hours. Following the fourth injection the child's condition improved steadily. The temperature rose two degrees within twenty-four hours after every injection and then fell. Examination of the cerebrospinal fluid showed that the meningococci decreased after every injection and disappeared entirely after the fourth. The polymorphonuclear neutrophiles decreased from seventy per cent. to five per cent.; the small mononuclear cells increased from twenty-five per cent. to ninety per cent., and the total number of leucocytes decreased from 2,700 to 1,066.

Scopolamine Morphine in Labor.—Magnus A. Tate points out that hyoscine and morphine have been used in obstetrics for some time and that the method has been discarded by a good many obstetricians because of its dangers. Small doses of scopolamine may sometimes produce serious results, disturbances of the nervous system and heart; as these complications cannot be predicted, they cannot be guarded against. Narcophin has been used in place of morphine because it is less harmful to the child. If too much scopolamine is given, the patient is restless instead of drowsy. The general opinion of the Germans who have tried this treatment is that there is great danger for the child, but not for the mother. Labor is prolonged and there is interference with peristalsis and bladder function following labor. There are a good many asphyxiated children born. The opinion of four

prominent American obstetricians, Greene, Williams, Hirst, and DeLee, is that the method possesses no special advantages and that there is considerable danger connected with its use. On the other hand, Harrar, MacPherson, Rongy, and Arluck are of the opinion that the treatment has certain advantages and urge a fair trial. The author reports nine cases, in four of which he found the treatment to be ideal. A summary of the question shows that the treatment is complicated, requires a great amount of time and, if not used properly, is attended with considerable danger.

Esophagobronchial Fistula.—J. Edward Pirrung gives the history of a case of this kind. The chief complaint was inability to swallow either liquids or solids for a period of three days, difficult and painful swallowing having existed for six months previously. The habits of the patient were good; there was no history of any venereal disease; the patient was moderate user of tobacco and total abstainer for seven years; previous to this time he drank, at times to excess; onset was a year ago with pain in the region of the liver during the act of swallowing. No difficulty in swallowing at first. Pain continued for five or six months and then disappeared. There was a reappearance of the pain on swallowing two months later with occasional obstruction and regurgitation of food, certain foods provoking the pain. Later swallowing of liquids became difficult because attempts at swallowing caused violent spells of coughing with immediate projection of the fluids from the pharynx and larynx. Examination of the chest revealed a severe bronchitis with exudate. The radiograph showed a delay in the passage of the bismuth meal at a point on a level with the middle of the sternum. After failure to pass the stricture with filiform catheters and rubber tubing, gastrostomy was decided upon. The Weitzel operation was performed. There was immediate relief of hunger and thirst. The violent cough persisted which produced a strain on the gastrostomy wound, causing leakage to take place. On the twelfth day pneumonia appeared; the patient died on the thirteenth day. Post mortem examination showed the esophageal obstruction to be cancerous; a fistulous connection existed between the bronchus of the left side and the esophagus. The microscopical section showed a primary cancer of the esophagus.

AMERICAN JOURNAL OF OPHTHALMOLOGY.

September, 1914.

Traumatic Paralysis of Both External Recti.—Frederick E. Woodruff reports the case of a boy, aged four and a half years, who fell through a cellarway a distance of eight feet, striking on his shoulder and showing a slight abrasion at the side of the nose. These were the only marks of injury that could be found. Ten days later the writer was called upon to examine the child's eyes, and found a double convergent squint with paralysis of both external recti, over which it certainly had no power. Up to that time the child had had no increase of temperature, no signs of any paralysis except the ocular, no hemorrhage of any kind, no trouble with the ear, no sign of fracture of the base, nothing ex-

cept a concussion of the brain. The left eye began to have a slight movement beyond the median line in about three weeks, but up to the time the report was presented, the right eye could not move beyond the median line. The boy was up and about, playing as usual. He had no polyuria, and no sugar was present in the urine, as sometimes happens in lesions of the fourth ventricle.

AMERICAN MEDICINE

September, 1914.

The Acquisition of Tuberculosis, by W. H. Porter.—This paper was abstracted in our issue for August 22nd, page 391.

The Use of Tuberculin in Surgical Tuberculosis.—G. E. Waugh says: Tuberculin has been tried during the last ten years in thousands of cases; but a clear, convincing report is wanting that a given preparation, in a given dose or doses, is the curative agent so much desired. For five years at the Hospital for Sick Children, Great Ormond Street, London, tuberculin was used by him in all cases of a surgical nature which were either suspected to be or were of tuberculous origin. For about one year Koch's new tuberculin was employed, and for the remaining four years, Wright's bacillary emulsion. Many doses were used; many cases had citric acid given in addition for the purpose of promoting a free flow of lymph, and so insuring access of tuberculin to the lesion; the ordinary routine measures of surgical treatment were carried out as well. Cases of tuberculous dactylitis appeared to respond well to tuberculin injections; early and rapid improvement, leading to a complete cure, was very marked in many instances. Patients with other forms of tuberculosis appeared not to derive any benefit at all. The author has abandoned tuberculin in all forms of surgical tuberculosis.

Dangers of the Ophthalmic Tuberculin Test.—H. Friedenwald thinks that, while the value of this test has been established, it is not astonishing, in view of many cases of excessive reaction and of serious injury, that some authors are emphatically against its use. In Müller's medical clinic in Munich its employment has been forbidden. He is convinced that this course is wise, and should be followed generally.

Intestinal Disinfection.—J. T. A. Walker states that of the long array of chemical reagents and other substances put forward as intestinal disinfectants, all fail in one or more respect to fill the requirements which are now known to be essential to successful action. The solution would come with the introduction of a suitable drug, combined with new and improved methods of application.

JOURNAL OF INFECTIOUS DISEASES

September, 1914.

Bacteriology of Vaginitis.—Sharp reports that clinically the vaginitis in little girls resembles gonorrhea, and occasionally stained smears show typical gonococci. The majority of cases, however, do not give a typical gonococcus picture with intracellular cocci. Consequently a diagnosis of the infecting organism is made only with difficulty. The most reliable method, according to Sharp, is isolation of the organism. Complement fixation tests, and cu-

taneous tests are not as satisfactory. He concludes that the vaginitis in his series was largely and perhaps entirely gonococcic in origin, and also that the gonococcus is present as long as the discharge continues.

Treatment of Tetanus with Antitetanic Serum.

—Irons gives an analysis of 225 cases treated with antitetanic serum and of twenty-one cases which received no serum. The mortality of all cases receiving serum was 61.77 per cent.; in the twenty-one cases without serum, 85.7 per cent. Irons emphasizes the importance of intraspinal injections of antitoxin as a means of dealing with toxin that has already reached the central nervous system. It has been shown that animals in which tetanus has already developed may be saved by antitoxin in adequate doses; the results are better and smaller doses suffice when antitoxin is given intraspinally. The experimental results, together with a number of favorable effects in human tetanus, indicate that the intraspinal injection of antitoxin should be urged in all cases. Better results are obtained by maximum concentration of antitoxin in the body at once rather than by extending the doses over periods of many days. He recommends 3,000 to 5,000 units intraspinally and 10,000 to 20,000 units intravenously at the earliest possible moment after symptoms of tetanus appear.

JOURNAL OF MEDICAL RESEARCH.

September, 1914.

Studies on the Cerebrospinal Fluid.—Cushing calls attention to what an effective barrier the uninjured plexuses are against the entry into the cerebrospinal fluid of substances which may be present in the circulating blood, whether they are introduced for therapeutic purposes or are merely products of pathological states. It is particularly significant that drugs such as potassium iodide do not pass from the blood stream into the fluid, and to this the prevalence of cerebrospinal parasyphilis, following old methods of antiluetic treatment is doubtless attributable. Salvarsan, likewise does not pass from the blood into the cerebrospinal spaces and is very toxic when put directly into the subarachnoid fluid. Hence has arisen the method of treating cerebrospinal syphilis by the lumbar subarachnoid introduction of salvarsanized serum.

PENNSYLVANIA MEDICAL JOURNAL.

September, 1914.

Effects of Drugs on Coagulation Time.

George M. Dorrance determined the normal coagulation time for a number of animals, including the dog, rabbit, and guineapig. He then tested a large number of the drugs commonly advocated for the control of hemorrhage to determine their influence upon the time of coagulation and found that none had any appreciable power of reducing the normal time in any of the animals or in man. Among the agents used were calcium lactate, gelatin, citric acid, sodium citrate, thyroid extract, and peptone. He is particular to state that, while he has been unable to shorten the normal coagulation time of the blood in animals and man by any of the drugs used, this is by no means an indication that in pathological conditions in man these drugs will not alter the abnor-

mal coagulation time, and in fact in cases with abnormally prolonged coagulation time the administration of thyroid extract usually shortens this, and calcium lactate occasionally has a similar effect.

Pituitary Extract in Obstetrics.—J. O. Arnold answers a number of hypothetical questions with regard to the use of this drug, because just such questions are most frequently asked of him by physicians. In the first place, he would restrict the use of the drug to that point in labor at which the cervix is fully dilated or readily dilatable, with the presenting part in a normal position and well engaged. In other words, in the same class of cases as would require low forceps. The drug cannot be used for the induction of labor, for its action is merely to sensitize the uterus, not to stimulate it to contraction. It should never be given unless conditions are such that an immediate forceps operation could be done if occasion arose. There seems to be little reason to believe that its use increases the proportion of tears. It should never be used when the uterus has become exhausted by a prolonged labor, as it is apt to be followed by a period of atony after delivery and to result in an increased tendency to post partum hemorrhage. Anemia in the mother should contraindicate its use because its action on the coronaries may produce fatal angina. Through direct action on the child's heart or through severe mechanical injury from pressure, the drug is capable of damaging the unborn infant in a certain proportion of cases.

Crotalin.—N. S. Yawger administered this remedy to six patients under constant observation and sanatorium care. Two of the patients were uninfluenced, two became worse during the treatment, one showed marked intolerance to the drug in the early stages of its use, and the sixth died two and a half months after treatment, probably not as a result of the treatment, although he was not benefited by it.

SURGERY, GYNECOLOGY AND OBSTETRICS.

September, 1914.

Fate of Transplanted Bone.—D. B. Phemister makes the following observations on the behavior of bone in a series of animal experiments: Osteogenesis in bone repair occurs from the inner layer of the periosteum, from the endosteum, and to a much less extent from bone cells and fibrous contents of the Haversian canals. Viability of the cells of the transplant is dependent largely upon their ability to get nutrition and to some extent upon their degree of cell specialization. Periosteum and endosteum, being superficially located, receive sufficient nutrition to survive and proliferate. The great mass of bone cells being away from the surface and surrounded by an extensive, calcified matrix gradually undergo necrosis and absorption. A few about the periphery and lining the larger vascular spaces as well as the fibrous elements of the latter may survive and proliferate. Blood forming cells of the marrow, despite their favorable nutrition and probably because of their greater degree of specialization, gradually undergo necrosis. The subsequent changes which the transplant undergoes depend upon its composition and location. According to Roux's law of functional adaptation,

a transplant placed in a useful location, i. e., a bony defect, undergoes progressive changes while one in a useless location, i. e., soft parts, undergoes chiefly retrogressive changes and is gradually removed.

Typhoid Perforation.—G. E. Armstrong believes that the lesser signs that demand surgical intervention in typhoid are: Pain, persistent, definite change for the worse in the expression of the patient, tenderness, either abdominal or rectal, rounding up of the abdomen, and increased resistance to pressure. If these symptoms are present, even if the temperature and pulse are not decidedly altered, nor vomiting present, the likelihood of a perforation is very great. The abdomen can be quite well opened under local anesthesia without causing the patient any pain whatever. The closing of a typhoid perforation is one of the simplest operations in surgery; one that can quite well be performed by any one capable of carrying out a perfect surgical technic. A one per cent. solution of novocaine with the addition of two drops of adrenaline to the dram is thoroughly satisfactory and may be used freely. Inject first the skin and subcutaneous tissue, and then, with a needle one inch long, penetrate the deeper muscular layers along the line of incision. Either a gridiron incision or one along the outer border of the right rectus answers admirably. The perforation is nearly always found in the terminal twelve or twenty-four inches of the ileum. A couple of through and through sutures usually suffice to close the opening, and then one or two rows of fine Lembert sutures complete the operation on the intestine. One should always look for a second or possibly a third perforation. It is good practice to infold any thin necrotic ulcers with a single row of Lembert sutures. Resection is rarely indicated and should be reserved for the skilled operator.

Hyperthyroidism.—C. H. Mayo, discussing the operative procedure, says that the anesthetic of choice in most cases is ether. Complicated cases, however, may best be carried through the operation by the local use of 0.5 per cent. novocaine solution, with the addition of a little adrenaline. Occasionally the combined use of a local with a general anesthetic is advisable, a method which Crile has done much to popularize, the local anesthetic relieving the pain necessitates less of the general anesthetic to secure sleep. In severe forms of Graves's disease the use of 1/200 grain of scopolamine with one sixth of a grain of morphine one hour previous to operation is often a distinct advantage. Some patients seem to have an idiosyncrasy to the drug, and in such patients the operation must be postponed twenty-four hours to permit elimination. In all cases in which ether is used as the general anesthetic, 1/100 grain of atropine should be given one half hour before operation to maintain a dry trachea and pharynx during the operative procedure.

Inguinal Lipomata.—Kellogg Speed believes that in herniotomy perhaps too little attention is paid to freeing the sac neck around the internal ring for a distance of one to two cm. after it has been freed from the cord tissues. The sac should be held up taut and the index finger, gauze covered, should sweep well around the internal ring, freeing

the sac neck which the constant pull stretches further out into the wound. If ligated as in the ordinary run of cases, the ligature should always be deeper down, i. e., nearer the abdomen, rather than the white line of the old thickened constriction ring which is present in practically every sac. In making this freeing dissection around the sac neck and pulling it down, one often brings into view hidden lipomatous masses, possibly of very broad base, lobulated, and as a rule pointed out from the internal ring and the general direction of the cord. These can be included in the ligature and removed even if the sac neck has to be further dissected upward to get to their base. The amount of time involved is small and the peritoneal surface is sufficiently elastic to allow much stretching. If they remain, or if the sac has been tied off too long with a tendency for the peritoneal surface to bulge out from the internal ring instead of being well retracted back and offering no depression into which omentum or other abdominal content may tend to wedge, these masses of fat become larger, are inclined to slip or wedge into this small opening and cause gradual recurrence of the cured hernia. Of 154 herniotomies performed by the writer, lipomata were found present in the open canal seventy-three times, giving a percentage of 47.4.

Proceedings of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held at the New York Academy of Medicine, June 2, 1914.

The President, Dr. SMITH ELY JELLIFFE, in the Chair.

The Maloney Rest-Exercise Method.—Dr. I. ABRAHAMSON and Dr. ALBERT POLON's patients had been treated in Mt. Sinai Hospital. They were all ambulant cases of functional neuroses, and were presented to illustrate the value of the rest exercise method of treatment, the technic of which had been given in detail in a paper by Dr. W. J. M. A. Maloney and Dr. V. E. Sorapure, which had appeared in the NEW YORK MEDICAL JOURNAL for May 23, 1914. The first patient was a girl, nine years old, who for seven months had suffered from a facial tic. The movements, which were persistent and annoying, consisted of extreme deviation of the eyeballs to one or the other side, followed by twitching of the nares and upper lip, by wrinkling of the forehead, and finally, by raising the index finger of the right hand to the nose, as though smelling it. She had been treated by various methods without relief. After two lessons by the Maloney rest exercise method the movements had entirely disappeared, and the girl now showed no sign of the original affection. The second patient was a boy of twelve years, who had suffered from a facial tic which he had acquired by imitating some one in his class at school, and which became more pronounced under excitement. After a single lesson of twenty-five minutes' duration, he was entirely relieved by the rest exercise method. The third case was that of a girl of nineteen years, a stenographer and typist, who about five months

ago, after an exciting occurrence, noticed that her left hand became weak and tremulous. These symptoms gradually extended to the corresponding lower limb and the girl was compelled to give up her work. For thirteen weeks she was under treatment by various methods without benefit. After two treatments by the rest exercise method, her symptoms entirely disappeared and she was well enough to return to work.

The next patient was a boy of nine years who had suffered from blepharospasm, with more or less constant snuffing and hawking. This boy was still under treatment. Although he was much improved, there was still an occasional slight blinking of the right eye. The next case was one of hysterical paraplegia in a boy of nine years, which dated back three months and followed an attack of otitis media and facial erysipelas. According to the history, the paraplegia came on suddenly; the boy was unable to stand or walk and was taken to the Beth Israel Hospital, where he remained for five weeks. He was then taken to his home, unimproved, and six weeks later was carried to the Mt. Sinai Hospital, still completely paraplegic. The case was recognized as one of hysterical paraplegia, and after a single treatment by the rest exercise method, the boy was able to walk home and had remained well ever since. In connection with this series of cases, Doctor Polon wished to emphasize the fact that by this method of treatment the patients were given self reliance and confidence, which conferred a feeling that they could control themselves, and they were made to understand that it was through their own will power that they had accomplished these results.

Dr. A. A. BRILL wished to call attention to the fact that adult patients with tics usually gave a history of recurrent attacks dating back to childhood. The attacks came and went with more or less periodicity, and could be temporarily checked or mitigated by various methods of treatment, but they invariably recurred and he knew of no permanent cure. He recalled some cases that had been helped by psychoanalysis, but not permanently. Still, any method of treatment that would benefit these patients even temporarily should be encouraged.

Dr. BENJAMIN ROSENBLUTH had been giving attention to these tics for a number of years, and had come to the conclusion that most of them were referable to some occurrence in the conscious state which was repeated in the dream state. Acting on this theory, he had obtained very good results by giving drugs directed toward dispelling dreams, without paying any special attention to the patient's physical condition.

Dr. F. K. HALLOCK, of Cromwell, Conn., asked Doctor Polon if he was familiar with the relaxation method of Dr. Anna Payson Call, of Boston? Nearly twenty years ago this young woman began to treat neurasthenia and conditions of nervous hypertension by alternate exercise and relaxation movements. With the patient lying prone, she first relaxed the head, then the extremities, and finally rolled the body half way over and let it sag back in a state of complete relaxation. Doctor Hallock had employed this method for the relief of general neurasthenic conditions, and in many cases had

found it very satisfactory. His experience with it in tics had been limited, except as a general procedure for all persons of this type.

Doctor JELLIFFE said that even more remote than the relaxation method of treatment referred to by Doctor Hallock were those in vogue centuries ago in the time of Hippocrates and in the Æsculapian Temple, as well as among the Indian cults. An interesting historical perspective might be thrown upon the present cases in the light of the older methods. In what sense had the newer methods become more definite and precise?

Doctor POLON said the most marked difference between this method and the types of relaxation treatment employed in former times and still used in some clinics today, in Berlin and elsewhere, lay in the fact that they depended largely on suggestion and hypnosis, the idea being to dominate the patient without giving any explanation as to cause and effect. By the method which had been employed in the series of cases shown, the treatment rested upon a physiological basis which it was attempted to explain to the patient. The importance of these relaxation movements was impressed upon him, and they were intended to call upon the resourcefulness of the patient to meet the needs of the case.

A Case for Diagnosis.—Dr. LOUIS CASAMAJOR presented a patient, a man thirty-two years old, a driver, who was admitted to the New York Neurological Institute, March 26, 1914, complaining of weakness and cramps in his left arm and abdominal muscles, dating back for eighteen months. With the exception of an attack of pneumonia five years ago, his previous history was negative. He denied syphilis. About a year and a half ago he had a sudden attack of pain in the left arm. He visited a clinic, where he was told that he had wrenched the arm and was advised to get an easier job. From this time on, attacks of cramplike pain occurred at shorter intervals, and ten months ago he noticed that his arm was becoming weak. Whenever he raised his hand to the back of his neck, there was a severe, cramplike pain in the biceps. Six months ago he began to suffer from similar cramplike pains in the upper abdominal muscles whenever he bent over. These were extremely painful, causing him to cry out and sometimes to fall.

Examination of the eyes showed nothing abnormal, except a slight strabismus, a matter of long standing. All the deep and superficial reflexes were active and equal. On the left side there was some atrophy of the shoulder girdle and marked atrophy of many of the smaller muscles of the hand. In the affected arm and forearm, there was about one inch of atrophy. When the patient first came under observation, the arm and shoulder muscles showed many involuntary, lightninglike, disseminated muscular contractions, affecting chiefly the muscle bundles, and seldom strong enough to move a joint. Later, these were not noticeable. When he raised the elbow and placed both of his hands behind his neck, there occurred a severe tonic contraction in the left biceps, which was quite painful and had to be overcome by forcible extension at the elbow. The electrical reactions showed extreme hyperexcitability of all the muscles of the left arm, with the myotonic reaction in the left biceps. The

urine was negative, as were the Wassermann and spinal fluid. Under calcium lactate, which was given by the advice of Dr. Walter Timme, the patient had improved, only to have a recurrence of his symptoms when the drug was intermitted.

Dr. I. ABRAHAMSON said that at a recent meeting of the Section in Medicine of the N. Y. Academy of Medicine, Dr. Jesse G. M. Bullowa presented a case as one of myotonia atrophica, and this case apparently belonged to the same category. The combination of muscular atrophy and myotonia was much more common than was generally believed—myotonia as a symptom was found in connection with many diseases, especially in cord diseases, including syringomyelia. He distinguished two types of the disease, characterized by progressive muscular atrophy and myotonia; a familiar type, occurring commonly in more than one member of a family, previously named myotonia atrophica, and an acquired type. It was to the latter group that both Doctor Bullowa's and Doctor Casamajor's cases belonged. In the former case the earliest symptom noted was a disagreeable tonic muscular spasm of the abdominal muscles when the patient tried to rise from bed in the morning. This spasm soon relaxed, and the later abdominal movements were free. Subsequently, a progressive wasting of the shoulder muscles developed. Examination showed decided muscular atrophy, myotonic electrical reactions, and polar changes in the wasted muscles. Fibrillary twitchings were present, but not as widespread nor as marked as in Doctor Casamajor's case. In the latter case, no single segment of the cord could be held responsible for so widespread a disturbance. There was a progressive change in the anterior horns in these cases. Cases of myotonia atrophica had been described associated with atrophy or maldevelopment of the testes: this was present in Doctor Bullowa's case, and it was proposed to note the effect of the administration of testicular extract. The result of the treatment could not be seen at this early date.

Dr. I. STRAUSS was inclined to agree with Doctor Abrahamson, but would take exception to the statement of Doctor Casamajor that in dealing with a condition of this kind there was any necessity for assuming that it was attributable to any particular segment of the cord or to changes in the anterior horn cells. It was probably due to some change in the muscle itself. What that change was he did not know, but certainly in myotonia atrophica there was nothing to prove that it was a disease of the cord. The pain in these cases was similar to that complained of in muscles where there was circulatory disturbance, such as was not infrequently observed in the lower limbs.

Doctor CASAMAJOR said that with such a distribution of symptoms, involving both the abdominal muscles and the shoulder girdle, the lesion could not be limited to any particular segment of the cord, but this did not preclude the possibility that they were due to spinal cord conditions. Doctor Strauss had said he could not see how a lesion of the anterior horns could bring the muscle into such a state of spasm; still, they saw it in toxic conditions, such as strychnine poisoning, which affected principally the anterior horn cells. He was interested in the

reference made by Doctor Abrahamson to the possible relationship between this condition and atrophy or maldevelopment of the testes. In this case, calcium lactate was advised by Doctor Timme on the assumption that the muscular contractions might be due to calcium starvation. When the patient first came under observation, he was incapacitated on account of the spasm of the muscles, and after taking five grains of calcium lactate, four times daily, for a week, he was so much better that he was able to return to work. After a fortnight he gave up taking medicine, and within two weeks he was so tied up with cramps that he had to discontinue his work. He was again put on calcium lactate, with an immediate improvement and the disappearance of his fibrillary twitchings.

The Infantile Roots of Masochism.—This paper by Dr. PAUL FEDERN, of Vienna, appeared in the JOURNAL for August 22, 1914.

Dr. A. A. BRILL, through Doctor Federn's previous published writings on this subject, had become acquainted with his views, and in the main he agreed with him. More particularly, he could corroborate in a few cases from personal clinical observation the locations given by Doctor Federn. In connection with this subject, he wished to report the case of a man, forty-three years old, a successful politician and very forceful man, who had held the highest political position in his own State, who for years had suffered almost nightly from fancies of a masochistic nature, lasting several hours, before he could fall asleep. Investigation showed that this man, who in his daily life was regarded as a big fighter, was just the opposite in his fancies. He was burdened by hereditary weakness, having had a very brutal mother and a sadistic teacher.

Dr. C. P. OBERNDORF had been much interested in the fact that Doctor Federn appeared to emphasize an organic basis for masochism, attributing it to a hyperirritability in the region of the perineum. If this tendency was considered primarily one of an anomaly in development, Doctor Federn's view was similar to that which Ferenczi recently adopted in regard to homosexuality. In a very enlightening discussion of homosexuality in the male, Doctor Ferenczi held that the active form of homosexuality was a neurosis, while the passive form was due to an intermediate organic sexual development and therefore, not amenable to psychoanalysis. He had never cured a case of passive homosexuality, nor for that matter, completely cured the neurotic or active form of homosexuality. How far, in view of Doctor Federn's organic conception of masochism, had he been able to influence his masochistic patients by psychoanalytic treatment?

Doctor ABRAHAMSON was rather inclined to doubt the localization of masochistic and sadistic sensations, as they frequently saw both varieties in the same patient. He recalled one case in Munich, that of a medical student apprehended for flagellating a young boy. In him, both perversions were constantly present. In the absence of partners for his activities, he resorted to symbolic representations of these acts, so that at one sitting he would depict an entire week's program, sadism alternating with masochism; he seemed to revel in his diagrams, and asserted that the sexual gratification he received

therefrom was only a little less pleasurable than the actual. Surely in a case of this kind, localization of sensations was out of the question.

Doctor JELLIFFE was very glad that Doctor Federn had called attention to the prophylactic aspect of this subject of masochism and in tracing these sensations back to childish habits. The desire of the child to lock himself up, the common expression, "I will die some day and you will be sorry," were probably familiar to them all, and even into adult life they carried similar types of reaction that something might happen to them whereby somebody else would suffer. They became very sorry for themselves. The style of French literature referred to by Doctor Federn had its prototype in this country in the tales of Nick Carter and Deadwood Dick, etc. Many examples of sadism and masochism could be observed in every day life, in the cruel father, the overtender attitude of the mother, the exaggerated sympathy poured out on criminals, the misdirected efforts of antivivisectionists and antivaccinationists, and perhaps the prevention of cruelty to animal advocates and even anti-suffragists belonged in the same category.

Doctor FEDERN quite agreed with Doctor Brill that many masochists were energetic fighters in their particular social and business spheres: this was especially true of some individuals who, yielding to their abnormal sexual desires, freed themselves from the passive attitude in their general life. To enter fully into the question that Doctor Oberndorf had raised, would mean to open the discussion of the whole problem of psychoanalytical therapy. They were far from able to make normal every case of masochism. The aim of medical treatment was to free the individual from suffering; not to change his character. They all knew of many worthy people, quite normal in other respects, who had sado-masochistic tendencies, which they were able to govern or to endure without suffering. If by treatment they achieved this state in their patients, they had done their medical duty, but in many cases they were able to go beyond this point, and to combine with it some educational influences. Many patients who disliked their sado-masochistic tendencies, became normal sexually after psychoanalytical treatment. By making conscious many unconscious roots or fixations of abnormal sexuality, and by removing the unconscious resistances to normal sexuality, psychoanalysis led such patients to return to the line of normal development, which meant that following the sadistic and masochistic periods in childhood, normal sexuality became dominant. In many cases the masochist must go back to the preceding sadistic period and live a renewed sadistic attitude during the treatment, but an adult who developed his will power and was aided by the psychoanalyst, might succeed in sublimating his sadism, and shifting it to his social work. Such individuals developed by treatment a much greater energy in social life than they ever had before. In many cases, however, where the patient's environment was unfavorable or his constitutional traits were fixed, no real cure was possible. Doctor Abrahamson had mentioned a very interesting case from Kraepelin's clinic, and he agreed that it was remarkable that the patient himself produced his symbolic fancies. The case

mentioned corresponded in nearly every detail to the description he had given, as this related to the combination of both perversities. All these symptoms seemed very complicated until they found the key to the trouble. Most probably, had Doctor Abrahamson's attention been directed to that point, he would have found the difference of localization and sensation corresponding with the sadistic and masochistic attitudes, so far as the first sensation was active, in the anterior, and the other in the posterior part of the organ.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

A Textbook of Pathology for Students of Medicine. By J. GEORGE ADAMI, M. A., M. D., F. R. S., Strathcona Professor of Pathology, McGill University, and Advisory Pathologist to the Montreal General and the Royal Victoria Hospitals, Montreal, Canada; Late Fellow of Jesus College, Cambridge, England; and JOHN MCCRAE, M. D., M. R. C. P. (Lond.), Lecturer in Pathology and Clinical Medicine, McGill University, Montreal; Senior Assistant Physician, Royal Victoria Hospital; sometime Professor of Pathology, University of Vermont; Late Fellow in Biology, University of Toronto, Toronto, Canada. Second Edition, Revised and Enlarged, Illustrated with 395 Engravings and 13 Colored Plates. Philadelphia and New York: Lea & Febiger, 1914. Pp. viii-878. (Price \$5.)

On the appearance of this work some two years ago, we had the pleasure of testifying to its scholarly character and to its admirable suitability as a textbook for the student and practitioner. The present edition contains some 125 additional pages, which bear evidence of the same scrupulous care and scientific accuracy in their preparation as the body of the work. A new and excellent chapter is that on the prominent features of the more important infections. The original part of the book has undergone revision to the advantage of the reader, who will find the new system of cross references, together with the syllabus at the head of each chapter, of considerable assistance both in finding what he wants and in memorizing after it has been located. The work is beautifully printed, and the illustrations, particularly the colored plates, deserve high praise.

The Occupational Diseases, their Causation, Symptoms, Treatment, and Prevention. By W. GILMAN THOMPSON, M. D., Professor of Medicine, Cornell University Medical College in New York City; Visiting Physician to Bellevue Hospital. Illustrated. New York and London: D. Appleton & Co., 1914. Pp. xxvi-724.

In the *Memorial on Occupational Diseases* sent to the President of the United States in June, 1910, the statement was made that "practically all the standard works of reference on occupational diseases are by English or Continental authorities. There is no modern treatise on the subject by an American authority on industrial hygiene." The present work is intended by the author to supply this deficiency, and he is to be congratulated both on having discovered an unoccupied field in our medical literature and also on having produced so useful and entirely satisfactory a volume. Practitioners and students of medicine, students of social economics, social science workers, insurance actuaries, and those who are interested in labor legislation—all these classes will find the present volume one to have by their side for constant reference. The first part of the book is taken up with a discussion of the history, classification, general pathology, and etiology of occupational diseases; the second part treats of general remedial measures; the third part is an elaborate presentation of the diseases due to irritant substances; in part four the author considers the diseases due to harmful environment, including therein the various modifications of air, light, and

temperature, and electric shock; part five is headed "special occupational diseases," and is subdivided into diseases affecting the blood, the nerves, the eyes, the ears, the mouth, the nose and throat, the skin, the bones and joints, and the bladder; part six is on the influence of special conditions on the occupational diseases, and deals with alcoholism, syphilis, and abuse of foods, stimulants, drugs, and tobacco; part seven contains the miscellaneous occupational diseases grouped by industries and not included in the foregoing classification. The volume closes with four useful appendices and a capital index. The book is thoroughly well written, and the author has a keen sense of what the reader will expect in such a work, and an ample store of knowledge from which to draw for the furnishing of the necessary information. In a subsequent edition we should like to see the tabular matter in the appendix so printed that it can be read without turning the book around. Whether the present book is regarded as a supplement to the standard volumes on practice and hygiene, or as an independent work, it will, in either case, be found to be one of the most important medical publications of recent years.

Atmospheric Air in Relation to Tuberculosis. (With 93 Plates.) By GUY HINSDALE, A. M., M. D., Hot Springs, Virginia, Secretary of the American Climatological Association; Ex-President Pennsylvania Society for the Prevention of Tuberculosis; Fellow of the College of Physicians of Philadelphia; Associate Professor of Climatology, Medico-Chirurgical College; Member of the American Neurological Association; Fellow of the Royal Society of Medicine, Great Britain; Corresponding Member of the International Anti-Tuberculosis Association, etc. Washington, D. C.: Smithsonian Institution, 1914. Pp. x-136.

This monograph received one half the prize offered by the Smithsonian Institute for a paper on the subject. In its 136 pages there is set forth, in a most interesting manner, the influence that climatic conditions have in the treatment of tuberculosis. Although entire reliance cannot be placed upon climate, yet there is no doubt that it is an adjuvant of great value. Some of the results obtained, particularly in cases of surgical tuberculosis, when treated by heliotherapy and immobilization in plaster according to Rollier's method, are truly wonderful. Probably the matter of first importance is an abundance of air which is as nearly as possible bacteriologically and chemically pure. When this is present in the combination of a low humidity and a moderately cool temperature, we have conditions at their best. This paper is a very good one and should be carefully read by both physicians and surgeons; much of value to them will be found.

A Clinical Study of the Serous and Purulent Diseases of the Labyrinth. By Dr. ERICH RUTTIN, Privatdozent in the Otological Clinic, University of Vienna. With a Foreword by Professor Dr. VICTOR URBANTSCHITSCH. Authorized Translation by HORACE NEWHART, A. B., M. D., Instructor in Otology, University of Minnesota; Otolologist and Rhinologist, Northwestern Hospital; Fellow American College of Surgeons, etc. With 25 Textual Figures. New York: Rebman Company, 1914. Pp. viii-232. (Price \$2.)

To those who are familiar with the brilliant work of the author and his colleagues of the Vienna school, on the study of the labyrinth, little more need be said concerning the small book under review. A work containing evidence of the wide experience and extensive study of such an able authority, and the compilation and classification of the successful results of the efforts of various other investigators of note should be sufficient recommendation for a book to insure unusual circulation. The brain surgeon especially will find many fruitful points, particularly in the differential diagnosis of cerebral infections, for it has been clearly demonstrated that alarming intracranial complications, which might often be avoided, may result from a labyrinthine infection. Drainage of the labyrinth before extension of the infective process to vital structures beyond its border, makes the operation a life saver by lessening the number of cases of meningeal complications. This treatise includes the discussion of 108 cases coming under the observation of the author. The functional examination and its significance is clearly presented in the

opening pages. The various types of labyrinthine disease are duly considered and the indication for operation is distinctly pointed out.

Lehrbuch der Oesophagoskopie. Von Prof. Dr. HUGO STARCK, Heidelberg-Karlsruhe. Zweite Grösstenteils neubearbeitete Auflage. Mit 110 Abbildungen und ausführlichem Literaturverzeichnis. Würzburg: Von Curt Kabitzsch. Pp. xii-274. (Ladenpreis, Marks 8.)

In view of the rapid progress that has been made in very recent years in bronchoscopy and esophagoscopy, the second edition of Professor Starck's book is timely. The entire first part is almost completely revised. The section on foreign bodies in the esophagus is materially enlarged and practically rewritten. The treatment of cicatricial contractions shows a gratifying advance. The present edition contains a general and a special part. The former includes a brief history of the subject, the anatomy and physiology of the esophagus, instrumentarium, technic, dangers, complications, contraindications of esophagoscopy, etc. The special part considers the various affections to which the esophagus is susceptible. The chapter on foreign bodies is a prominent one. The work is a valuable asset to one practising in this line. The only criticism we have to offer is the advertising in the text of the author's instruments, with a price list.

Medicine in Ancient Egypt. The Hieratic Material. By BAYARD HOLMES, M. D., and P. GAD KITTERMAN, M. D. Cincinnati: The Lancet-Clinic Press, 1914. Pp. 34.

Dr. Bayard Holmes and his colleague, Dr. P. Gad Kitterman, have done a brave thing in issuing this thirty-four page quarto with the idea, apparently, of cultivating a fad among physicians for deciphering Egyptian hieroglyphics. The doctor interested in the history of medicine would have been content with a translation of the material, but the writers have reproduced columns of the hieroglyphics themselves and have given hints as to how they are to be interpreted. A preface tells the story of the famous Rosetta stone and pays due tribute to the labors of Thomas Young, Jean François Champollion, and Heinrich Brugsch. A history is given of the principal papyri in existence. It is not hard to see how fascinating the study of hieratic Egyptian might prove to the student interested in etymology and comparative philology, although he will not discover anything of value to the modern pathologist or therapist. The publishers have made a handsome pamphlet of the material furnished them and the reproduction of the hieroglyphics is beautifully clear and distinct. There is an interlinear translation of one passage and a vocabulary closes the small but curious and excellent work.

Interclinical Notes.

Literature naturally touches upon every aspect of the human mind. In the *Dial* for October 16th, for example, we find side by side a discussion of Cellier and Bridgeman's story of Gilbert, Sullivan, and D'Oyly Carte, the trio that brought out the celebrated Savoy operas, and the momentous work of the late Professor J. A. Cramb, *Germany and England*. In February, 1913, Cramb had a vision of the present conflict and his book ends with the following pagan picture:

"And if the dire event of a war with Germany—if it is a dire event—should ever occur, there shall be seen upon this earth of ours a conflict which, beyond all others, will recall that description of the great Greek wars:

Heroes in battle with heroes.

And above them the wrathful gods.

And one can imagine the ancient, mighty deity of all the Teutonic kindred, throned above the clouds, looking serenely down upon that conflict, upon his favorite children, the English and the Germans, locked in a death struggle, smiling upon the heroism of that struggle, the heroism of the children of Odin the war god!"

* * *

The *Century* begins its eighty-ninth volume with the issue for November in an entirely new dress of type, and very handsome it looks. The illustrations were not susceptible of improvement and the frontispiece of this number is a beautiful reproduction in colors of a portrait by

Wilhelm Funk. South of Panama, by Edward Alsworth Ross, is an article of special interest to physicians, beginning with a description of Western Colombia and Ecuador. On page 87 is the following note on disease:

"Always yellow fever and bubonic plague may be found at Guayaquil. Although most of the time they smolder in the huts of the outskirts, there are seasons when they blaze up dangerously. When we went in, it was the dry season, and mosquitoes were few along the water front. Still, there were ten cases of bubonic and thirty of yellow fever. *Stegomyia* never troubles the highlanders of Ecuador, but Quito fears the bubonic, and allows no one to come up who has not been vaccinated for it in the municipal bacteriological laboratory at Guayaquil. The native born of the port are immune to yellow fever, because the babies get the fever in mild form, and the survivors are ever afterward safe. Americans are determined to keep the canal zone free from infection, and their strictness about vessels that have touched at Guayaquil is putting a like strictness into the sanitary policy of other West Coast ports eager to benefit by the canal. More and more Guayaquil is quarantined against; she therefore foresees grass in her streets if she does not clean up, and costly measures of sanitation are under consideration. Still, among the short sighted native merchants one comes on the feeling: 'Sanitation will tempt the gringo to come in and wrest our business from us. Let our friend Yellow Jack stay.'"

Meetings of Local Medical Societies.

MONDAY, November 9th.—New York Ophthalmological Society; Society of Medical Jurisprudence, New York; Roswell Park Medical Club, Buffalo; Williamsburg Medical Society, Brooklyn; New Rochelle Medical Society.

TUESDAY, November 10th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Associated Physicians' Economic League of New York; Medical Society of the County of Schenectady; Medical Society of the County of Rensselaer; Buffalo Academy of Medicine (Section in Medicine); Newburgh Bay Medical Society; New York Obstetrical Society.

WEDNESDAY, November 11th.—New York Pathological Society; New York Surgical Society; Alumni Association of Norwegian Hospital; Schenectady Academy of Medicine; Medical Society of the Borough of the Bronx; Richmond County Medical Society; Dunkirk and Fredonia Medical Society; Rochester Academy of Medicine.

THURSDAY, November 12th.—New York Academy of Medicine (Section in Pediatrics); Gloversville and Johnstown Medical Association; Physicians' Club of Middletown; West Side Clinical Society, New York; Brooklyn Pathological Society; Blackwell Medical Society of Rochester; Jenkins Medical Association, Yonkers; Buffalo Ophthalmological Club; Jamestown Medical Society; Society of Physicians of Village of Canandaigua; Cayuga County Medical Society (annual meeting).

FRIDAY, November 13th.—New York Academy of Medicine (Section in Otolaryngology); Society of Ex-Interns of the German Hospital in Brooklyn; Flatbush Medical Society, Brooklyn; Eastern Medical Society of the City of New York.

SATURDAY, November 14th.—New York Association of the Medical Reserve Corps of the United States Army.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending October 28, 1914:

Brown, W. E., Sanitary Bacteriologist. Relieved from duty in connection with the Ohio River investiga-

tion and directed to proceed to Noblesville, Ind., for duty in connection with the investigation of strawboard waste disposal. **Burkhalter, J. T.,** Surgeon. Relieved from duty at the Marine Hospital, Baltimore, Md., and directed to proceed to Mobile, Ala., and assume charge of the Marine Hospital at that port. **Carter, H. R.,** Surgeon. Detailed to attend the meeting of the Southern Medical Association at Richmond, Va., November 9 to 12, 1914, for the purpose of participating in a symposium on malaria; leave of absence for fifteen days from October 5, 1914, amended to read "ten days' leave of absence from October 5, 1914." **Goldberger, Joseph,** Surgeon. Detailed to attend the meeting of the Southern Medical Association to be held at Richmond, Va., November 9 to 12, 1914, for the purpose of participating in a symposium on pellagra. **Gwyn, M. K.,** Surgeon. Granted two months' annual leave of absence from October 25, 1914. **McLaughlin, A. J.,** Surgeon. Granted one month's leave of absence, without pay, from October 1, 1914; three months and seven days' leave of absence with pay, from November 1, 1914, and leave of absence, without pay, to October 31, 1915, in order to accept the position of Commissioner of Health of Massachusetts. **Safford, M. V.,** Assistant Surgeon. Detailed to represent the Service at the meeting of the American Association for the Study and Prevention of Infant Mortality to be held at Boston, Mass., November 12 to 14, 1914. **Smith, J. Holmes, Jr.,** Assistant Surgeon. Relieved from temporary duty on the Revenue Cutter *Itasca* and directed to rejoin station at Ellis Island, N. Y. **Stiles, C. W.,** Professor. Directed to attend the meeting of the Section in Public Health and Preventive Medicine of the Southern Medical Association, to be held at Richmond, Va., November 9 to 12, 1914. **Tappan, J. W.,** Acting Assistant Surgeon. Granted seven days' leave of absence from November 1, 1914. **Vogel, C. W.,** Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to Baltimore, Md., and report to the medical officer in charge for duty and assignment to quarters. **Von Ezdorf, R. H.,** Surgeon. Relieved from duty at the Marine Hospital, Mobile, Ala., and directed to proceed to New Orleans, La., and assume charge of the Marine Hospital at that port.

Boards Convened.

Board of medical officers convened to meet at the bureau, Tuesday, October 27, 1914, at 10 o'clock a. m., for the examination of certain passed assistant surgeons to ascertain their fitness for promotion to the rank of surgeon. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Assistant Surgeon General L. E. Cofer, member; Surgeon Taliaferro Clark, recorder.

United States Army Intelligence:

Official list of changes and duties of officers serving in the Medical Corps of the United States Army for the week ending October 3, 1914:

Arthur, William H., Colonel, Medical Corps. Relieved from duty at the medical supply depot, Fort Mason, Cal., and will report to the commanding general, Western Department, for duty as department surgeon. **Baker, Frank C.,** Major, Medical Corps. On arrival in United States will proceed to Texas City, Texas, for duty with the Second Division, with station at Fort Leavenworth, Kansas. **Bowen, Albert S.,** Captain, Medical Corps. Will report for duty at Fort Logan, Col., on arrival in United States. **Clayton, Jere B.,** Major, Medical Corps. Reports on leave of absence, with address at 102 Niagara Street, Lockport, N. Y. **Cole, Clarence Le R.,** Captain, Medical Corps. Reports return to duty, Fort Sam Houston, Texas, from two months' leave of absence. **Cook, George W.,** Captain, Medical Corps. On arrival in United States will proceed to Texas City, Texas, for duty with the Second Division, with station at Fort D. A. Russell, Wyoming. **Cooper, Alexander T.,** Captain, Medical Corps. Granted two months' leave of absence on arrival in United States. **D'Alemberte, C. W.,** First Lieutenant, Medical Reserve Corps. Reports relief from active duty at Fort Barrancas, Florida. **Ebert, R. G.,** Colonel, Medical Corps. Relieved from duty as department surgeon, Western Department, and will take the December 5th

transport for Honolulu, H. T., for duty as department surgeon, that department. **Edie**, Guy L., Colonel, Medical Corps. Granted one month's leave of absence on arrival in United States; upon expiration of this leave will proceed to the Letterman General Hospital, Presidio, San Francisco, Cal., and assume charge of that hospital. **Fletcher**, John P., Captain, Medical Corps. Upon expiration of leave, and after arrival in United States, will proceed to General Hospital, Fort Bayard, New Mexico, for duty. **Frick**, Euclid B., Lieutenant Colonel, Medical Corps. On being relieved from charge of the Letterman General Hospital, Presidio, San Francisco, Cal., will report in person to the commanding general, Western Department, for duty, as division surgeon, Third Division, with station at San Francisco, Cal., and as sanitary inspector, Western Department. **Gregory**, Junius C., Captain, Medical Corps. Will proceed to Philadelphia for duty as attending surgeon, that city, on relief from Fort Slocum, New York. **Harris**, Herbert I., First Lieutenant, Medical Reserve Corps. Has reported for duty at Constitution, N. H. **Hereford**, John R., First Lieutenant, Medical Reserve Corps. Reports departure on four months' leave of absence. **Hess**, Louis T., Major, Medical Corps. Relieved from duty at Fort Hamilton, New York, and will report in person to the chief of the Division of Militia Affairs, Washington, D. C., for instruction and assignment to duty as inspector instructor of the organized militia. **Hillman**, C. C., First Lieutenant, Medical Corps. Relieved from duty at Fort Myer, Virginia, and will proceed to the Walter Reed General Hospital, Takoma Park, D. C., and report to the commanding officer, Ambulance Company, No. 6, for duty. **Hughes**, Leonard S., Captain, Medical Corps. Will report for duty at Fort Logan, Colorado, on arrival in United States. **Juenemann**, George F., Captain, Medical Corps. Relieved from duty at Fort Logan, Colorado, and will proceed to Fort Moultrie, South Carolina, for duty. **Kendall**, William P., Lieutenant Colonel, Medical Corps. Relieved from duty with the Third Division, Western Department, and will take the December 15th transport for Honolulu, H. T.; on arrival will assume duty as inspector of sanitation, Hawaiian Department. **Kennedy**, James S., First Lieutenant, Medical Reserve Corps. Relieved from duty at Port of Embarkation, Texas, and will return to his station, Fort Barrancas, Florida, for duty. **McEnery**, Douglas W., First Lieutenant, Medical Corps. Relieved from duty at Fort Logan, Colorado, and will proceed to Balboa Heights, Canal Zone, and report to the Governor of the Panama Canal, for duty. **Napier**, E. L., Captain, Medical Corps. Granted two months and four days' leave on arrival in United States. **Newlove**, George, First Lieutenant, Medical Reserve Corps. Will proceed to Fort Lawton, Washington, for duty. **Northington**, Eugene G., Captain, Medical Corps. On arrival in United States and on expiration of leave due him will proceed to Letterman General Hospital, for duty. **Page**, Henry, Major, Medical Corps. Relieved from duty at Fort Moultrie, South Carolina, and will report in person to the chief of the Division of Militia Affairs, Washington, D. C., for instruction and assignment to duty as inspector instructor of the organized militia. **Peed**, George P., Captain, Medical Corps. Relieved from duty with Evacuation Hospital, No. 1, Galveston, and will report for duty at the Port of Embarkation, Galveston, for assignment to duty as attending surgeon in that city, on temporary duty. **Phalen**, James M., Major, Medical Corps. Relieved from duty at the Second Division, Texas City, Texas, and will report in person to the chief of the Division of Militia Affairs, Washington, D. C., for instruction and assignment to duty as inspector instructor of the organized militia. **Pipes**, Henry F., Captain, Medical Corps. On arrival in the United States and upon expiration of leave will proceed to Fort Slocum, N. Y., for duty. **Roberts**, William H., Major, Medical Corps. Reported for duty at Fort Yellowstone Park, Wyoming. **Sheehan**, Michael J., First Lieutenant, Medical Reserve Corps. Has resigned his commission in that corps, effective October 22, 1914. **Shockley**, M. A. W., Major, Medical Corps. Relieved from duty at Fort Niagara, N. Y., and will report in

person to the chief of the Division of Militia Affairs, Washington, D. C., for instruction and assignment to duty as inspector instructor of the organized militia. **Siler**, Joseph F., First Lieutenant, Medical Corps. Reported for duty as attending surgeon, New York City. **Tooker**, Charles W., Jr., First Lieutenant, Medical Reserve Corps. Has tendered his resignation as a first lieutenant in that corps. **Williams**, Allie W., Major, Medical Corps. Relieved from duty with Field Hospital, No. 3, Vera Cruz, Mexico, and will proceed to Washington, D. C., via Fort Leavenworth, Kansas, and assume charge of the Field Medical Supply Depot in that city. **Winn**, Robert N., Major, Medical Corps. On arrival in United States will proceed to Texas City, Texas, for duty with the Second Division, with station at Fort Des Moines, Iowa.

Births, Marriages, and Deaths.

Married.

Boswell—Brown.—In Plainfield, N. J., on Wednesday, November 4th, Dr. Frederick Page Boswell, of Montgomery, Ala., and Miss Elizabeth Flowers Brown. **Cocke—Webb.**—In Memphis, Tenn., on Wednesday, October 21st, Dr. Edwin W. Cocke and Miss Evelyn Webb. **Douglas—Krummel.**—In Greenville, Ill., on Thursday, October 15th, Dr. Turner Douglas, of Hillsboro, and Miss Mary Krummel. **Greene—Pettengill.**—In Rumford, Me., on Wednesday, October 21st, Dr. John A. Greene and Miss Huldah Elizabeth Pettengill. **Harris—Friedericks.**—In New Orleans, La., on Monday, October 26th, Dr. William Herbert Harris and Miss Marie Mercedes Friedericks. **Johnston—Van Auker.**—In Watervliet, N. Y., on Thursday, October 22d, Dr. Irwin Johnston, of Troy, and Miss Grace Barnes Van Auker. **Lear—Coates.**—In Bolivar, Tenn., on Wednesday, October 21st, Dr. Allen Lawrence Lear, of Seawane, Tenn., and Miss Mary Adelina Coates. **Palmer—Mayer.**—In Johnstown, Pa., on Thursday, October 22d, Dr. Robert M. Palmer and Miss Olive Frances Mayer. **Smith—Barry.**—In Knoxville, Tenn., on Wednesday, October 28th, Dr. Joseph Henry Smith, of Memphis, and Miss Bella Rosa Barry.

Died.

Baker.—In Newark, N. J., on Monday, October 26th, Dr. Walter S. Baker, aged seventy-three years. **Beall.**—In Fort Worth, Tex., on Tuesday, October 20th, Dr. Elias J. Beall, aged eighty years. **Beckett.**—In Pittsburgh, Pa., on Tuesday, October 20th, Dr. John Wesley Beckett, aged thirty-five years. **Bowman.**—In Vanceburg, Ky., on Saturday, October 24th, Dr. William Bowman, aged seventy-one years. **Calfee.**—In Big Cabin, Okla., on Wednesday, October 21st, Dr. Welcom H. Calfee, aged seventy-three years. **Green.**—In Bellmead, N. J., on Sunday, October 25th, Dr. Walter D. Green, of Philadelphia, aged fifty-three years. **Grimes.**—In Baltimore, Md., on Monday, October 26th, Dr. S. Butler Grimes, aged thirty-nine years. **Lewis.**—In Columbia, Mo., on Wednesday, October 21st, Dr. Malcom D. Lewis, aged sixty-eight years. **McNulty.**—In Oakland, Cal., on Wednesday, October 21st, Dr. Frederick J. McNulty, aged forty-five years. **Money.**—In Herington, Kansas, on Tuesday, October 13th, Dr. J. W. Money, aged sixty-five years. **Moore.**—In Williamansett, Mass., on Wednesday, October 21st, Dr. Thomas H. Moore, aged twenty-six years. **Peabody.**—In Newport, R. I., on Friday, October 30th, Dr. George L. Peabody, aged sixty-five years. **Seltzer.**—In Lebanon, Pa., on Friday, October 23d, Dr. C. Jay Seltzer, aged fifty-six years. **Shepherd.**—In Ingersoll, Ontario, on Tuesday, October 20th, Dr. H. M. Shepherd, aged twenty-seven years. **Shurtleff.**—In Middleboro, Mass., on Thursday, October 22d, Dr. James F. Shurtleff, aged seventy-two years. **Spaulding.**—In Greenville, Texas, on Tuesday, October 20th, Dr. Thomas Benton Spaulding, aged seventy-four years. **Worrall.**—In Cresskill, N. J., on Saturday, October 24th, Dr. Isaac Grimshaw Worrall, aged eighty-six years.

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WHOLE No. 1876.

Original Communications.

EXOPHTHALMIC GOITRE.*

BY RUSSELL S. FOWLER, M. D., F. A. C. S.,
New York,

Chief Surgeon, First Division, German Hospital; Surgeon, Methodist Episcopal (Seney) Hospital.

Paré, in 1825, Adelman, in 1828, Graves, in 1835, and Basedow, in 1840, described the disease which is now known as exophthalmic goitre. The name is in many cases a misnomer, for the disease of the thyroid gland which the name represents, i. e., hyperthyroidism, can exist without enlargement of the gland and without exophthalmos. The history of the present case is as follows:

CASE. B. B., female, aged twenty-eight years, married. Patient had had large tonsils for the past three months, but no pain; she held she had vomited frequently during the course of the present illness. Had never suffered from tonsillitis before. Bowels regular; uranalysis negative. Menstrual periods regular up to three months ago; had been vomiting blood for three months. Had had three children, normal labors. Phlegmasia alba dolens six years ago. Mother and father living and well. No history of malignancy or chronic diseases in the family. *Physical examination:* Eyes, palpebral fissure not obliterated on closing. Both tonsils greatly enlarged; swelling of the right lobe of the thyroid gland; heart action very rapid; first pulmonary sound accentuated; lungs surgically competent; abdomen negative; patient extremely nervous.

This history is fairly typical of the disease. The case is more advanced than we should like to see. In addition to the extreme nervousness, fear, and tachycardia, there is a pair of enormously enlarged tonsils with chronic pharyngitis which necessitates the patient sitting up in bed almost continuously and expectorating every few minutes. Aside from the hyperthyroidism, the tonsillar and pharyngeal condition itself would be a contraindication to anesthesia by the usual method; moreover, in this case, the patient's fear of operation is so great that an attempt by the usual means would, I am sure, result disastrously. This patient must be operated upon in such a manner as to preclude the possibility of her knowing an operation has been done.

In preparing these exophthalmic cases for operation, also goitres of other types which present or have presented an overactivity of the gland, it is especially desirable that the fluid in the tissues be conserved. For this reason purging is contraindicated, and for several days before the operation a large amount of water should be ingested. On the evening before, and on the morning of operation, a colon irrigation is given. Patients who have had

the slightest dilatation of the heart, should not be prepared for general, but for local anesthesia, for the reason that in the hands of the most skilful anesthetist a slight accumulation of mucus in the bronchi might put too much strain on the already dilated heart. Iodine is not used to prepare the skin, as its absorption might cause an increase of thyroidism. For the same reason antiseptics are not used at the operation. One half hour before the time set for operation, morphine sulphate, grain one fourth, and atrophine sulphate, grain 1/150, should be administered hypodermically. The operation should not be performed during an exacerbation of the disease. Such exacerbation might be caused by the patient's fear of operation, therefore it is essential in bad cases that the time of operation be kept from the patient. In this case we have told the patient we should not operate, but we have the husband's consent, having explained to him fully the dangers and difficulties of the case. I think that the fear which this patient has of operation would make her condition too bad for us to use local anesthesia. Lately there has been presented a method of anesthesia which fulfils the indications in this particular case, namely, rectal ether anesthetization. In this patient we have an overaccumulation of mucus which, if a general anesthetic was used in the usual manner, would necessarily be increased, with a consequent strain upon the dilated heart that might well prove fatal. For both these reasons, then, the prevention of fear on the part of the patient, which would set up an acute hyperthyroidism, and the necessity of avoidance of any further burden on the heart through excessive mucus, rectal anesthesia is indicated. Doctor Lumbard kindly consented to come to this clinic and demonstrate the method of giving rectal anesthesia. This is the first time this method of anesthesia has been used in this clinic, and we are therefore curious about it, to know what its indications and contraindications are, and what care is necessary in its use. Dr. Joseph E. Lumbard spoke as follows:

The advantages of ether-oil rectal anesthesia are particularly noted in head and neck cases where the anesthetist is in the way. It offers great advantages in operating upon those patients from whom it is necessary to withhold all knowledge of the operation, which is particularly desirable in exophthalmic goitre and in insane patients. Anesthesia can be induced in patients who dread the usual inhalation methods. It does away with colicky pains, rectal irritation, sloughing, and hemorrhage which often complicate the old vapor method of rectal anesthesia. It prevents mucous secretion about the air passages, and during its administration respiration resembles normal sleep. There is certainly less tax on the heart, lungs, and kidneys,

*Clinical lecture at the German Hospital, Brooklyn, April 23, 1914.

and possibly less hemorrhage. The method of administration is as follows: Ether and olive oil are mixed, one part of oil to three parts of ether. The bowels are well emptied by thorough catharsis; soapsuds are not used. Morphine and atropine are given one half hour before the introduction of the anesthetic. If there is any rectal or sigmoid disturbance, the method should not be used. When the anesthetic is introduced into the rectum, the patient should be placed on the left side with the knees well drawn up. A small rubber catheter, with a small funnel attached, should be inserted about three inches into the rectum. When practical, the patient should stand with the catheter in position so as to be sure the rectum is empty. The anesthetic is introduced very slowly, and when through, the catheter is withdrawn and pressure is made to keep the solution from escaping. Usually two ounces of oil with six ounces of ether are given to men, and two ounces of oil with four to five ounces of ether to women. This amount varies with age, weight, length of operation, and general resistance of the patient. The administration should be made while the patient is in bed. The rectum should be emptied when the sewing up part of the operation begins. When the patient has again reached the bed, the bowels are irrigated with tepid (not hot) water until there is a clear return, after which a few ounces of olive oil are introduced into the rectum. The jaw should be well supported during the whole anesthetization if necessary.

The reason for not operating upon the tonsils preliminary to the goitre operation lies in the rapid heart condition, which would undoubtedly lead to very profuse and perhaps fatal hemorrhage if these very hypertrophied tonsils were removed before the heart had quieted down.

Doctor Lumbard now brought the patient into the operating room. It took but five minutes from the introduction of the ether oil mixture into the rectum until anesthesia began. The eyeballs were seen to move somewhat, but the patient did not feel the knife. The usual operation for removal of one half the thyroid was done. It was noted that the right lobe, the one to be removed, did not appear large until exposed, when it was found to extend well up alongside of the larynx and pharynx, and to be about the size of the fist. As the skin and superficial dissection was made, it was noted that bleeding was very much less than under anesthesia in the usual manner, because the congestion of the head and neck was less. The deeper dissection was somewhat more difficult than usual; the anterior surface of the gland was exposed, seized with a tenaculum, lifted toward the middle line and upward, when the lower pole was seized with an artery clamp. The soft parts were now retracted and the upper pole seized with a tenaculum in a downward direction and the superior pole seized with a Kocher clamp. The outer posterior aspect of the gland was now excised and the capsule stripped back to avoid injury to the recurrent laryngeal nerve. In our dissection we saw nothing of the parathyroids nor did we wish to see them. The upper and lower poles of the gland were then brought up, cutting in front of the clamps, securing each vessel. The entire gland was raised up, and held in place only by its adhesions to the trachea, from which it was carefully dissected away. There was considerable oozing, to control which dry gauze was stuffed gently into the wound so as to cover all raw surfaces, and gentle pressure was made and continued for two minutes. The removal of the gauze showed two or three places where there was still some oozing; these places were surrounded by ligatures. The artery above and below was tied, the overlying muscular structures were sutured, except at the point

where a glass tube with a bit of gauze through it emerged as a drain. The patient had been kept with the head in the middle line with the head of the table elevated. This position also tended to prevent undue hemorrhage.

The postoperative treatment of this case divided itself into three headings: 1. The care necessary after rectal anesthesia; this was fully dwelt upon by Doctor Lumbard. 2. The care and prevention of complications from hyperthyroidism, and 3, the care of the wound. Complications were prevented by keeping from the patient the knowledge she had been operated upon; if by any chance she had learned it, we should have assured her that everything was all right. We also furnished the tissues with a large amount of fluid to wash the blood free from the toxins or whatever substance was thrown into the blood by traumatism to the gland and by the traumatism set up through mental effect. In these cases it is well to give hypodermoclysis with 500 to 750 c. c. immediately after the operation. In case the Murphy rectal drip is not retained on account of intestinal relaxation, repeated hypodermoclysis should be used (250 to 500 c. c. every three hours) in case hyperthyroidism develops. All patients are given fluids by mouth as soon as anesthetic vomiting has ceased, and a return is made to normal diet as quickly as the stomach will tolerate it. The amount of fluid administered will depend upon the amount of reaction. The more reaction, the more important that fluid be got into the tissues. If marked hyperthyroidism develops, the patient should be placed in a separate room and kept quiet, with special attention. In these cases the entire problem resolves itself into free drainage and dilution of the toxins. There is usually some rise in temperature for the first three days and in bad cases some acceleration of the pulse; the patient complains of headache, is restless, and sleep is interfered with. Drugs have little, if any influence. Upon the development of these symptoms, the wound should be inspected and free drainage instituted. Murphy proctoclysis is given as fast as absorption takes place, and if the symptoms persist, hypodermoclysis is added. All sources of irritation must be avoided.

There is usually a free discharge from the wound for the first twenty-four to forty-eight hours, after which time the drain may be removed. Sutures are removed from the fifth to the seventh day; a small sinus may persist for a few days at the point of emergence of the drain. If any retention of secretion occurs, a soft tube drain is inserted for twenty-four to forty-eight hours. The other complications of exophthalmic goitre are the same as after opera-



FIG.—Patient eight days after operation for exophthalmic goitre.

tions for ordinary goitre. Secondary hemorrhage is rare. Disturbances of respiration may occur from tracheitis, from pulling upon the trachea in the course of the operation; to edema from sudden removal of the pressure in scabbard trachea (rare in exophthalmic goitre); to collapse of the trachea following the removal of pressure in scabbard trachea (also rare); to occlusion from sudden turning of the neck in scabbard trachea (also rare); to injury to the recurrent laryngeal nerve, causing paralysis of the corresponding vocal cord and resulting in aphonia, weakened voice, or foreign body pneumonia; bilateral injury to the recurrent laryngeal, resulting in asphyxia. These complications are almost always preventable by gentleness in manipulation, maintenance of the head in the position in which breathing is easiest in scabbard trachea, leaving the posterior portion of the capsule intact to avoid injury to the recurrent laryngeal nerve. Laryngeal paralysis may have been caused by pressure upon the nerve by the enlarged thyroid, and hoarseness and possibly aphonia been present before the operation. If the pressure has not been too long continued, the symptoms will gradually disappear after relief from pressure. Paralysis and collapse of the corresponding vocal cord will follow injury to the nerve, while, if both nerves are injured, bilateral paralysis will result and death from asphyxia follow unless the condition is promptly recognized and tracheotomy performed. The injury to the nerve may be by section, clamp, ligature, or traction in dislocating the enlarged lower lobe. If due to clamp, ligature, or traction, the resulting hoarseness will gradually disappear as the nerve resumes its function. Months may elapse before this occurs. Even if the nerve has been completely sectioned, with resulting weak and hoarse voice, the condition will improve very materially, for in time the opposite vocal cord will encroach on the paralyzed cord and so lessen the gap between the two. Suture of the cut nerve has been performed with restoration of function. In these cases, care in swallowing must be exercised, as a foreign body pneumonia may follow. Occasionally these patients cannot swallow temporarily and nourishment is given by stomach tube.

Two rare complications following operations upon the thyroid, tetany and myxedema, are so interesting as to require consideration.

Tetany is fortunately rarely seen at the present time; formerly it was a common complication following thyroidectomy and was thought to be due to the removal of the entire gland, but now it is known to follow only, and not necessarily always, the removal of the parathyroid bodies. When this fact became recognized, the technic of thyroidectomy was improved to safeguard the parathyroids by leaving the outer and posterior portion of the capsule. According to the latest statistics, the complication now occurs in less than one half of one per cent. of cases; even this for a preventable complication would seem high.

Tetany first makes its appearance a few days after the operation. The first symptoms usually appear in the upper extremities; a tingling or twitching of the muscles may be first noted, convulsive seizures follow, the fingers are first flexed and then rigidly

contracted; the wrist and elbow are flexed and the knee and hip extended. The feet are in plantar flexion and supinated. The muscular contractures are tonic, continue for a variable length of time, and recur at intervals. The muscles of the face and neck may become involved. Formerly in about sixty per cent. of the cases, death followed in a few days. The diaphragmatic muscles are at times involved. The onset of this complication sometimes occurs weeks or months after the operation. If the patient survives the first few days, the tetany may rapidly subside after a duration of eight to fifteen days; in some cases it is prolonged for months and years with remissions. Finally death results from respiratory paralysis. Occasionally a patient will recover.

As to treatment, as soon as the first symptoms appear, the patient should be given parathyroid gland extracts; the diet should be light and low in nitrogen. Elimination should be increased by active stimulation of excretion through the skin, bowel, and kidneys. Saline infusion is useful in diluting the toxic blood and increasing the elimination. Transfusion will temporarily check the symptoms. Intravenous saline infusion acts in the same manner. Feeding with parathyroid glands and injection of parathyroid emulsion, temporarily and often rapidly stop the symptoms. After any of these methods, the symptoms may be held in abeyance for twenty-four hours. The use of these measures, however, will probably not prove of any permanent value, should all of the parathyroids have been removed, but if, as is conceivable, one or more of the parathyroids was removed and the remaining ones traumatized during the operation, then, in the event of the development of tetany, the above mentioned measures would be of extreme value in tiding the patient over until the traumatized parathyroids resumed their function.

Beebe's nucleoproteid is of value, particularly when combined with parathyroid feeding; fresh ox parathyroids are used. The administration of soluble calcium salts will quickly stop severe tetanic symptoms. In a case of Halstead's, in which the administration of parathyroid gland extracts had averted tetany for two years, the attacks were also averted during the third year by the use of calcium salts.

Experimental transplantation of parathyroids in animals has proved successful in about sixty per cent. of cases, according to Halstead. Eiselsberg transplanted a parathyroid in a woman who had suffered for many years from severe tetany following parathyroid extirpation. In Kocher's experiments, transplantations into the tibia are made in two stages; first the tibia is opened and a small cavity made by forcing a silver ball into the marrow; the wound is then closed. After several days, when granulations have formed, the silver ball is removed and fresh gland tissue is implanted in the resulting cavity. In this manner interference by hemorrhage is avoided. Kocher found that this method proved efficacious in dogs. One of his most interesting observations is, that resection of the bone containing the implanted tissue quickly caused death from acute tetany.

Myxedema (cachexia strumipriva) develops slowly, and for this reason seldom comes under the

notice of the surgeon, as the case has long since passed from under his observation. Only rarely does acute myxedema develop. Usually it is months before the disease is noticed. The most marked early symptom is increasing anemia. Gradually all parts of the body become affected. The skin is at first waxy and pale; later, owing to the almost complete inhibition of the sweat and sebaceous glands, the skin becomes dry and fissured. Following this the skin becomes thick and brawny owing to an edema which affects the entire body; this edema is general and the skin does not pit upon pressure. It has no resemblance to nephritic edema and cannot be massaged away. The hair, particularly of the head and pubes, falls out. A curious fact is the growth of coarse hair in parts of the body which are normally free from hair. The body temperature is lowered, the skin is cool. In the majority of cases the pulse is slowed, though in rare instances it may be increased. The amount of urine is diminished, and its specific gravity is below normal. More marked even than the bodily changes, is the change of mentality. Slowly but steadily the intelligence of these unfortunate patients disappears; the speech becomes slow and stuttering; movements become uncertain; memory is lost; the features are dull and apathetic. The process is a slow one and may continue for years, the patient finally dying from gradually increasing cachexia.

Cases in which an accessory thyroid is present, or in which a portion of the thyroid is left, may present the early symptoms of myxedema, but upon the hypertrophy of the remaining thyroid tissue these symptoms will gradually disappear.

The treatment is thyroid therapy. Malignant disease constitutes the sole indication for the entire removal of the thyroid gland. Such cases, and cases in which but a small portion of the gland has been left, are to be watched carefully. In the first instance, it is better to begin thyroid feeding at once; in the second, as soon as it becomes apparent that the amount of thyroid tissue remaining will not be hypertrophied sufficiently to provide the secretion necessary for metabolism. By means of thyroid feeding, we may hope to avert definitely the changes which inevitably follow the removal of all thyroid tissue. In many cases this treatment will prove successful. In cases in which symptoms of myxedema have already appeared, feeding will prevent an increase of the symptoms and cause their gradual disappearance. The secretions become normal, there is an increase in weight, and the mentality is improved. The final condition of the patient becomes quite normal. Whether this is true in every case, it is impossible to state at the present time. The treatment must be continued indefinitely. At intervals of weeks or months the treatment may be discontinued for a time if there are no symptoms, in order to determine if hypertrophy of the remaining thyroid tissue or accessory gland has occurred. Upon the recurrence of symptoms, treatment is to be immediately begun. Chloral hydrate is a useful adjunct to thyroid feeding. The implantation of normal thyroid tissue is the ideal treatment, but naturally presents great obstacles. The conditions necessary for success are, a fresh portion of active gland and a favorable implanta-

tion soil. As the secretion of the thyroid gland in large doses is a powerful poison, care must be exercised in its administration. The dose must be determined in the individual case. The fresh gland was formerly given twice a week, one half a sheep thyroid at a dose, cut up raw and spread on bread. This was made more palatable by the addition of a little pepper and salt. Now a dried extract of the gland is prepared in tablet form. Each tablet represents five grains of this dried gland. The dose of this dried extract is one tablet after a full meal, once a day for several days; if no bad symptoms are noted, a tablet may be given twice a day. The number may subsequently be increased to from three to five tablets a day. The actual strength of the extract varies according to its manufacture. A more stable preparation is thyroidine (three grains of iodine and one grain of the dried gland) or thyroid colloid, the active principle of the thyroid gland. The dose of the latter is one half to one grain, but it is better to begin with the smaller dose to test the tolerance of the patient before giving larger doses. Should an overdose be given, very alarming symptoms will arise. A single dose may prove too large or a series of moderate doses may prove cumulative, and acute thyroidism will develop. The temperature rises rapidly, the pulse becomes rapid, small, and irregular; there are headache, vertigo, nausea, pains in the joints, and muscular tremors. Upon the appearance of these symptoms the drug is to be discontinued at once.

The immediate mortality under proper precautions is low. In our clinic we have had three deaths in the last fifty cases. One of these deaths was due to a slight accumulation of mucus proving too much for the already overburdened heart, the patient expiring suddenly as the skin wound was about to be closed. This patient gave no premonitory signs of collapse. The second patient died of hyperthyroidism, beginning immediately after the operation and continuing until death supervened at the end of forty-eight hours, the pulse steadily increasing and the temperature steadily rising, in spite of all efforts at control. These were exophthalmic cases. Ordinary goitre should have no mortality unless the tumor is of extreme size or presents cancerous degeneration. Exophthalmic cases will always present an element of risk when brought late to the surgeon. For this reason they should be kept under observation until the time comes when the hyperthyroidism is at the lowest ebb. That is the time for operative interference, and the method of operation should be as judiciously chosen. In exophthalmic cases, the final result is excellent; operated in early in the course of the disease, cure is practically perfect. Operated in later, the condition of the patient is markedly improved and life is made bearable. No late operation, however, can overcome the injurious effect on the tissues of a long continued condition of hyperthyroidism, though much amelioration of symptoms may be expected.

The patient under consideration made an uneventful recovery, leaving the hospital on the tenth day with her nervousness and palpitation already much improved, and possessing a degree of self control which she had not had for some time previ-

ously. Her tonsils were removed before she left the hospital, the operation not making her particularly nervous and not being followed by excessive hemorrhage.

301 DE KALB AVENUE, BROOKLYN.

ARTIFICIAL CULTIVATION OF THE RABIES VIRUS.

A Preliminary Report.

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In several previous communications (1) I reported on the microscopic findings of a microorganism found in smears and sections of the central nervous system of rabbits, dogs, and human beings infected with fixed and street virus. With a modified Gram stain and later with antiformin-Gram, I demonstrated the existence of numerous cocci and bacilli. Further investigation showed that these microorganisms could be substantively stained with certain anilin dyes belonging to the thiazin group, methylenazur, methylviolet, and toluidinazur, etc.

It was found that only the carbonates or the free bases of these dyes were capable of staining these microorganisms, while the mineral acid salts gave inconstant or negative results. The reason for this, I have explained in a former communication, to which I refer the reader (2). The antiformin method showed only cocci, their largest forms about 0.3 micron in diameter, and bacilli about 1.5 or three micra long, arranged in pairs, groups, or short chains. The majority of the microorganisms found with methylenazur were just within the microscopic vision and were small cocci with an average diameter

Beside these forms, a few diplococci were found 0.3 to 0.5 micron in diameter, some of them shaped like gonococci, and slender bacilli 1.5 micron long, straight or slightly bent, their ends thinner than the body, similar to fusiform bacilli; thick straight bacilli with ends blunt 2.5 to three micra long and

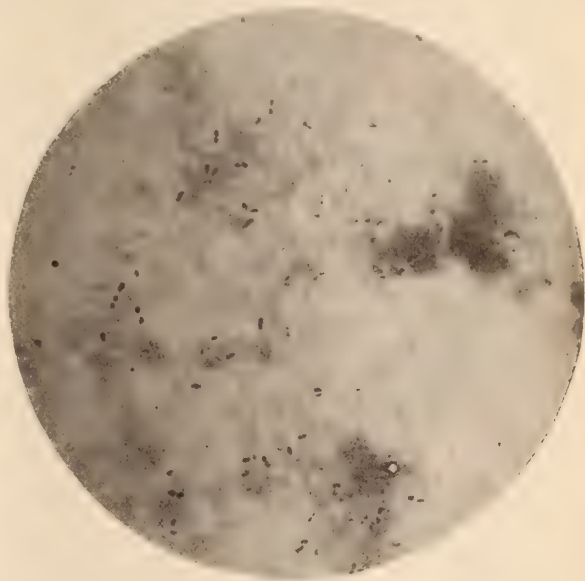


FIG. 2.—Rabies microorganism, serum bouillon culture. Gram stain, Leitz oil immersion 1/12, ocular 4.

0.3 micron thick, stained deep blue; curved filaments two to three micra long, some with cocci on one end or in the centre of the filament; and straight thick bacilli 2.5 to four micra long, ends straight or square or slightly rounded, stained deep blue; and pale blue spirochetes five to seven micra long with wide turns.

The methylenazur demonstrates the great pleomorphism of the rabies virus. There can be no doubt that all the various forms belong to the life cycle of the virus, as they were found in all the different strains of fixed virus and street virus examined. The antiformin-Gram method shows only the resistant cocci and certain forms of the bacilli.

The constant findings of this microorganism in all strains of fixed or street virus examined, its peculiar staining properties, and the experimental production of rabies with certain antiformin resistant street virus strains, made its etiological relationship to rabies almost certain. The final proof that these microorganisms are the long sought etiological agent of rabies, was its artificial cultivation and the production of disease with the cultures.

Before describing my culture experiments, I wish to refer briefly to the microscopic and cultural findings of Noguchi (3) in rabies. Noguchi states that he was able to cultivate the rabies virus in ascites fluid. The microorganisms found by him were granular chromatin bodies, merely visible, others 0.2 to 0.3 micron in diameter, which were stained after Giemsa red or somewhat bluish. They could be cultivated up to the twenty-second generation in a certain kind of medium. In four different cultures which contained originally only granular or pleomorphic bodies, he observed the formation of round or oval bodies which were surrounded by a membrane. The bodies were of different sizes (one

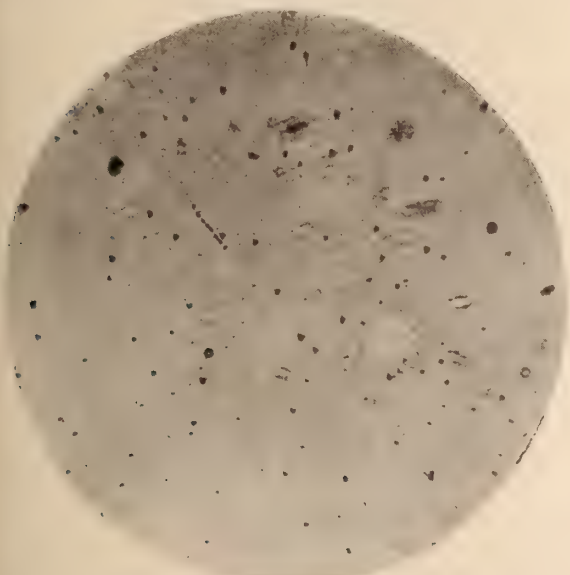


FIG. 1.—Rabies microorganism, original culture. Methylenazur. Leitz oil immersion 1/12, ocular 4.

of about 0.2 to 0.3 micron arranged either in pairs or groups or short chains, and short, thick oval bacilli about 0.5 micron long. Some were stained light blue, others stained metachromatic violet blue.

to twelve micra) and were found single or in groups of two, three, and four. Some of these bodies, he states, were absolutely identical with Negri bodies. The inoculation of these cultures in rabbits, guinea-

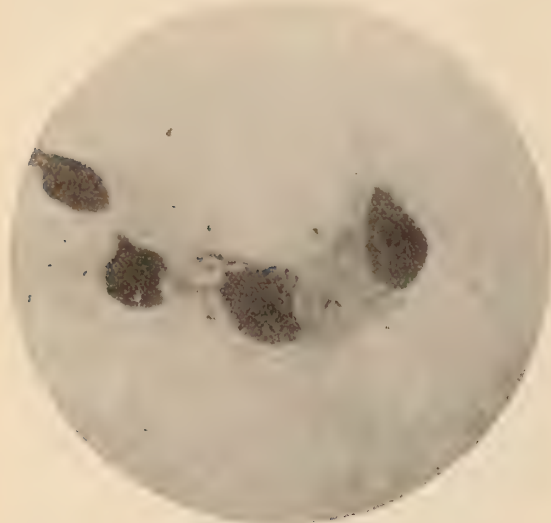


FIG. 3.—Smear of brain substance of rabbit inoculated with original culture, showing intracellular microorganism. Methylenazur. Leitz oil immersion 1/12, ocular 4.

pigs, and dogs should produce rabies. The brief and vague description and the indistinct and faint photomicrographs which accompanied the article of Noguchi make it impossible to form a proper opinion. It is difficult to conceive what he designates as granular or pleomorphic bodies without giving a proper morphological description of these formations. The same is true of the larger round bodies, which he identified with the Negri bodies, but which, according to their staining properties, are entirely different. No data were given of his animal experiments and the pathological anatomical findings.

Volpino (4), Kraus, and Barbara (5), who worked according to the methods described by Noguchi, confirm his microscopic findings, but were able to detect formations of the same structures in ascites fluid not inoculated with rabies virus. Volpino believes that the bodies described by Noguchi are lipid structures.

In one of my previous communications, I reported that the virulence of the fixed virus could be preserved in sheep plasma incubated at 37° C. for ten days. Intracerebral inoculation of rabbits with the serum water of this culture produced typical rabies. Subcultures in sheep plasma failed to grow, as the inoculations of these cultures in animals were entirely negative. My further attempt to cultivate the rabies virus, which comprised a series of ten different culture experiments, using fixed virus only, employing as culture medium ascites fluid and later sheep serum only, gave more constant results. Sheep serum is easier to obtain and preferable to ascites fluid, as only certain kinds of the latter are useful for cultivating purposes. Thirty c. c. of sterile, not filtered, sheep serum is filled into large test tubes 2.5 by fifteen cm. and incubated for forty-eight hours, to prove the sterility of the serum. A large piece of the brain substance of a

rabid animal removed under aseptic precautions is placed in the bottom of each serum tube, the serum sealed with paraffin oil, and the tube closed with a cotton plunger. The tubes, however, can be kept under aerobic conditions. It is advisable to inoculate at least fifty tubes, as few only will show a growth. Typical changes in the culture medium are not noted. Tubes showing gas formation or coagulation of the serum are rejected. The tubes should be kept at least two months under observation and examined every eight or ten days. The first primary culture I obtained was incubated for two months; repeated examinations before did not show any growths. For subcultures, serum bouillon only (one to ten) is used, as in the common culture medium no growths can be obtained. The serum bouillon after twenty-four hours' incubation is homogeneous, cloudy, and after several days' incubation shows a granular sediment. The microorganisms of the primary culture appear after staining with methylenazur in the form of cocci and oval bacilli, varying in size from just visible to 0.2 to 0.3 micron; in the form of diplococci or aggregated in small groups or short chains. With the Gram stain, using carbolofuchsin as counterstain, the larger forms are more or less Gram positive, while the smaller forms are faintly stained red. The microorganisms appear after several transplantations in serum bouillon somewhat larger, and the majority of the microorganisms are Gram positive.

The inoculation of these cultures into rabbits, rats, and a monkey produced typical rabies. A rabbit inoculated on July 21st with 0.1 c. c. of the original culture incubated for sixty-two days, was paralyzed on July 25th and killed on the same day with ether. The central nervous system showed

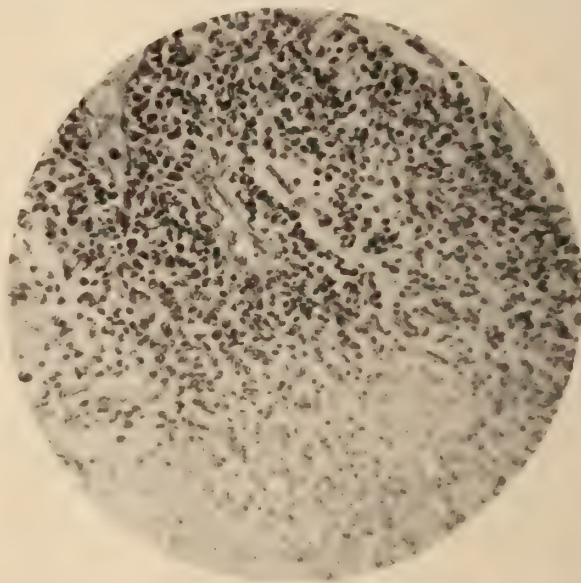


FIG. 4.—Section of brain of monkey showing perivascular infiltration. Eosin-hematoxylin. Leitz objective 5, ocular 4.

no macroscopic changes except a hyperemic condition of the meninges and the brain substance. Smears made from brain and stained with methylenazur showed numerous typical microorganisms intracellular and extracellular. Sections from the brain showed an enormous perivascular infiltration and

Negri bodies were found in the cornu Ammonis. Intracerebral inoculation of the emulsion of the brain of this rabbit into another produced typical rabies. The eighth subculture was inoculated on July 31st intracerebrally into a *Macacus rhesus* which was paralyzed on August 5th and killed on the same day with ether. From the brain of this monkey the same microorganisms could be recovered, both in smears and cultures. Sections of the brain showed extensive perivascular infiltration and distention of the vessels, and many Negri bodies were found in the cornu Ammonis. On July 31st, five rats were inoculated intramuscularly. Rat No. 1 died on the tenth, No. 2 on the thirteenth, No. 3 on the twentieth, and No. 4 on the twenty-seventh of August. Rats Nos. 1, 2, and 4 died of the furious form, and Rat No. 5 of the paralytical form of rabies. The same microorganisms were found in the central nervous system of all the rats. Two other rats were subcutaneously injected with the emulsion of the brain of rat No. 3; thirteen days later one of these rats died of the furious form of rabies. While the eighth subculture was still virulent, the inoculation of the twenty-first subculture intracerebrally in rabbits did not produce rabies any more.

The microorganisms cultivated artificially from the central nervous system of rabid animals, the production of the disease with these cultures, as well as the typical pathological changes, confirm the fact that the microorganism previously reported by myself is the causative agent of rabies. A complete report of my findings and also the results of immunization with these cultures will be given in a future communication.

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6356 MORROWFIELD AVENUE.

THE TOPICAL EMPLOYMENT OF TUBERCULIN.*

In Hydrocele and Other Serous Effusions, Tuberculous Adenopathies, and Chronic Sinuses.

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As is well known, when tuberculin or one of the derivatives of tuberculin is injected into a susceptible person, three forms of reaction may follow: First, a local reaction about the area of the injection characterized by an active and painful hyperemia; second, a specific inflammatory reaction about distal tuberculous foci in the patient's body; and, third, a general reaction characterized by elevation of the temperature of the body and general discomfort. The local reaction may be so intense as to produce local necrosis and abscess formation, while the hyperemia of the focal reaction may wash from the infected tissues toxins they contain,

and thus by autovaccination intensify the general reaction. With the reaction there is an increased tissue resistance to the tubercle bacillus, so that experimentally, animals are less susceptible to tuberculous infection after the reaction. It follows that while the focal inflammatory reaction may tend to liberate isolated tubercle bacilli, the increase in the individual's protective forces minimizes the danger of such dissemination. Faint reactions may occur in patients with slight resistance or advanced disease, while violent reactions are common in patients with slight and well localized lesions and with a potentially high resistance; a sensitiveness or tendency to marked reaction is, therefore, in some measure at least, an immunity reaction. The avascularity characteristic of tubercles serves to protect tuberculous areas from the antibodies carried by the circulation. The increased vascularization associated with the focal reaction to tuberculin not only promotes direct healing, but favors the invasion of a diseased area by corrective antibodies. Much attention has been given in tuberculin therapy to limiting the secondary reactions; they have been considered undesirable or dangerous. In certain surgical conditions, however, an intense focal reaction is desirable, and while this may seem heretical to those treating only pulmonary tuberculosis, I wish especially to call attention to its value. By making the injection of tuberculin directly into a tuberculous focus, the local and focal reactions are combined and intensified, and this violent local reaction may be followed by rapid necrosis, liquefaction, and perhaps expulsion of diseased tissue from the area, or after a period of primary inflammation, vascularization, absorption, and healing may follow. Such a combined reaction we have found at times desirable, as we shall later mention in discussing the treatment of tuberculous lymph adenopathies. The sharp, local reaction following the injection of tuberculin is also of value in certain cases in which the lesion treated is not clearly a tuberculous one.

In surgical practice a violent local reaction is often deliberately provoked. Chronic sinuses, not infrequently improve after the injection of strongly irritating chemicals, such as chloride of zinc, iodine, carbolic acid, or similar substances. Chronic forms of conjunctivitis are at times benefited by the instillation of jequirity, while the application of cantharides or other vesicants may produce desirable inflammatory reactions in indolent ulcers. Hydrocele and other serous effusions have long been treated by injecting iodine or carbolic acid. In the treatment of certain of the arthritides, Murphy has found the injection of the rather irritating two per cent. solution of formalin in glycerin valuable. The leucocytosis following a violent local reaction may be not only valuable locally, but may have a useful systemic influence. To this end there is the French method of treating septic conditions by producing large sterile abscesses by means of an intramuscular injection of turpentine. Not only is the local irritation produced by chemical substances of therapeutic value, but benefit may follow the local irritant action of bacteria or their products. Sarcomas and other tumors have disappeared after an attack of erysipelas, and many have observed the rapid improvement occurring in indolent varicose

*Read at the fifteenth annual meeting of the American Therapeutic Society, Albany, N. Y., May 29 and 30, 1914.

ulcers of the leg after an acute streptococcus infection. Several years ago, in seeking a therapeutic influence in the local irritating reaction to bacterial products, I began to experiment with an emulsion of tubercle bacilli. The action of the tubercle bacillus product was very efficient in certain conditions, and as yet we have little experience with other bacterial derivatives. Our first effort was to combat local serous effusions and our intention was first to sensitize the individual to the bacterin and then, by applying the bacterial derivative to the affected serosa, to produce a rather violent but selective inflammatory reaction. On injecting hydroceles with moderate doses of an emulsion of tubercle bacilli, we found, however, that the preliminary sensitization was often unnecessary, as in many instances a violent local reaction promptly occurred. Of course, the majority of adults are sensitive to tuberculin, but the reaction also occurred in a number of young children. Obviously, the reaction does not prove that hydroceles are tuberculous. If reaction occurs, within a few hours after the injection, the hydrocele sac becomes greatly distended, the contained fluid turbid from exfoliated endothelial cells and emigrated leucocytes, while the surrounding tissues show marked edema and the overlying skin becomes tense, reddened, and sensitive. This reaction reaches its intensity about the third or fourth day and then gradually subsides. At times there is so much local pain that the patient has to remain in bed and it is usually desirable to reduce the local tension by completely emptying the hydrocele on the second, third, or fourth day. In those instances in which no reaction follows the first injection, a second injection within the sac, made about four days later, is almost invariably followed by a sharp reaction. With the subsidence of the inflammation, in every case thus treated, we have found that the hydrocele had disappeared. Even those patients who had resisted operative or chemical injection treatments, were relieved by this simple procedure. In this method the endothelial cells exfoliate, the serous surfaces are covered with sticky exudate so that with the removal of the fluid they adhere, the cavity of the tunica vaginalis is obliterated, and a cure results. The adjacent lymphatic spaces fill with exudate, which is gradually absorbed.

We have now used the method for several years, but in one patient only did a relapse occur. This patient was a middle aged man who had a violent and very painful reaction followed by an apparent cure, with a relapse after one year. Altogether we have found the injection of tuberculin in the treatment of hydrocele more efficient and followed by fewer relapses, than any other of the operative or chemical injection treatments that we tried. The chief objection to the method is the painful secondary reaction, which may be so violent as to confine the patient to his bed for a number of days. This, at times, produces greater discomfort than that following one of the simpler operations.

The technic is as follows: Under aseptic precautions, a fine needle is introduced into the hydrocele sac and about two thirds of the contained fluid withdrawn. A syringe containing from five to ten mgm. of B E (emulsion of tubercle bacilli) is then

affixed to the needle; after withdrawing the piston of the syringe several times until a thorough admixture with the hydrocele fluid is obtained, the contents of the syringe are finally emptied into the hydrocele sac. If a violent reaction is feared, all of the residual hydrocele fluid is then evacuated, and the patient is instructed to wear a suspensory and to report in three days or when the scrotum becomes tense and painful. At this time the skin and subcutaneous tissues are anesthetized by a one per cent. solution of novocaine and the hydrocele is emptied through a fine needle. If no reaction occurs, as soon as the hydrocele sufficiently refills, so that the needle can be accurately introduced into the sac, the injection is repeated, using twice the previous dose and not withdrawing the fluid. The secondary aspiration is to permit the sticky and inflamed serous surfaces to fall together and to adhere, and also to relieve the patient from the painful tension. It is not always necessary.

Serous effusions in bursæ we have found likewise to react to the injection; thus, housemaid's knee, miner's elbow, and similar serous effusions may be treated. In ganglion the secondary reaction may be so painful that simple rupture, as by the back of a book, or excision is to be preferred. We have not as yet tried the method in treating effusions in the larger joints, fearing that the secondary reaction might produce ankylosis. A preliminary quantitative determination of the patient's sensitiveness to B E is desirable, but we have rarely found it convenient. Certainly it should always be determined before injecting the cavity of a joint. In one instance of marked ascites, in an aged and feeble woman, the injection was followed by alarming reaction and depression. In recurrent forms of hydrothorax the method is of value, but the dose should be accurately determined and used with caution, as the reactive capacity of such a large serous surface is great. In two cases of advanced and apparently hopeless hydrocephalus we have injected the lateral ventricles without evident improvement or reaction.

In indolent tuberculous sinuses we have applied the bacillus emulsion topically or, with advantage, have injected it into the granulation tissue lining the sinus. In this way we combine and intensify the local and focal reactions and transform an indolent and inflammatory lesion into an active and healing one. In some cases, local necrosis, but no improvement, follows.

TUBERCULOUS LYMPH NODES OF THE NECK.

The operative removal of tuberculous lymph nodes has, during the last few years, become rather infrequent. The operation was unsatisfactory because, when incomplete, other lymph nodes usually enlarged promptly, while the complete operation is difficult, somewhat dangerous, usually mutilating, and does not prevent secondary tuberculous infiltration and sinus formation from involving the skin and deeper tissues. Patients with tuberculous cervical lymph nodes usually are very sensitive to tuberculin, but in our experience violent reactions have never been harmful and have at times been followed by marked local improvement. We have injected B E into caseous lymph nodes to produce

absorption or ripening. For indolent caseous glands a local reaction most intense within the gland capsule, seems to be safe and tends to precipitate rapid softening and expulsion of the infected pulp by absorption. In young children, of course, the predominant tendency is to liquefaction and expulsion. Our plan with large, evidently caseous lymph nodes that resist the usual form of vaccine treatment, is to inject from two to twenty mgm. of tuberculin by a fine hypodermic needle directly into the centre of the mass. The local and general reactions are usually intensified. Three things may follow: 1. The reaction may be violent or slight and little change result. 2. Rapid softening, pointing, and evacuation may take place, followed by rapid healing. As would be expected, this is a common result in young children. 3. The diseased gland may be absorbed and practically disappear, leaving a slight, hardly perceptible nodule without sinus formation. From a fairly extended experience during the past five years, with intensive tuberculin treatment in the management of tuberculous glands of the neck, we have seen no evidence of the dissemination of the disease. Unfortunately it often fails and in general is less reliable than x ray treatment.

At times patients present themselves with unhealed sinuses after operations for enlarged cervical glands or other conditions. The local injection of tuberculin into the sinus or into the subcutaneous nodules that may be palpated, may stimulate healing.

The following cases illustrate some of the more dramatic results of this form of treatment. Unfortunately a considerable proportion of patients require other methods of treatment.

CASE I. Dora P., aged thirteen years, chronic, suppurative, prepatellar bursitis of six months' duration, developing some months after injury. Drainage and various local measures and mixed treatment internally were not followed by improvement. A slough formed and profuse drainage continued. Fifty mgm. of B E were injected in the thigh above the lesion, following which the discharge stopped almost as if a spigot had been turned off. Three days later, the cavity was largely contracted, the slough had separated, and the surfaces were, for the most part, covered by healthy granulations. Twenty days later, only a dry scab remained. A second injection of 100 mgm. of B E was followed by a violent reaction and widespread erythema. Eleven months later, the patient returned with slight recurrence which promptly disappeared under two injections of fifty mgm. each of B E.

CASE II. Miss D., aged about thirty years, tuberculous cervical adenitis of six months' duration; chronic sinuses following operation. Little improvement had followed various local applications and the injection of paste into the sinuses, for over four months. Twenty-five, then fifty, and finally seventy-five mgm. of B E were injected at intervals before a marked general and local reaction was obtained. This was followed by rapid absorption, cessation of discharge, and healing which remains permanent after nearly five years.

CASE III. Louis M., aged seven years, spina ventosa involving the left metatarsal phalangeal joint of the right great toe with discharging sinuses of over six months' duration. Twice curetted in the hospital. Fifty mgm. of B E were injected. One week later, the sinus had nearly healed and seventy-five mgm. were given. This was followed by severe reaction, which confined the patient to bed for two days. The area promptly healed.

CASE IV. W. F., aged twenty-three years, tuberculous adenitis of over two years' duration. Cervical adenectomy. Recurrent infection of the scar with marked swell-

ing. Injections of B E were followed by marked reaction. Four days later, the area was less indurated and the swelling reduced. Six months later the patient applied for treatment for recurrence of the swelling. To fifty mgm. of B E she reacted so violently as to be confined to bed for three days. One month later, the patient was discharged, practically cured. The last injection was over two years ago.

CASE V. John I., aged fourteen years; mother died of "pneumonia" after years of chronic cough. Tonsillitis, January 28, 1911, followed by tuberculous cervical adenitis. Twenty-five mgm. of B E given February 23, 1911, was followed by well marked local and general reaction. A few days later, the enlarged glands had almost entirely disappeared.

CASE VI. Miss S., aged about thirty-three years, cervical adenopathy for about ten years. Operative excisions. Recurrent induration with partial relief from x ray treatment. Relapse about two years later. Series of glands enlarged; one above the clavicle the size of a pigeon's egg. Injection of about thirty mgm. of B E was followed by violent reaction, from which the patient was confined to bed for several days. The glands rapidly subsided, however, although the patient refused further vaccine treatment, and there was little residual evidence of the adenopathy after six months.

CASE VII. Lillie C., aged five years, cervical adenitis of nine months' duration. Had been treated by incision. January, 1910, a sinus opened. After the second injection which contained seventy-five mgm. of B E, the sinus healed and the adjacent induration underwent rapid absorption.

CASE VIII. William T., aged thirty years. Carpenter. Previous history negative. In August, 1909, tuberculous abscesses of the right arm developed and spread, and despite twenty-six incisions, failed to heal. He was in a hospital for two months, and the arm was finally amputated. During the past year a painful swelling was present in the posterior middle third of the left thigh. This was twice opened and three sinuses persisted. The patient feared amputation of the leg and first came under our observation in 1910. The sinuses were curetted and injections of 100 mgm. of B E were made into the granulation tissue lining the sinuses. The patient progressively improved and was practically well for the succeeding three years.

2033 WALNUT STREET.

THE OPERATIVE TREATMENT OF CONTRACTED AND DEFORMED HANDS IN MULTIPLE ARTHRITIS.

A Preliminary Paper.

BY GEORGE R. ELLIOTT, M. D.,
New York.

A large operative field is now opening up for the deformed arthritic. This communication deals with the operative treatment of certain specific types of chronic multiple arthritis and is restricted to deformities of the hands following polyarticular lesions.

Rest was advised for diseased joints for so many years and became so fixed a form of treatment that one was censured for attempting anything very radical in the way of forcing movement in diseased joints. Forced movements have been used with varying degrees of success in correcting large joint deformities, but little attention up to this time has been given to the hands.

WHEN CAN RADICAL TREATMENT BE APPLIED?

It is a common experience to find, after stirring up diseased joints, that the second state is worse than the first. The patient is injured by the treatment. For a direct reversal of such findings and

universally good results in nontuberculous joints I beg to offer careful observance of two rules: 1. To operate in cases only where the active disease has been arrested; 2, to carry out proper aftertreatment,

from the many dislocations which follow polyarticular lesions. This method deals with the quiescent stage only of the malady in question.

TECHNIC OF THE OPERATION.

The deformities are reduced by forcible reduction and open operation combined. Most of the displacements can be corrected by redressment alone. The reduction is made under profound ether or chloroform narcosis. Gas is contraindicated. The fingers are taken singly, forcibly breaking down the contracture or hyperextension and redislocation if such exists. If the finger is contracted, it is forcibly hyperextended. The reverse is done in case of hyperextension deformity. All the hand deformities are overcorrected.

The aftertreatment is all important. There is no use trying to get a good result without careful attention to aftertreatment. The painful reaction is intense. I have no hesitation in saying that if aftertreatment is attended to properly, relapses will not occur. The hands are placed upon splints padded in such a manner as to keep up a continual overcorrection of the deformity. For three or four days the pain is intense and has to be partially controlled by morphine and local sedatives. Each joint is wrapped in gauze, saturated with a lotion composed of aconite, belladonna, and glycerin. This dressing is extended over the back of the hand considerably above the wrist, and is covered with oiled silk. A very firm bandage is applied, leaving the tips of the fingers exposed. The pressure must be firm enough to prevent much swelling. Unless swelling is prevented, we shall have to deal with all the bad results we see after an improperly treated sprain, and our work goes for naught. In fact, we have made our patient worse. The gauze is kept wet with the lotion and over this an ice bag is applied. In spite of this, the pain is frequently severe for three or four days and the patient begs to be released. The tips of the fingers offer a control, and undue localized pressure is readily detected. I



FIG. 1.—Hand of patient, described in Case I.

FIG. 2.—Hand in Case I, two weeks after reduction of the deformity.

which is equally important. A neglect of either of these can only lead to bad results.

Deforming multiple arthritis is common. In the future, possibly in the near future, it will not be so common. We are at present acquiring a more scientific understanding of its etiology and are able to prevent many of the deformities with which we are so familiar. The patients have been terribly neglected in the past by the physician and by themselves. We know that the disease becomes arrested. We know, after it is arrested, that deformities go on, misleading those not familiar with its course. This increase of deformity is favored by the patients. They find any motion of their joints causes pain and they form habits of indolence. They want to be left alone. The will power becomes practically nil. Gradually the patient becomes bedridden. The deformities now act as traumas and continue to increase. This is repeated over and over again in, I might say, almost every hamlet throughout the country. Each hamlet has its bedridden polyarthritic invalid. These patients need stirring up. Combine work with forcible suggestion. Get the patient's will to operate and he will help. Get him to use his muscles and reeducate them. Results are often as striking as those following a successful major operation. Nothing can be a more striking object lesson to patients than to give them back the use of their hands.

The hand, owing to its complex anatomical structure, its exposed position, subjecting it to varied traumas, its almost constant use, its nicely poised balance hovering between flexion and extension, the peripheral tendency of the poisons causing its joint lesions—all these and many more contributory factors render it subject to very marked deformities.

The method I beg to call attention to has for its aim complete correction of all deformities of the hand resulting from multiple contractures, also those showing hyperextension and those resulting



FIG. 3.—Hand of patient in Case II.

FIG. 4.—Hand in Case II three weeks after operation; still some swelling, which later subsided.

have not found the aluminum solutions take the place of the aconite, belladonna, glycerin mixture.

The fingers are examined after three or four days with little disturbance of the dressing. The splint is used for two weeks. The wet dressing is discontinued as soon as the reaction symptoms subside



FIG. 5.—Hand in Case III, referred by Dr. S. Wachsmann and Dr. Smith Ely Jelliffe. Great contraction resisting all forms of massage, etc.

FIG. 6.—Hand in Case III, six weeks after treatment; patient now has perfect use of this member.

—usually in four to five days. When the pain ceases, it does not return.

* OPEN OPERATIVE TREATMENT.

Not infrequently certain deformities will not give way without a cutting operation. Whenever this is necessary, cutting should be done first. After the wounds are healed, redressment can be carried out.

DOES THIS TREATMENT REACTIVATE THE DISEASE?

In none of the cases so far treated has the disease been reactivated. This is one of the best proofs that the primary etiological factor had long ceased to act and that radical treatment was indicated. We first attempted this form of treatment at the Montefiore Home and Hospital, New York, where we have met with a marked degree of success. I beg to present the following cases together with figures:

CASE I. Fig. 1 shows the hand of a girl, aged fourteen years. Her disease was of seven years' duration and the deformity of the hands lasted four years. Both hands were about equally affected. There was marked contracture of the mid phalanges upon the proximal, together with dislocation of all. Massage and manipulation was begun after two weeks, and I may say here that is a very necessary part of the aftertreatment in all cases. Fig. 2 shows the hand two weeks after the reduction. This girl can now three months after the operation write, sew, and embroider, which she had been unable to do for four years.

CASE II. Fig. 3 is the cast of the hand of a man, aged thirty-five years. This man was educated and very badly deformed. He was very observing and of great assistance in aiding us in the aftertreatment. His contracture was of thirteen years' duration and he had long been bedridden; his hands were markedly deformed and were reduced with difficulty under profound ether anesthesia. Fig. 4 shows the hand three weeks after the operation. It still showed some joint swelling which subsided. Strange as it may seem, swelling subsided that existed prior to the treatment. This man suffered a great deal of pain for a few days, but so well pleased was he with the result that he begged to have the other hand operated upon. The result in this was equally good. I may add that we were very successful in treating the large joints of this patient

so that he was able to return to a law school after having been bedridden for years.

CASE III. Fig. 5 is a photograph of the cast of a hand of a patient referred to me by Dr. S. Wachsmann and Dr. Smith Ely Jelliffe. She was from Canada and aged thirty-eight years. Her deformity had been of four years' duration. The deformity as shown in the cast had resisted all forms of manipulation and massage. She had run the gamut of all known forms of treatment under private care.

Fig. 6 shows the hand six weeks after treatment. Fig. 5 shows the fingers much contracted. The contracture was so fixed that it was with difficulty broken down under profound anesthesia. Before leaving New York, she was using her hands for writing, combing her hair, and said: "I am using the first pair of gloves that I have been able to use in nearly three years."

The cases just cited are not selected, but are the first three operated in. We can do something to improve almost every hand, whatever the nature of the deformity. If these patients intrust themselves to our care and skill, it is little short of criminal negligence to defer giving them as far as possible useful hands.

It is now two years since this communication was read by title before the American Orthopedic Association. I have purposely deferred publication in order to determine just how much of benefit in the beginning would be lasting. I have very recently examined two of the patients and heard from the third. There have been no relapses. All of these patients are using their hands much better than at the time reported.

I may add that my experience with this form of treatment in other cases has been so satisfactory that I recommend it to those who will see that proper aftertreatment is carried out, and that cases are properly selected.

I wish to thank Dr. S. W. Boorstein, adjunct orthopedic surgeon of Montefiore Hospital, for valuable assistance in carrying out this treatment.

136 MADISON AVENUE.

THE PSYCHIC COMPLEX IN CONGENITAL DEFORMITY.*

By DAVID L. SOHN, M. D.,
New York,

Adjunct Visiting Neurologist, Central and Neurological Hospitals,
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Mount Sinai Hospital.

In a case of congenital amputation of a forearm that came to Doctor Abrahamson's clinic at Mt. Sinai Hospital, a remarkable phenomenon was observed, namely, pain in the fingers of a hand that had never existed.

The case at once suggested numerous problems and lines of examination: 1. The anatomical side. What changes, if any, resulted in the spinal cord and cortex? 2. The physiological. What changes in functions, in the harmonious interrelation of both upper extremities, and what associations were lost or affected? 3. The psychical side. How extensive were the changes resulting from the absence of so important a part as the hand? Fortunately our patient is right handed, and the missing part belongs to the left side, thus agaphia, etc., could not be investigated. I shall bring attention only to a

*Presented before the Section in Neurology and Psychiatry, New York Academy of Medicine, January 13, 1914.

very limited portion of the subject, i. e., the emotional disturbances resulting from this defect.

An x ray picture of the stump shows the radius and ulna considerably distorted, but the olecranon is almost normal. In the central part of the well formed conical stump is appended a small body, which on minute examination proved to be a hand of the size of one belonging to a fetus of a few weeks, with divisions on its external surface representing the rudimentary fingers.

A search of the literature on the subject was made to ascertain the changes in the brain coincident with noncongenital amputations some years ante mortem, and I found the records not rare. As far back as 1877, Pitres contributed an article on partial atrophies of the cerebral convolutions, consequent on old amputations of limbs on the opposite side. A year later, Oudin reported a case of a woman whose right leg was paralyzed from an injury sixty-eight years ante mortem. After death, the first



FIG.—Congenital amputation of the forearm.

frontal and the anterior part of the left superior parietal lobe were found to be atrophied and the convolutions very small.

Dudley, in 1886, gave a case of amputation of the left leg twenty-one years ante mortem. The right ascending frontal convolution was found to be smaller than the left. Shaw, in 1891, reported a case of amputation through the left thigh. The posterior end of the first, and the anterior portion of the upper end of the ascending frontal convolutions on the right side were considerably wasted, having atrophied fully one eighth of an inch below the level of the surrounding cortex.

I was able to find the report of only one case of the condition of the brain coincident with a congenital amputation of an extremity, and that case was reported by Gowers, in 1878. It was congenital amputation of a hand. Between the two ascending parietal convolutions, a marked difference existed; the right being a narrow, single convolution, and the left broad and depressed by a slight secondary sulcus. Microscopically, very little difference was seen in the structure.

CASE. The patient, Miss S., a comely girl, aged nineteen years, came to us to be relieved from pain in the stump of her left forearm that had been amputated possibly in utero, a little below the elbow joint. She was free from pain until five years ago, when she began to complain of sticking pains in the stump. At first the pain was slight, and came at long intervals. Then it began to increase in intensity and frequency, until she was troubled daily with these sharp pains that began in the stump, and radiated downward to the fingers of the hand that she never had. She said: "If the end of the stump was opened a hand would grow out of it, for I am sure there is something inside which wants to come out. It feels as though a lump inside is struggling to get out, and then there is this sticking pain which I feel all the way down to my fingers."

The site of the pain varied. About three or four times a week, she felt the pain in the stump only, and its duration was from one to two hours. The pain in the fingers was present only two or three times a week, but lasted from three to four hours. Among these pains she felt that she had two hands of equal size and shape. Very often she felt something going up and down between the elbow and the tips of her fingers. She felt the fingers stiffen out, and then she experienced very much pain. Before the age of fourteen years, she neither cared nor worried over her deformity, and never had any pain, but the advent of menstruation marked the dawn of her first pain. She then began to worry and miss her hand.

Her girl friends of her own age enjoyed the society of young men, but she secluded herself, and even up to the present time at the age of nineteen years, has not had a single male friend, nor has she loved one secretly. She says, "I don't care for men. They have only one object in mind . . . and nothing else." She goes out very little, and avoids meeting people, for fear that they will comment upon her appearance. She always conceals her stump with the aid of a book or a package, and is in constant dread of her secret being discovered. When asked why she avoids men, she says, "They will have nothing to do with me when they discover that I am deformed."

Her life history is uneventful, and the only factors we find responsible for her pain are those which are associated with her future marriage. She had no pain until the age when she was old enough to realize what her deformity meant to her. With the birth of her thoughts of the future, were born the pains in her hand. Whenever she thinks of her deformity as a bar to marriage she gets her pains. She says, "No man will marry a girl with one hand when he can get one with two." She believes that if she did marry, she would be unhappy, because her husband would be ashamed to take her out in society. When she thinks there is a possibility of a hand growing out of the stump, a wish fulfillment, she experiences pain in the stump and refers to them as "growing pains." She has no fear of transmitting her deformity to her offspring. She is quite certain that she will give birth to normal children. She is intensely worried, cries daily, and is obsessed with the idea that her deformity will act as a bar to marriage. She is only mildly erotic; the libido is neither deep nor lasting.

This case was gone into carefully to discover any possible infantile sexual elements, but none could be discovered, nor is there a history of sexual trauma. Her antagonism to men is merely a fear that they do not like her. I was not very successful in analyzing her dreams, because she dreams rarely, and cannot recall them, no matter how hard

she tries. In one case her recollection was clear. About a year ago, she dreamed that within three days she would wake up to find her hand. But she did not dream that she was using two hands. Slight jealousy, not recognized clearly by the patient, exists toward a foster sister. The latter attends high school, while she, unfortunate one with a less promising future, must labor for her living. She dreamed that her foster sister had died.

We can easily see that in a congenital amputation of an extremity, no afferent impulses from the part removed have ever traveled to the cord or brain, as these fibres are atrophied. It is therefore impossible for any sensation in the stump to stimulate in the brain the picture of a hand. Therefore I do not hesitate to assume that the subjective sensation of pain in the fingers, and the consciousness of a hand are equivalent to a wish fulfilment. Under treatment suggestive in nature, she steadily improved.

This is simply a preliminary contribution and a more exhaustive study of the case will follow.

1283 MADISON AVENUE.

REMARKABLE CASE OF DOUBLE COMPOUND FRACTURE.

What Nature Accomplished.

BY JOHN HUND, M. D.,
Fredonia, Wis.

It is not very long since a prominent teacher of surgery gave the definite advice to amputate early and high up in all cases of railroad and army injuries. But more recently, we find that the pendulum has swung back a little and very dexterous surgeons, who are very clever with the knife, are now attempting unions in complicated fractures, using various means such as bone plates, etc., to accomplish their task. I beg leave to submit a modest contribution, illustrating this method of surgical treatment and to prove that Nature frequently accomplishes the cure.

CASE. At about 8 p. m., on July 12, 1913, I was called to the long distance telephone and informed that my eldest son, aged nineteen years, had suffered a serious railroad accident and was dying in a hospital about 135 miles from my home, where he had been brought on July 6th. Upon further inquiry, the party at the other end of the line told me that the boy was very seriously injured. He had both legs broken, one in such a manner that an amputation seemed unavoidable. He had, in addition, sustained severe internal injuries so that his case seemed absolutely hopeless. I will refrain from going into details, but simply state that when I arrived at the bedside of my son I quite agreed with the attending surgeons of the hospital. The boy appeared semiconscious and in an awful state of mental agitation and nervous excitement, so that the diagnosis of concussion of the brain was to be considered. Beside a few slighter abrasions of the skin on various parts of the body, he had a very severe contusion over the sacral region, extending down to his buttocks. In connection herewith, I should like to mention that there was a considerable amount of blood found in his urine, indicating some renal lesions. He had a double fracture of his right leg. But all these conditions are not to be discussed in this article, for the injuries to his left leg is the subject I wish to bring out. Here I found a double compound fracture with great loss of bone and muscular tissue, which can be better understood by a glance at the accompanying x ray illustration.

After having decided to attempt to save this member and having made due preparations, we removed the loose piece of the tibia A B wedged in between the broken ends C D. The limb was then stretched until the broken fibula assumed its proper position, E on F. A bone plate with four screws was now applied to the tibia in lieu of the missing piece, the wound properly dressed and left open, and a plaster of Paris cast with the necessary window adjusted. The double fracture of the right leg was set without great difficulty, and after the other wounds were dressed the operation was finished, and being anxious to have him where I could devote all my attention to him, I removed him to my country home. The transport was uneventful, as he was placed in the baggage car on a stretcher, and arriving at our destination, was carried to his home by kind neighbors. Throughout the treatment I never held any other position than that of attendant, in which capacity I was faithfully assisted by my wife and daughter, and for many days and nights, throughout many months, we were in constant attendance at his bedside, dressing his wounds, not once or twice, but sometimes ten and twelve times a day.

A very unfavorable feature of the case was the fact that he was never rational and always begged that his wounds be dressed, to which entreaties we yielded often when it seemed necessary only to soothe him. Consequently, we used at least a dozen casts and almost a wagon load of bandages.

Not until September 15th did his mind begin to clear up, but he was not entirely rational until October 15th, when I moved to a quiet country place away from all excitement. As his reason returned, and the right leg became stronger, and the contusion on his back disappeared with its various symptoms, the left leg showed some, but only very slight progress in healing. But he had now a good appetite and enjoyed sound sleep, so that he began to walk with the aid of crutches.

On November 12th, he slipped and fell on a wet grade leading to the stables, which caused his pain to return almost as severely as at first. I found that this pain was caused by his having wrenched his leg so badly that the plate was knocked loose and the leg became so sensitive that we had great difficulty in handling it, and upon examination I found on the posterior side of the calf an abscess or pus pocket. I lanced this, and in dressing the leg, I discovered that the plate was now entirely movable and determined, whatever the results, to remove it

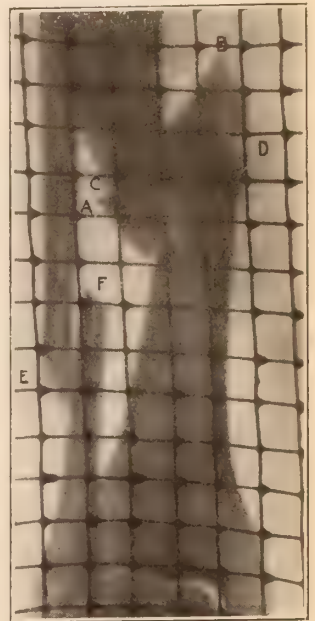


FIG. X ray, double compound fracture of left leg (Hund).

altogether. This I did on December 1st, after putting the patient under anesthesia, and experienced no difficulty. The screws were so firmly imbedded in the compact tissue of the bone, that it clung to the plate and a piece the length of the plate was removed with it. Now I packed the wound with antiseptic gauze, applied a provisional splint and a common roll of bandage, and awaited results, which were indeed phenomenal for, on December 15th, the patient tried his strength on a scale and succeeded in bearing down thirty-five pounds. Four days later, he bore down seventy-five pounds. In another week he could bear his whole weight, put away his crutches, and walked with a cane only. His improvement continued at the same rate as his muscular strength increased, and he weighs now 126 pounds and can lift double his weight, walks ten miles without fatigue, and, strange as it may seem, without any perceptible limp, which latter feature can be accounted for only by the fact that there was no extension used on his right leg, so that the callus formation shortened both legs equally. From the time of the removal of the plate the process of healing of the wound was miraculous and uninterrupted. Soon all suppuration ceased and a firm cicatrix was formed, which shows no signs of tenderness or any underlying pathological condition.

Regarding my therapeutic treatment, surgical or otherwise, I have nothing to offer. I used what modern medicine afforded me and trusted implicitly and unflinchingly in the proverb, *Medicus curat Natura sanat*.

NARCOTIC ADDICTION.

Based on Observation and Treatment of One Thousand Cases.

BY PERRY M. LICHTENSTEIN, M. D.,
New York,

Physician, City Prison.

The subject of narcotic addiction is now receiving the attention that it deserves. When we note the number of young men and women in our prisons subject to this terrible curse, and study their marked physical and moral degenerative changes, we awake to the fact that we must stop the growth of this habit if we wish to save future generations. This article is based upon the observation and treatment of 1,000 cases within the City Prison, Manhattan, during one year's service. The average number of prisoners admitted in one year is 16,000, making the percentage of narcotic habitués therefore five per cent. The increase in the number of people addicted to habit forming drugs has been extraordinary within the last five years. The greatest increase has been within the last year. Whether or not this is due to a natural increase in the number of people addicted is difficult to say; it may be due to the enforcement of the laws relative to the use of narcotics, thus bringing a greater number to our attention. I am inclined to believe the former; for when one notes the number of young prisoners addicted to the use of drugs, and takes into consideration the period of addiction, it is easy to see that habit formation is on the increase.

As regards the acquisition of the habit, I have

ascertained the following: The number of victims who directly trace their addiction to physicians' prescriptions is very small; I have found but twenty such people out of 1,000. Most of these victims were women who had been suffering from tubal disease. One woman had been severely burned and had to be given opiates to quiet her. The information given by physicians to patients, that they had been receiving morphine, cocaine, etc., is to be deplored. Patients should be kept in ignorance as to medication. Other prisoners have stated that they had been induced by friends to take a "sniff" of the drug, which is variously termed "happy dust," "snow," etc.

Several individuals have come to the conclusion that selling "dope" is a very profitable business. These individuals have sent their agents among the gangs frequenting our city corners, instructing them to make friends with the members and induce them to take the drug. Janitors, bartenders, and cabmen have also been employed to help spread the habit. The plan has worked so well that there is scarcely a poolroom in New York that may not be called a meeting place of drug fiends. The drug has been made up in candy and sold to school children. The conspiring individuals, being familiar with the habit forming action of the drugs, believe that the increased number of "fiends" will create a larger demand for the drug, and in this way build up a profitable business.

Many individuals begin taking a narcotic for insomnia; this is particularly true of physicians and nurses. I have treated many nurses addicted to morphine taken hypodermically. Others take the drug to ward off sorrow and care, and still others are compelled to take the drug because of severe pains caused by locomotor ataxia, cancer, etc. The number of young people addicted is enormous. I have come in contact with individuals sixteen and eighteen years of age, whose history was that they had taken a habit forming drug for at least two years. This includes girls as well as boys.

When once the drug has taken hold on these people, they will do anything to acquire a supply. The charges against dope fiends are usually petty crimes; they steal just enough to enable them to obtain a supply of the drug. Once in prison they will try everything and anything to obtain the drug. During my experience with habitués in the City Prison, I have witnessed many ways in which the attempt to smuggle in the drug has been made. On one occasion, a can of condensed milk was sent to a "fiend." The can did not show signs of having been tampered with. On prying off the lid, the searcher found a finger cot full of morphine in the milk, and a note to the effect that more was coming. On another occasion a package of cigarettes was sent to a prisoner; the government seal was unbroken. When opened, the cigarettes were found wrapped in silver leaf and upon examination proved to be loaded with morphine tablets. On another occasion two books were sent to an habitué. The searcher noticed a white powder on his desk. He opened the book, but could find no trace of a drug. He slit open the binding and found two packages, one containing morphine and the other heroine. On still another occasion a magazine was sent in, which

upon examination by the warden disclosed a picture pasted on one of the pages, under which picture a large amount of morphine was secreted. The ways in which drug smuggling is attempted are too numerous to mention in this paper.

It is necessary to define the action of opium and its derivatives, also that of cocaine, in order to understand the effect of these drugs upon habitués. I will confine myself to the actions on the nervous system, it being obvious that habitués take drugs for this purpose only. Opium causes an increase in intellectual powers and stimulates the imagination. External occurrences seem to have no effect upon the individual. The imagination is usually pleasantly excited. All cares and sorrow are forgotten, and the subject feels content and happy. This is followed by a dreamy state, due to the suppression of external stimuli and the depressant effect upon all centres, resulting in sleep. The person has fantastic dreams, often of an impossible nature. The period of narcosis is deep and the patient is not easily aroused. The pupils are contracted and react sluggishly to light. All reflexes, excepting the pupillary, are first stimulated and then depressed.

After the cessation of the action, the patient is restless, dull, repulsive, and unable to concentrate his thoughts. Perversion of the moral feelings is a marked mental symptom. Delusions of persecution may occur and some prisoners show marked hallucinatory excitement. The reflexes are exaggerated owing to the removal of the depressing action of the drug upon the spinal cord.

The action of cocaine differs from that of morphine. All the mental faculties are stimulated by this drug and the subject has a great increase of bodily power. One man stated that it was a common occurrence for him to go seventy-two hours without sleep, while under the influence of this drug. At the end of that time he collapsed and had to take more of the drug in order to brace himself. All care and sorrow are forgotten and the person is supremely happy. The stimulating effect of cocaine is followed by physical and mental exhaustion, enfeeblement of the intellect, and headaches. Cocaine causes a dilatation of the pupil from action upon the sympathetic. Habitués, when in need of the drug, frequently complain of a feeling of foreign bodies crawling under the skin. During the stage of stimulation the reflexes are exaggerated. The depressive stage is accompanied by decreased activity of reflexes. The pupils react to light, but not very well to accommodation.

Many people are of the opinion that all habitués are emaciated, sallow looking, bleary eyed individuals, who take no interest in anything. This is not so. Not all drunkards are red faced, red nosed, and shabby looking. The drunkard on the Bowery is a different looking individual from the drunkard on Fifth Avenue. The same is true of drug habitués. The drug fiend who hangs out in poolrooms and "hop joints," who has no particular occupation, and gets about one square meal a week will look different from, and not last as long as the one who has fine surroundings, three square meals a day, and an occupation. True, he may not attend to business as strictly as he should, nevertheless,

his associations make it imperative to confine himself to a certain period of the day in taking the drug. I have come in contact with individuals who had been addicted to a habit forming drug for twenty-five years and still looked well nourished. People who take the drug as previously described, i. e., under unfavorable conditions, usually present a sallow, haggard appearance; they look as if they had lost all interest in the world. The eyes are dull, and the individual can concentrate his mind only on one thought, i. e., how to obtain the drug. If the drug is not given, they show what are known as withdrawal symptoms. The habitué complains of abdominal pains, severe cramps in the legs and arms, and precordial pains. He presents an appearance which one noted is never forgotten.

I usually find the prisoner lying in bed. When asked to get up, he crawls out on all fours. Lacrymation is present in most cases. Sneezing, yawning, vomiting, and diarrhea, which is sometimes bloody, are some of the symptoms noted. The body is bathed in a clammy perspiration. The pupils are dilated and react sluggishly to light and accommodation. The pulse is rapid, ranging between 100 and 140, of low tension, and very frequently irregular. The respirations are increased. In some cases the patient is unable to void urine and has to be catheterized. In women, menstruation is usually profuse and may be accompanied by severe abdominal bearing down pains.

Insomnia is present in all cases. Many of the victims show a sudden sexual craving and practise masturbation. While taking the drug habitués have very little sexual desire, but upon withdrawal the craving becomes intense. One woman begged for bromides, stating she could not keep her hands from her privates. Delusions and hallucinations are present in many cases. The delusions are usually of a persecutory variety. The patellar reflex in cases where the drug has been suddenly withdrawn, is increased.

The foregoing symptoms are referable only to cases of opium addiction. Those addicted to the use of cocaine do not show these withdrawal symptoms. Cocaine habitués usually show a decrease in weight, exhaustion, mental fogging, forgetfulness, insomnia, acceleration of the pulse, and spasmodic contractions of the muscles of the extremities. It can therefore readily be seen that the withdrawal symptoms do not approach the severity of those referable to morphine. In cocaine fiends the skin is dry and sallow and the eyes are usually sunken. These signs appear more readily in cocaine users than in opium and opium derivative habitués.

The combination of morphine or heroine with cocaine is a very destructive one, both as regards the physical and mental condition. A pure cocaine user very rarely complains of violent cramps and diarrhea upon withdrawal of the drug. On the other hand, cocaine is more destructive than the opium derivatives, and its effects upon the body appear very early compared to the physical changes noted in morphine fiends.

There are several methods of administration employed by dope fiends. The most frequent is sniffing the drug. The next method is by the hypodermic syringe. The third method is the smoking of the

drug, and the fourth is the administration of the drug by mouth. The amount taken varies. Some victims give a history of taking sixty grains a day, while others exceed this amount.

One detective told me that he personally had seen a woman prisoner take five grains of morphine by mouth, before she was sufficiently braced to accompany him to the station. Drug fiends are the greatest liars, however, to be found on the face of the earth. Upon admission to the City Prison they will swear by their lives and the lives of their mothers and fathers, that they never have taken the "stuff," and the next day, the physician is called to see the prisoner and finds him groaning and all cramped up. He then admits the use of the drug and begs for it most piteously. The statement of these people as to the amount taken daily is therefore to be taken with a grain of salt. Jacquet observed that the largest daily dose in habitués was fourteen grams (210 grains) of morphine.

Hypodermic fiends at times present a frightful appearance. The arms look as if covered with a rash from the needle pricks, and here and there abscesses develop and at times become very large and contain pus of an offensive odor. The infections are due to the methods of hypodermic administration. A drug fiend will not waste time to boil a needle and wash the site of injection. Neither will he wait to roll up his sleeve, and in most instances will introduce the needle through his clothing. In our prisons, where it is impossible to obtain hypodermic syringes, they frequently find apt substitutes. A needle is smuggled to the fiend and to this the rubber top of an eye dropper is attached. This makes a serviceable syringe. Frequently a syphilitic "dope" fiend, after using the improvised syringe himself, will pass it on to the other habitués and will cause syphilitic infection. I know of an instance when this occurred and four prisoners were infected. Cocaine is rarely taken hypodermically; it is usually sniffed. The same may be said of heroine. The drug used for hypodermic administration is practically always morphine.

Of all the opium derivatives in use, heroine is the most destructive. Heroine is a morphine derivative, a white powder, having an intensely bitter taste. It is much coarser than morphine in consistence and several times as powerful. The chemical name of this drug is diacetyl morphine.

In speaking of opium derivatives we must not forget to mention opium itself and *yen shi*, the cake which forms in the opium pipe. Opium is both smoked and chewed. The Chinese sometimes use the *yen shi* to flavor raw opium. I have found that opium smokers do not present severe withdrawal symptoms. It is very seldom that I have had to administer treatment for cramps and vomiting in these individuals. If they are allowed cigarettes or an ordinary pipe, and if given sulphonal, grains fifteen, at night, they cause little bother. *Yen shi* is the Chinese name given to the scraping or cake of the opium pipe. It is a dark brown, hard, and rather brittle substance, with a peculiar sweetish odor. It has a bitter taste and is usually chewed by habitués. *Yen shi* is most frequently used by the Chinese.

People addicted to the use of opium and opium

derivatives have periodical cravings for the drug. This period is termed the *yin yen*. At such periods the symptoms are severe if morphine is not administered. I have known habitués to progress nicely under treatment, and have congratulated myself that the prisoner was almost "off the stuff," as they say, when upon making my rounds I would find him doubled up in cramps, and craving for just one pill.

What the explanation for this craving is, is difficult to state. I can think of but two theories. The first is that the patient was getting the drug on the side, and having run out of his supply, suddenly showed the symptoms noticed upon the withdrawal of the drug. The other theory, and the one which seems most plausible to me, is that the resistance of the body is low, owing to prolonged use of the drug, and that the tissues, accustomed to the narcotic, actually are in need of the stimulation afforded by its administration.

I can partially disprove the first theory mentioned by stating positively that I have observed prisoners addicted to drugs who were not getting any outside supply, and have found these prisoners all cramped up and begging for a pill, when I knew that they were almost off the drug. In my experience with drug fiends I have come in contact with several who were very anxious to be cured, and even in these the *yin yen* occurred. Habitués frequently say to me, "Doctor, please give me a pill, I have a *yin yen* today."

As to addiction among the different races, I may state that in proportion to the number of prisoners of each race admitted, I have reached the following conclusions: 1. Yellow race—Most frequently addicted; opium smokers and opium and *yen shi* chewers; rarely take cocaine and rarely use the hypodermic syringe. 2. Black race—Cocaine users, particularly those coming from our Southern States; also smoke opium and use heroine, the latter not as frequently, however, as the white race. 3. White race—Heroine, morphine, and cocaine users; frequent users of the hypodermic syringe; also smoke opium, but not as frequently as the Chinese.

It is rare to see a colored or a Chinese hypodermic fiend. White women, when once addicted to drugs, very frequently resort to the hypodermic syringe. As to sex, the male habitués greatly outnumber the female.

It is interesting to note the nationalities, occupations, and social standing of those addicted. The Chinese, American, and Italian, in the order named, are the three nationalities most frequently represented, taking those admitted to our prisons as a standard. The Hebrew American is very frequently addicted. In all my experience I have had only one Greek who took morphine. Greeks, as well as Syrians, Turks, Swedes, and Norwegians are seldom addicted. Russians and Germans, recent residents of this country, are seldom among those habituated.

As regards occupation, the cases observed and treated by me showed that the employment of habitués required little effort and gave them plenty of leisure time. The occupations given were as follows in the order named: Salesmen, clerks, newsdealers, truck drivers, actors, stenographers, waiters and waitresses, and cooks. I have found very few who

gave a history of performing very laborious work.

Among the women, in the order named, the occupations were actresses, nurses, and saleswomen. Most of these had been arrested for soliciting, keeping disorderly houses, or shoplifting. The social standing of habitués is an interesting item. The greater number are of the gangster type and consequently are mental and moral degenerates. It is surprising, however, to learn how many habitués are of the better class. Physicians, nurses, and actresses, also some of the very richest of our people, frequently have elaborate "layouts" in their homes, richly furnished, and stocked with the handsomest jeweled opium pipes. Many of these people naturally never attract our attention because of the absence of marked physical changes, due to good surroundings, good meals, etc.

To repeat, we must stop drug habit formation. The rapid growth of this habit threatens to dwarf alcoholic addiction. As we know the terrible effects of these drugs, the ultimate results may readily be foreseen.

TREATMENT.

The treatment begins with the admittance of the prisoner to the institution. He is thoroughly searched by the keeper for secreted drugs. It is necessary that the keeper be an experienced searcher so as not to overlook any drug, syringe, or needle. The prisoner is stripped and every bit of the clothing is searched. Particular attention is paid to the seams and pleats in the clothing. Frequently packages of drugs are found secreted in the seams of trousers or pleats of shirts. Extra hidden pockets are often found. Recently a detachable heel was discovered, in which a pocket had been made to contain a package of heroine. At other times the drug is attached by means of paste to the hair under the arms. Sometimes dope is hidden in the mouth. Women require a very thorough search. Each female suspect should be examined vaginally, for it is not rare to find the morphine in a condom secreted in the vagina. One prisoner had an entire hypodermic outfit and drugs secreted in the vagina. The fingers should also be passed up the rectum. Rubber gloves are used, the danger of syphilitic infection being marked. After the search a physical examination of prisoners is made and it is astonishing how often tuberculous lesions are discovered. Many cases present a myocarditis. Every advanced case that I have seen showed marked tuberculous lesions and at least thirty per cent. of those who had taken drugs for a period of eight to ten years showed lesions. This thirty per cent. was only among those who had taken the drug under unfavorable conditions. Sputum examinations disclosed the tubercle bacillus.

In treating drug habitués the following must be taken into consideration.

1. Physical condition of patients; 2, period of addiction; 3, amount taken daily; 4, reasons, if any, for taking the drug; 5, kind of drug taken. Any treatment consisting in the continuous administration of depressants, especially hyoscyamus, is to be condemned.

1. The physical condition of the patient must be taken into consideration. A person who has taken the drug for a long period and as above described,

has used it under unfavorable conditions, is usually in a very weakened state. It is our duty to strengthen such individuals, and this cannot be accomplished by vigorous catharsis and by the administration of depressants. The treatment administered in certain hospitals and sanitariums seemingly does not take this factor into consideration. Recently, under a certain treatment in one of our hospitals, sixteen deaths occurred in one month's time. This in itself is enough to condemn a treatment which consists in the administration of vigorous cathartics and depressants. Evidently the physical condition of the patients was not taken into consideration.

2. The period of addiction should influence the treatment. It is evident that a man who has been addicted to a drug for several months, will be cured more readily than one who has taken a narcotic for a long time. Nevertheless, some institutions guarantee a cure in two weeks' time.

3. The amount taken daily is an important factor. A person taking fifty grains daily will require different treatment from one taking two to three grains daily. Some habitués will lay claim to fifty grains a day, when they really have been taking much less. This is done in order to receive a larger initial dose of the drug in beginning the treatment. It is up to the physician to verify the statements of such people.

4. In some people morphine administration is necessary. Cancerous subjects, tabetics, and people afflicted with other neurotic conditions in which there is a constant severe pain, require morphine, and should be given the drug in small doses. The medication, however, should be given only on the doctor's orders and only when it is absolutely necessary. If other drugs have a soothing effect and can replace the morphine, so much the better.

5. In treating habitués the drug in particular to which the individual is addicted will influence treatment. Cocaine fiends may be taken off the drug immediately. They show no withdrawal symptoms; of course, the physical condition of these people needs attention. Opium smokers can be withdrawn from the drug immediately. They usually show few distressing symptoms. Morphine and heroine fiends, on the other hand, should not be taken off the drug immediately; the withdrawal should be gradual. The danger of cardiac failure upon sudden withdrawal is too great. While the drug is being withdrawn, the patient must be under constant observance. Some of the methods in vogue today allow the patients a solution of morphine. The patient is instructed to take a certain amount, gradually reducing until he is cured. One might as well give a drunkard a gallon of whiskey and tell him to take just one teaspoonful. Drug fiends cannot be trusted. Any drug given must be administered personally by the doctor in charge.

I wish to state most emphatically that there is no treatment which will cure a drug fiend in two weeks or even two months. Doctor McGuire, visiting physician of the City Prison, and I myself believe that such treatment only temporarily arrests the habit. After the fiend is off the drug, he should be sent away for at least one year, either to a farm or some institution out of the city. He should be well fed,

and made to work. This is the only positive way to cure a fiend. If you allow an habitué to go free at the end of two weeks' treatment as cured, he will seek the first "hop joint" that he can find and make up for lost time. On the other hand, if he is away from the drug and from bad influences, he will lose the craving and will develop enough physically and mentally to be able to keep away from any narcotic.

The following treatment has been followed in the City Prison without the occurrence of a single death. Upon admission, a history is taken, a physical examination and a sputum examination are made for tubercle. The period of addiction, amount taken daily, reasons for taking the drug, and the kind of drug taken are ascertained. If an individual is very weak, he receives two one sixth grain morphine tablets. Individuals having a pulse of 120, receive two morphine tablets, each grain one sixth. Individuals with an irregular pulse receive two one sixth grain morphine tablets. Those well nourished, with a pulse between eighty and 100, receive one one sixth grain morphine tablet and one one sixtieth grain strychnine tablet. Those with pulse between 100 and 120, not well nourished, receive morphine grain one sixth and strychnine grain one thirtieth. The foregoing is the first daily dose. In addition to the medicine administered, each prisoner is allowed three compound cathartic pills. No further cathartic is administered for at least three days. This saves the strength of the patient and is not accompanied in any case by deleterious results. The second day, the heart is examined and the pulse taken. All withdrawal symptoms are noted. The same dose is given as the day before and repeated for about three days. At the end of three days, those who had received two morphine tablets now receive one one sixth grain morphine and one one sixtieth grain strychnine tablet. Those who had received one one sixth grain morphine and one one sixtieth grain strychnine tablets, now receive two one sixtieth grain strychnine tablets. The weakened individuals, in addition, receive the prison tonic (Doctor McGuire's prescription), which consists of:

R. Tincturæ nucis vomicæ, ...āā 7.0;
Acidi hydrochloridi diluti, }
Elixiris simplicis, ...q. s. ad 60.0.
M. et Sig.: One teaspoonful three times a day.

By the end of the week all morphine and heroine fiends, regardless of the period of addiction, are receiving strychnine; grain one thirtieth, once a day. This drug is continued for five days, and then the withdrawal is complete. Such prisoners should now be sent away to a farm for at least one year in order to make the cure complete.

The prisoners never know that they are receiving strychnine instead of morphine. The tablets look alike and taste alike. I have seen fiends take a strychnine tablet and go right to sleep, believing they had the real drug. It may be seen, therefore, that most of the symptoms complained of are imaginary, and that it is really possible for these people to get along on a very much smaller amount of the drug than they have been accustomed to.

In beginning the treatment, none of the prisoners has a desire for food. In about five days the appetite has improved, and at the end of the week the appetite may be said to be voracious. I have

never seen people eat more heartily than habitués when they are almost off the drug, having taken the above mentioned treatment. As soon as they begin to eat well, prisoners may be said to be three quarters cured.

SYMPTOMATIC TREATMENT.

Insomnia. This symptom is treated by the administration of a mixture consisting of chloral and sodium and potassium bromide. If this proves insufficient, sulphonal, grains fifteen, is administered.

Vomiting. The administration of rhubarb and soda, drams two, is sometimes efficacious. If this does not prove successful, then *mistura contra diarrhoeam*, minims ten, in water is administered. The latter usually answers the purpose; in case the vomiting does not cease after its administration, a hot water bag is applied to the abdomen and a hypodermic injection of a small dose of morphine is given.

Abdominal pains. It is astonishing to note how often a "fake" pill, strychnine sulphate, grain one sixtieth, will answer the purpose. If this does not relieve the patient, a hot water bag is applied.

Precordial distress. Strychnine sulphate, grain one sixtieth to one thirtieth, always relieves this symptom.

The above mentioned symptoms are the only ones which require treatment. The general treatment administered to patients for curing the habit usually anticipates other symptoms.

In conclusion, I wish to state that as long as our laws referring to the regulation of the sale of narcotics hold good in one State, and not in another, we shall be unable to eradicate the drug habit. While it is practically impossible to obtain narcotics in New York State, it is very easy to obtain all one wants in New Jersey and Connecticut. The Boylan law is therefore useless and will not accomplish its purpose. One law limiting the sales of narcotics should be enacted, and enforced in all States of the Union. If this is accomplished, we shall be getting at the root of the evil and save many a boy and girl from certain physical, moral, and mental degeneracy.

882 KELLY STREET.

FANCIES, FACTS, AND CONSUMPTION.*

By THOMAS J. MAYS, M. D.,
Philadelphia.

I have long known Doctor Knopf as an early and persistent champion of the bacillary origin of pulmonary consumption, and while he has said and done good things in regard to this question, it is regrettable that his course throughout is one that cannot commend itself for consistency. I appreciate very much the spirit of kindness which is embodied in Doctor Knopf's reply with which he hopes to convince me and whatever followers I may have of the errors of my ways; but from my standpoint he must understand that this is not a question of personal feeling, but one which has to do with the delineation of the right and wrong of a problem which vitally appeals to the welfare and happiness

*A reply to Dr. S. Adolphus Knopf's communication. Is the Modern Antituberculosis Crusade Really a Failure? published in the NEW YORK MEDICAL JOURNAL for November 7, 1914.

of hundreds of thousands of sufferers and their friends, and notwithstanding the protestations of Doctor Knopf, that the tuberculous patient is his brother, and that he is opposed to the creation of an atmosphere of phthisiophobia, there is very much reason for suspecting that the whole present prevention crusade against consumption, of which he is a conspicuous banner bearer, was born and bred in, and lives on a capitalization that consists chiefly of fear and dread of this disease.

True he says nothing about this in his paper under discussion. But what other construction can be based on his statement made recently (See *NEW YORK MEDICAL JOURNAL* for October 3, 1914), that "we recognize the danger from the careless patient" when he disseminates "seven billions of bacilli every twenty-four hours." Is this not exploiting the terrible menace of the consumptive class? Is the knowledge that such an enormous mass of virulent poison expectorated every day by every consumptive not creating an atmosphere of dread, and of phthisiophobia? Is it a wonder that people are afraid to take a breath for fear of inhaling the fatal germ at any moment? This is the deepest canker which the present crusade has inflicted on this unfortunate class of sufferers, and from which Doctor Knopf cannot be wholly absolved. It causes every consumptive to be regarded as a focus of infection, and a danger to public health. Such a persecution entails grief, worry, anxiety, disappointment, throws a blight over the consumptive's life, and is probably one of the reasons why proportionately more people die of this disease than was the case twelve or fifteen years ago.

In this connection it must not be forgotten, that Doctor Knopf is sufficiently sanguine that by subjecting the sputum of consumptives to liberal means of disinfection, the danger of infection will be averted. That disinfection of the sputum is not necessary to the prevention of consumption has been demonstrated by Major Carr of the U. S. A. during the American occupation of Santiago de Cuba, which was said to have been the filthiest city in the world, and in which consumption was very prevalent. He paid no attention to the sputum, but merely cleaned up that city with the utmost rigor, and kept it scrupulously clean. He reduced this disease sixty-seven per cent. during the three years he was there.

This then is Doctor Knopf's theory of the causation and prevention of consumption; but after he swore due allegiance to this program he should be loyal to it, and not become a seeker of strange gods, which will only serve to ruin his favorite theory. In order to be true to his principle he should realize that diseases which arise outside of the body through contagious or infectious germs, are entirely different in habitat and nature from those which arise within the body, and which are due to constitutional disturbances. When he talks of consumption as a germ disease, it is to him a specific infectious disorder; and he cannot be allowed by the rules of medical logic to exploit poverty, lack of food, low wages, unhealthful occupation, want of physical development, alcoholism, syphilis, or nervousness, even as contributory causes of this disease, unless it be shown, which has not

been done, that the constitutional impairments incidental to the latter named causes are more vulnerable to tuberculous infection than are the strong and well. If this was true of consumption as an infectious disease, it would surely act contrary to every other contagious or infectious disease. Do smallpox, diphtheria, syphilis, or gonorrhea incline to elect any special class of victims? If they do there is no proof to that effect. If the bite of the mosquito causes yellow fever and malaria, the fly, typhoid fever, or the rodent bubonic plague, then the only salvation so far as the prevention of these diseases is concerned lies in measures which eliminate the offensive foci, or in the case of typhoid fever in an appeal to antityphoid vaccination. If you treat specific infectious diseases like syphilis or diphtheria, you administer the well known specific cures of these diseases, and the latter with all their accompanying constitutional disturbances, if there are any, will begin to disappear.

But in the case of pulmonary consumption, which is also supposed to be a specific infectious disease by Doctor Knopf, the cause is blamed entirely on the tubercle bacilli, but in order to prevent or cure it, one is advised to swing around and resort to measures which are calculated to ameliorate poverty, filth, social distress, etc., conditions with which the bacilli as causes have nothing whatever to do. If you regard a disease due to a certain cause, prevent and cure it on the same score, but please do not mix the two, for by so doing you are trying to sail under the emblems of consistency and perhaps unconscious evasion at the same time.

It is therefore a travesty on the truth for Doctor Knopf to say that "There is no difference between the opinion of the modern crusader against tuberculosis, and Doctor Mays, when he holds underfeeding, bad housing, lack of light, and general bad sanitation responsible for the spread of tuberculosis." This is the very kernel of estrangement between his and my own contention in regard to the prevention and cure of this disease; and just so long as he and his fellow workers persist in clinging to their equivocal position, that long will all their efforts be rewarded by the abominable failure which has so far characterized them.

Doctor Knopf quotes the statistics of Doctor Biggs, which show that from 1887 to 1902, the death rate of this disease decreased forty per cent. in New York city, which is true, but he ascribes the whole credit of this decrease to the efficiency of his modern crusade. If a comparison is to be made, why not make a fair one? The prevention laws of New York did not go into effect until the later nineties, and since a cause cannot act before it exists, and as it is the violation of a common rule to compare unequal things, let us divide the period from 1887 to 1911 of the same city into two equal parts. The prevention regulations did not apply, as stated, until the late nineties, therefore the first half of this period, from 1877 to 1899, covers about five years in which the crusade was not chiefly in evidence, but throughout the second half, from 1890 to 1911, the crusade acted in full force. During the whole period (1887 to 1911) the death rate fell 43.61 per cent., of which 25.51 per cent. belonged to the first, and 18.10 per cent. to the second half of the whole period; show-

ing that the decrease was 7.41 per cent. less in the second half, when the crusade was in full blast, than in the first half of the whole period.

Doctor Knopf's reference to Hoffmann's statistics, which deal with all forms of tuberculosis, are not applicable here. But I have Hoffmann's tabulation of New York consumption statistics from 1882 to 1911, which give the total death rate of that whole period as 40.03 per cent., of which decrease 27.44 per cent. goes to the first, and 12.62 per cent. to the second half of the whole period—demonstrating that when during the second half the modern crusade acted in full force, aided by every possible mental and physical effort, and reinforced by millions of money, the death rate decrease was 12.62 per cent. less than in the first half of the whole period. Not only is a lessened decrease in the death rate of this disease in evidence in New York city, since Doctor Knopf's great crusade has been swinging down the line, but the same is practically true of nearly all the largest American cities, as well as of England and Wales. After all is said and done the flagrant inefficiency of this modern crusade reminds one strongly of the famous battery described by Macaulay, in which one half of the guns would not go off at all, and the other half exploded with terrible effect on the gunner.

It is a very curious circumstance that such discredited and expensive machinery should remain in favor and supplant other vastly superior procedures. One such is the method employed in Santiago de Cuba, already referred to, and which reduced the consumption death rate seventy-six per cent. in three years. This cannot in all respects be duplicated in civil life, yet it opens the way to what can be done, and almost anything is better than what we have practised on us now. The other green oasis in this desert of prevention is the Home Hospital Experiment of the New York Association for Improving the Poor, the *Report* of which has just been received.

The cardinal idea in this institution's plan is the alleviation, not only of the poor consumptive, but of his whole family at the same time. It recognizes that poverty and all that goes with it, and consumption act and react on each other in the propagation of this disease, and are inseparable in a vast number of cases; and that the psychological factor is a fundamental element in the treatment of this disease. It supplies a healthful home, well prepared food, and comfortable clothing. It lifts the patient and his family above want, worry, and anxiety, which is a powerful accessory in the successful treatment of this disease, and besides it paves the way for a happy home life for the patient after he leaves the hospital.

The practical results of this plan so far are, to say the least, very comforting. During the two years over which the report extends, 315 individuals, comprising 207 patients and 108 family members, were admitted. Of the apparently cured, arrested, and improved cases it is, perhaps, too early yet to say anything definitely, except that the results are far above the average obtained in general sanatorium treatment in this country. The most remarkable features of success are that only one patient died, that all the families improved in health,

that their average weekly earning capacity increased from six to fifteen dollars, and that not a new case of consumption developed among them in the two years. The cost of carrying on this work compares very favorably with treatment in other consumption hospitals.

If Doctor Knopf and his colleagues are really and seriously interested in prevention measures that prevent, it might be of advantage to them to study the Home Hospital experiment with a view of applying their millions to a project that not only prevents but cures this disease.

Doctor Knopf views with a contemptuous sneer the parallel which I draw between the anticontagion movement of Italy, 160 years ago, and that of today, which he designates as being "based on accurate scientific research, which declares tuberculosis not a dangerously contagious, but a communicable disease."

To the ordinary mind it is most difficult to reconcile the statement that tuberculosis is only mildly contagious, with the definite knowledge which we possess that twice as many people die of it every year as of all the well recognized contagious diseases combined. Reasoning from these premises it appears that if consumption is contagious at all, a bombardment of seven billion of virulent tubercle bacilli which, according to Doctor Knopf's own statement, emanate from a single consumptive daily, multiplied by ten thousand sufferers living any day in the city of Philadelphia, should be more deadly than all the machine guns and the artillery of the contending armies on the Aisne. Truly under the fury of such a holocaust of germ assaults, it is remarkable that any one of us escapes.

It is true that the Italians knew nothing of the tubercle bacillus, nor of the scientific research of the modern crusaders, for which ignorance they may well have been thankful, but is Doctor Knopf able to point out that the disease under consideration varied in the least in its beginning, course, duration, signs, and symptoms or in any other respect, from what we know it today? Did not the Italians fulfil all the requirements of prevention that are demanded by the present crusaders? Were they not just as sanguine of gaining a final victory over this disease, as the most optimistic crusader is today? Is it not possible for the crusaders with all the scientific knowledge which they state that they possess, to read the doom of their own work, not only in the final overthrow of the Italian campaign after their draconic test of more than half a century, but in the fatal shortcomings of their own scheme, which invite nothing but a calamitous ending?

Now Doctor Knopf in his eleemosynary livery no doubt denounces the Italian episode as an example of cold blooded cruelty, and vaunts his favorite warfare to the highest pinnacle of benevolence and brotherly love. Such a consolation is very beautiful and poetic in theory, but any one who, Doctor Knopf not excepted, once gives implicit adhesion to the germ origin of this disease, and is faithful and consistent, is helplessly driven in the same direction by the invincible logic of circumstances. He regards the consumptive as a germ sowing mechanism, infecting his fellow beings, and he will ere long become convinced that he is unable to check this

offender, and especially the careless one, of whom Doctor Knopf already complains, except by legal power, and thus resort to the same measures that the Italians were forced to take to confine their consumptives in closed institutions in order, as they believed, to stop the spread of the disease. The whole process is as natural as the flowing of water down a duck's back. The Italian campaign is a repulsive picture, but it is an historical mirror before which the modern crusader may well stand aghast, and like Peter, wist not his master.

In conclusion, I would add that, if space did not forbid, I should undertake to refute some more of Doctor Knopf's myths, especially those which relate to the plentiful evidence of consumption's contagion among physicians, nurses, and attachés of consumption hospitals; to the contagion among married people,* when one or the other is affected, particularly to the cases of marriage infection, occurring in his own personal experience, and which he says "run up into the thousands"; to Cornet's statistics; to the implantation of consumption on pneumonia, typhoid, and malaria patients when these are all treated in the same hospital ward; to the fallacy of comparing therapeutic results of the present day with those of half a century ago, etc. But presumably these strictures belong to the same class of imaginary creations, as does his claim, already referred to, that the forty per cent. reduction in the consumption death rate of the city of New York is attributed by him to the great efficiency of his favorite prevention scheme, when it is easily demonstrated that the disease increased after his worn machinery had been placed in full operation.

1829 SPRUCE STREET.

A STUDY OF METHODS OF LAVAGE.*

Its Use in Diabetes.

BY JOHN P. SAWYER, M. D.,
Cleveland.

Nine years ago, I presented a brief note on a comparison of methods of lavage with the siphon tube and with Politzer bulbs.¹ I wish again to call attention to the method then recommended; practice through these years has not altered the views then laid down, but has made them more firmly held.

To bring up this subject a second time needs some reason. This primarily lies in my desire to obtain the experience and judgment of my readers as to the relative efficiency of the methods in cases where lavage is practised; and also where the tube is used to withdraw gastric contents for diagnostic study.

The comparative efficiency of siphoning and of use of the bulbs in treatment can be seen only by demonstration or by repeated trials. Efficiency in the complete withdrawal of contents may be illustrated by the figures I gave before, in patients accustomed to the use of the tube. Tolerance improves expression.

CASE I. Expression gave 120 c. c. sitting up and lying down, and then the bulb withdrew 70 c. c. in addition.

CASE II. We obtained by expression, 120 c. c., upright and lying down, and the bulbs withdrew 75 c. c.

CASE III. We obtained by expression 120 c. c. in the upright and reclining position, but the bulbs withdrew an additional 60 c. c.

These figures are very commonly obtained; occasionally such figures are obtained as in—

CASE IV. By the utmost expression only 6 c. c. appeared; with the bulbs an additional 65 c. c. was obtained.

These instances may be multiplied many times. That an error of thirty to forty per cent. is found may sometimes be of considerable importance; where the error is ninety per cent., as not infrequently occurs, the reliability of the method is seriously impeached. Such descriptions as I have lately seen of methods very generally recommend only the expression and lavage through the long tube used as a siphon, the ambulant patient being in the sitting position.

That good and useful information may be thus obtained is common experience, but that it often fails to give the full measure of obtainable efficiency in treatment as well as in diagnosis, seems equally clear. Conclusions drawn from inaccurate premises may be good logic, but we prefer to construct our syllogisms with sound premises.

That a method of examination may sometimes leave us inaccurately informed, when compared with another method, is sufficient reason for challenging many results obtained by the first. Secretion, and the condition of the membrane may be estimated from portions only of the content of the viscus, but motor function can be really measured only by procedures which give us the measure of the content actually present within the stomach, at known times, after known ingesta.

To be an accurate guide as to this motor function, the procedure employed must satisfactorily remove practically the whole amount of material within the stomach. It ought not to satisfy us, as a routine diagnostic procedure, to obtain only a part of the stomach contents. From these incomplete or inaccurate measures may arise errors in diagnosis, and from less than the best efficiency one may fail to accomplish in well chosen cases the good results reasonably expected in treatment by lavage.

As the study of method in fundamental procedures is so important for special work, apology is hardly needed for bringing up this topic again. The efficiency of lavage is of farther special interest to me because of its great importance to the second subject which I wish to raise for renewed attention; the use of gastric lavage in diabetic patients.

Thorough cleansing of the whole membrane is necessary to secure what are often extraordinary and surprising results; and this must include such a cleansing of the upper surface of the stomach that it seems to me only to be done with reasonable certainty with the patient reclining, the operator using active manipulation, and preferably bulbs rather than unaided siphonage. When so done, there is such considerably greater effect, that trials repeated through fifteen years have convinced me of its superiority for most cases when lavage is to be used.

*Read before the American Gastroenterological Association, at Atlantic City, N. J., June 22, 1914.

¹*Medical News*, July 29, 1905.

A less than obtainable efficiency in the procedure will possibly account for less than expected results when a measure seems to be indicated but not satisfactorily successful.

LAVAGE IN DIABETES.

The well established fact that in diabetes mellitus there is a positively measurable increase of sugar in the blood, has been of determining influence upon professional thought with reference to the clinical phenomena of the disease. By it is now popularly explained the existence of polyuria, of great thirst or hunger, occurring even in the face of the fact that the cells of the body are supplied by a plasma richer than normal in an important food substance.

The process of osmosis was at once connected with this finding, and the conviction is well established that it is the excess of sugar in the blood which determines the great increase of urine with accompanying thirst, hunger, and destructive metabolism, establishing the wasting tendencies of the disease in the typically developed case.

All texts, all monographs have adopted this explanation with little reserve. Against this conviction no headway was made by the reports of cases in which this polyuria, hunger, and wasting were clinically controlled in short order to a surprising degree, by a measure so apparently remote from the widely accepted and authoritatively issued statement of the relation between hyperglycemia and the distressing symptoms of diabetes.

That a patient may be a diabetic with a hyperglycemia, and not have these symptoms, was looked upon as puzzling, or as an exception to prove the rule. All professional effort has been directed to diminishing the hyperglycemia as a causal factor, and in so doing to control the symptoms whose dependence upon the hyperglycemia was almost universally believed.

In 1903,² and at various times since, I have reported a number of cases in which a thoroughly applied lavage of the stomach meeting the conditions described in my remarks upon the preceding topic, exercised a wonderfully striking effect upon the clinical course of the disorder. In these cases polyuria, thirst and the accompanying waste were largely controlled.

Having for a dozen years carried out this measure upon scores of patients with most gratifying results, I again call attention to my observations, believing that in a trial of the procedure there will be conducted a series of physiological tests of patients tending to show that these distressing phenomena are not dependent so much upon the hyperglycemia as has been believed, and that the attempt to explain their occurrence entirely as a physiological effect of the increased sugar content of the blood, is therefore not well grounded.

To see an increased excretion of urine amounting to four quarts or more a day, suddenly drop to the normal of three pints, with cessation of thirst, with vastly lessened excretion of nitrogenous waste products as measured by the urinary solids, with a rapid gain in weight and strength, is astonishing in a single case, and in repeated instances becomes overwhelmingly convincing.

In scores of cases this experience has been observed; there has not been one case in ten in which the results have not been striking, exceeding the favorable clinical results usually experienced of most procedures employed.

Practical difficulties have stood in the way of numerous examinations of the blood to determine the question of hyperglycemia persisting after the beginning of lavage. In three cases, however, I have been able, through the kindly assistance of Professor J. J. R. Macleod, of the physiological laboratory of Western Reserve University, to have analyses done, showing that the hyperglycemia has persisted in practically unchanged amount, and the clinical symptoms of polyuria and excessive elimination have been controlled by this procedure of daily lavage of the stomach.

The physiological experiment is now so simply made by the method of Dr. Ivar Bang, of the University of Lund, that I feel impelled to urge its trial. I state positively that in many instances patients who have been rising hourly or many times a night to urinate, have, after one, two, or three washings, been able to sleep through the night with unbroken rest, and that within a few days polyuria of three to four quarts a day has diminished to a normal amount.

I do not say that the relative sugar content of the urine need change—though it often does—but the total, absolute excretion of sugar in twenty-four hours is usually lessened in the same degree in which the polyuria is controlled.

It is true that in a number of instances the adoption of this measure has been followed with prompt relief of the elimination of sugar, and that in cases which are beyond the category usually classified as mild.

The point to which I wish to direct attention, is not that this in any way explains the occurrence of glycosuria, or is a theory of diabetes, but that the many instances of my own and those of my colleagues who have adopted the procedure, indicate that some other explanation than that of hyperglycemia as a direct cause of many of the distressing phenomena from which diabetics suffer, must be found. Until a complete or satisfying explanation of the essential nature of the disease is established, use of lavage of the stomach will be found, in a great number of cases, to add more to the comfort and well being of the diabetic patient than any measure or procedure which so far has so widely claimed professional attention as to come under my notice. At the same time we lose in no wise any good from established methods. In support of this statement, I wish to describe the following cases:

CASE I. March 10, 1908. Man, aged thirty-eight years. About February 1st, noticed fatigue, thirst, polyuria, and loss of weight. March 11th, urine showed specific gravity 1.040, sugar 5.6 per cent. Lavage instituted as treatment. March 15th, specific gravity 1.030, sugar 3.2 per cent. March 16th, specific gravity 1.030, sugar 2 per cent. March 18th, specific gravity 1.024, sugar none. No thirst, no polyuria, and patient went home sugar free.

CASE II. August 6, 1907. Patient, boy, aged four and one half years. August 8th, specific gravity, 1.037, sugar 6 per cent. August 11th, twenty-four hours, 2,670 c. c., specific gravity 1.032(?), sugar 4 per cent. August 14th, twenty-four hours, 2,400 c. c., specific gravity 1.030, sugar 3 per cent. August 16th, twenty-four hours, 1,920 c. c.,

² *Cleveland Medical Journal*, iii, page 1, January, 1904; *American Medicine*, 8, p. 898, 1905.

specific gravity 1.030, sugar 2.4 per cent. August 18th, twenty-four hours, specific gravity 1.024, sugar 1 per cent. August 24th, twenty-four hours, specific gravity 1.016, sugar 1 per cent.

In this case in three weeks, polyuria was reduced from three quarts to three pints, specific gravity from 1.040 to 1.016, sugar percentages from 4 to 1 without rigorous exclusion of carbohydrates, with no opium nor other drug.

CASE IV. January 28, 1913. Patient aged forty-one years. For nearly one year thirst, polyuria, and increasing weakness unfitted him for his usual work as merchant. For over ten years usual weight was 235 pounds, now 218 pounds. Tests in office showed a large percentage of sugar, over four per cent. A twenty-four hour collection measured 5,600 c. c.

Lavage was at once instituted and the patient put into the hospital for a Leube cure because of severe gastritis. His polyuria and thirst at once ceased, and on leaving the hospital, March 1st, he was sugar free with apparently normal urine; feeling stronger than for a year.

He returned, June 10, 1913, with a twenty-four hour specimen of two quarts, specific gravity 1.022, and a trace only of sugar. The following day, no sugar was present, nor in many tests since then, the last of which was June 10, 1914.

536 ROSE BUILDING.

THE PRESENT SITUATION IN TUBERCULOSIS.

By FRÉDERICK TICE, M. D.,
Chicago.

From every viewpoint tuberculosis occupies a unique position in medicine. Historically it antedates our era, and throughout the succeeding centuries its devastating trail is easily traced by a morbidity and mortality not equalled by any other disease. It requires but a most superficial examination of the accumulated medical literature to determine its relative importance.

No other disease has required nor received more serious clinical, laboratory, and experimental study, nor, strange to say, continues to present so many complex, unsolved problems. Many of the long list of celebrated names in medicine are intimately associated with various phases of this disease. While it is a pleasure to recall the men made famous by tuberculosis, it is extremely sad to think of the much greater number it has injured or completely ruined. Directly, or indirectly, tuberculosis produces annually an economic loss amounting to millions, but it has also been instrumental in making untold fortunes. For centuries it has been a rich harvest for the unscrupulous practitioner, quack, and advertising patent medicine concern. A simple inspection of the voluminous literature on tuberculosis shows the impossibility of even a superficial general review. At best only a few of the more important phases can be considered.

Perhaps one of the most essential considerations is the matter of an early diagnosis. With the announcement of the discovery of the bacillus, and later, that of tuberculin, there was just foundation to hope that not only a definite means of diagnosis had been found, but also a cure. A few years sufficed completely to shatter all such hopes. It was found that bacillus determination was no safe criterion on which to base a diagnosis (1), especially an incipient or a closed pulmonary tuberculosis, as well as glandular and surgical types of the disease. As

for tuberculin, both as a diagnostic and therapeutic agent, it soon fell into almost complete disrepute.

During recent years the work of Pirquet (2), Wolff-Eisner (3), Calmette (4), and Wright (5) revived interest in tuberculin; an agent once practically discarded, again came into almost universal use. It seems that sufficient time has elapsed since its revival to enable us to arrive at some fair conclusions. To do so, it is necessary to consider tuberculin as a diagnostic as well as a therapeutic agent. As to the specificity of the tuberculin reaction, there can be no longer any question. The difficulty arises in determining its significance, whether a clinical type of tuberculosis is present or not. This difficulty becomes evident when we recall the findings of Nägeli (6) in the autopsies at Zürich. He found, of the five hundred adults examined, that ninety-eight per cent. presented a tuberculosis in some form, acute, arrested, or healed. These findings were confirmed by several others, especially Burckhardt (7) in Dresden. In other words tuberculosis in the adult is practically universal. Further study has shown that infection takes place before the fourteenth year. This has been determined, partly by autopsies, where the tuberculin test had been applied, and also by a large number of clinical cases. Pirquet (8), Hamburger, and Monti (9) found that a positive skin reaction during the first six months of life was uncommon; during the second half it occasionally occurred, while in the second year it was no longer uncommon and increased up to ninety-five per cent. by the twelfth or thirteenth year. These findings have been repeatedly confirmed by a number of subsequent workers. In view of the practically universal positive Pirquet in adults, it is quite evident that it can be of no actual assistance in diagnosis.

However, many have observed varying degrees of skin reaction to tuberculin, and it has been found that high tuberculin sensitiveness and active disease generally run parallel. This being true, Ellermann and Erlandsen (10) have formulated a method, sanctioned by Weber's law, which in this instance is to the effect that "when the strength of the stimulus (tuberculin) varies in geometric progression, the response (the papule) will vary in arithmetical progression." Dilutions of one, four, sixteen, and sixty-four per cent. are simultaneously applied and a control is made. After twenty-four, and again after forty-eight hours, the five scarifications are examined and carefully measured by means of calipers. From these observations, and by the simplified method of Morland (11), the skin sensitiveness is determined.

Erlandsen and Petersen (12) place the dividing line between active and arrested tuberculosis at 100. In the main, active tuberculosis gives a sensitiveness above 100; arrested tuberculosis below 100; but the exceptions are so frequent as to disprove the rule. For instance, Hamman and Wolman (13) found that sixteen per cent. of the nontuberculous possessed a sensitiveness of 100 or above. They also found that forty-four per cent. of incipient cases had a sensitiveness below 100, and still worse, twenty-two per cent. were negative to five per cent. tuberculin, thus failing to give a sensitiveness of 20.

Riviere and Agassiz (14) report quite similar findings. This confusing variation is probably due to the difference in size and depth of scarification, the amount of tuberculin applied and absorbed, the length of time the tuberculin is allowed to remain in contact with the scarification, the varying normal sensitiveness of the skin and, finally, the varying amount of the individual immunity. It is evident that any test dependent on so many varying factors can have but little clinical value.

A few words may be said in reference to the subcutaneous method, as some clinicians maintain that it possesses, under certain conditions, advantages over the local reactions. During the past few years, the relation of the subcutaneous to the local reactions has received considerable attention. Hamill, Carpenter, and Cope (15), in a series of children, found a close agreement between the subcutaneous and skin reactions. F. T. Lord (16) found a general agreement between the skin, eye, and subcutaneous, while Hamman and Wolman (17) found a closer agreement between the skin and the subcutaneous. Gordon (18), working with adults, found the subcutaneous and cutaneous to be practically identical.

In connection herewith, the observations of the Austrian staff surgeon, K. Franz (19), on the apparently healthy recruits, is important. He employed the 1-2-3 subcutaneous method, up to three mg., and obtained a positive reaction in thirty-eight per cent. of a series of 108 patients coming from a comparatively tuberculosis free district, while a second and third series of 400 and 321, coming from infected areas, gave positive reactions of sixty-one and 68.8 per cent. respectively. During the six or seven subsequent years of service, the percentage in whom tuberculosis developed was no greater in those giving a previous positive reaction than those who were negative.

It may be of service to refer to some of the expressed opinions in reference to the diagnostic use of tuberculin as given at the Fifth Annual Conference of the National Association for the Prevention of Consumption, held in London August 4 and 5, 1913.

Dr. Hector W. J. Mackenzie averred that "tuberculin has been of the greatest value in the diagnosis of tubercle in cattle, but it is of much more limited usefulness as a diagnostic agent in man. The main objection to the use of tuberculin as a help to diagnosis in man, is that tuberculous infection is so common, and the test does not help to distinguish between active and arrested or healed disease. I consider myself that it is only rarely that there is any necessity to use tuberculin for diagnosis, but I have used it in exceptional circumstances in which it has been of value in clearing up the diagnosis. But I strongly deprecate the indiscriminate use of tuberculin as an ordinary means of diagnosis."

Professor H. Sahli considered that "the use of tuberculin for diagnostic purposes ought to be condemned. It is unreliable, both positively and negatively. Diagnostic injections are dangerous. The only diagnostic procedure I advise is the cutaneous reaction with graduated dilutions. Its purpose is not diagnosis in the ordinary sense, but the deter-

mination of tuberculin sensibility in order to fix the proper initial dose for treatment."

Dr. Nathan Raw, referring to the subcutaneous method, stated that "the latter test is not often used in the human body, and is reserved for the diagnosis of the disease in cattle and other animals."

Dr. Noel D. Bardswell observed that "it is now generally recognized that the production of a local reaction at the seat of inoculation, and the raising of the temperature as the result of a tuberculin injection, afford no useful information."

Sir James K. Fowler stated that "the only certain test during life that a person is suffering from pulmonary tuberculosis is the presence of tubercle bacilli in the sputum, and all statements dealing with the value of tuberculin in that disease which are based upon any other test are for the particular purpose fallacious."

Doctor Henssen, of Sonnenberg, told how "for many years tuberculin has been used in this sanatorium as an aid to diagnosis in almost all cases where no tubercle bacilli were found in the expectorations. The experiences recorded cover many thousands of cases: 1. Pirquet's reaction is perfectly useless in adults; 2, the ophthalmoreaction is useless and dangerous. We have repeatedly seen cases of tuberculosis of the eye arise; 3, the subcutaneous reaction is useful for diagnosis only in very rare cases, practically only when there is a reaction at the tuberculous centre in the lung. It is not without danger, and may on occasion stimulate an inactive centre. We have observed undoubted harm done by it and we ascribe a case of death from meningitis to it. On the basis of these experiences we are about to give up the use of tuberculin for diagnostic purposes."

From the previous statements, and, since the same fundamental conditions or factors must be present to produce a positive subcutaneous as a local reaction, it seems reasonable to conclude:

1. Theoretically one method is as reliable as the other.

2. The subcutaneous method is contraindicated in presence of fever, hemorrhage, definite physical signs or bacilli in the sputum, which is not true of a local test.

3. Only single tests are permissible, according to the present view, and severe reactions are considered harmful.

4. By either method a positive reaction can have but very little diagnostic value so far as a clinical tuberculosis is concerned.

Great as the difficulties are in determining the real value of tuberculin as a diagnostic agent, they shrink almost into insignificance when we approach the question of tuberculin therapy. To formulate any definite conclusions at this time is hoping for the impossible, but we may indicate the strong present tendency.

In the early days of tuberculin, its therapeutical use shared the same fate as its diagnostic use. This unfortunate fate is generally attributed to its misuse and abuse. At all events its use was revived, employed with greater precaution, and during the past few years has enjoyed an unprecedented popularity, and it now becomes our task to determine, so far as

possible, whether on second trial it will be acquitted with credit or the previous verdict confirmed.

With the renewed interest in tuberculin, almost innumerable new preparations have appeared, a rather sure indication of lack of confidence in the previous tuberculins. Not only has the number of tuberculins increased, but various stock and autogenous vaccines have been employed, as a part of the treatment, to combat the associated infections supposed to play so important a part in caseation and destruction.

The use of tuberculous vaccines was initiated when Koch produced his tuberculin R. and bacillary emulsion, which were soon followed by many others. In these preparations the bacilli were dead, often fragmented; even various extracts only were employed.

Some years ago, as a prophylactic agent, von Behring introduced bovovaccine and Koch and Schuetz the preparation, tauruman, for the protective vaccination of young cattle. Both of these were living bacilli of human origin. Recently, Webb and Williams have employed living virulent bovine bacilli in the protective vaccination of children also in treating human tuberculosis. More recently, supposedly attenuated, nonvirulent modified living bacilli, so called turtle bacilli, have been employed, vigorously advocated, advertised, and handsomely disposed of financially by Friedmann. Finally, as in other diseases, when medicinal therapy has been tried and found wanting, an appeal has been made to surgery and as a result, we are again in the midst of an artificial pneumothorax epidemic.

Let us now refer to the experimental and clinical basis for the claims made for tuberculin therapy. Koch records various observations in reference to the effects produced on healthy and infected guineapigs by injections of living and killed, whole or triturated bacilli. Some of these findings will be referred to later. At present, it is sufficient to recall that his experimental work with the killed bacilli, particularly the triturated bacilli, led to the production of his so called lymph, later known as tuberculin.

It should be emphasized, that nowhere does he state that he has cured tuberculosis in experimental animals; he simply records that dead bacilli appeared to have a beneficial influence. His further observations are concerned with the supposed curative effect of tuberculin in human tuberculosis. One of the most trustworthy contributions is that of Dr. Lydia Rabinowitsch-Kempner, made at the British Tuberculosis Conference. In connection herewith she used the following language:

I have, during the course of years, carried out a considerable number of experiments on guineapigs and rabbits in reference to the curative influence of different tuberculins. I do not propose to discuss the literature on this subject here, but will content myself with saying that the majority of the reports bearing on the question are unfavorable.

Mention might be made of work by Haupt, recently reported from the Klimmer institute in Dresden, who, as I did, investigated the therapeutic effect of old tuberculin in experimentally infected guineapigs and rabbits. He used small, and very small doses, as the practice is at present in the treatment of the human subject, and he obtained almost the same results as I did. For my experiments, I

used guineapigs not under 300 grams and rabbits not under 1,000 grams. Both human and bovine strains were used to inoculate the animals. The treatment began eight to ten days after the infection and was several times repeated, the doses gradually increasing during treatment.

It is not possible here to recount the details of the work. Taking the results together, it was evident that no curative influence had been exercised by the tuberculin. The control animals lived some times longer than the treated animals. The tuberculin was well borne, and no local abscesses resulted from repeated injections. On the use of large doses the animals readily succumbed. In addition to these experiments, I have recently investigated the condition of the blood in animals treated by tuberculin. As a preliminary experiment two guineapigs, which had been respectively infected three and four weeks previously with tuberculosis, were taken and the blood examined microscopically. No tubercle bacilli were to be found. The animals were then injected subcutaneously with two and three grams of tuberculin respectively. Both animals died within twenty-four hours, when examination of the blood revealed tubercle bacilli lying singly and in heaps.

Bacmeister, in Freiburg, has carried out similar experiments. He examined the blood in fifteen cases of phthisis in the human subject by the method of animal injection. He got four positive results. The blood was taken from the patients at the height of the feverish reaction following the diagnostic use of tuberculin. In the case of all four patients, animal injection before the administration of tuberculin gave a negative result. A connection, therefore, appears to exist between the occurrence of virulent bacilli in the blood and the tuberculin reaction. Since, through the diagnostic use of tuberculin, virulent tubercle bacilli may be caused to enter the blood stream, it behooves us to proceed cautiously with its administration.

Other reports might be cited, but the foregoing will suffice; showing that tuberculin in experimental therapy has been tried and found wanting. Naturally we turn to the matter of clinical therapy in human tuberculosis. Some of the opinions expressed at the London conference on the subject of tuberculin therapy, may be cited:

Dr. G. Sims-Woodhead said: "As I have already pointed out, it might appear that I view with no great favor the use of tuberculin in the treatment of tuberculosis, and I repeat that I am extremely anxious that no one should continue under this misapprehension. I hold, and hold very strongly, that in tuberculin we have an agent of enormous power and subtlety, but that from its very nature this agent may, under certain conditions, be as great a power for evil, as under more favorable circumstances, it may make for good.

Dr. Nathan Raw stated: "I would conclude by saying that the best treatment we can offer today to a person infected with tuberculosis is a prolonged open air life, preferably in a well conducted sanatorium, excess of nutritious food, gentle exercise, followed by plenty of rest, and a course of tuberculin by a careful physician."

Sir James K. Fowler observed: "Some of the conclusions at which I have arrived are as follows: (a) The use of tuberculin in any form in the treatment of pulmonary tuberculosis is not free from danger. Even with exceedingly small doses which are gradually increased the limit of tolerance may be suddenly reached and a reaction may occur. (b) Its use is absolutely inadmissible in any case in which there is fever."

Hofrat Doctor Wolff announced: "We always have certain patients with whom, generally at the request of their home doctors, we employ tuberculin therapeutically, but this does not make more than

one to two per cent. of the inmates if all tuberculin treated patients are counted. For diagnostic purposes tuberculin is practically never used."

Professor L. Brauer said: "I beg to be excused from giving my opinion on the tuberculin question in a few short sentences, but in general my attitude is skeptical and I believe we are in a hopeless impasse."

It now becomes necessary to refer to some of Koch's early observations and endeavor to point out their significance as now interpreted, particularly in reference to infection and immunity. Briefly these findings are:

1. A healthy guineapig inoculated with a pure, live culture of tubercle bacilli, in the course of about two weeks, shows a hard nodule at the point of inoculation. This nodule soon softens, the skin breaks down, and a sloughing ulcer forms, which persists for the remainder of the life of the animal.

2. If, after a lapse of six weeks, the guineapig is reinoculated, the result is entirely different. In a few days, a nodule forms, soon becomes necrotic, an ulcer forms, but heals quite promptly.

3. Healthy guineapigs injected with killed, triturated tubercle bacilli, suspended in water, produce only a localized suppuration.

4. The effect of injections of killed tubercle bacilli on tuberculous guineapigs is very different. If large doses are employed, death occurs in a few minutes or hours. When smaller amounts are injected, death does not occur, but necrosis takes place. With very small doses, neither death nor necrosis is produced and repeated injections cause a healing of the primary sloughing ulcer, which never occurs spontaneously.

It would seem that these observations were overlooked or forgotten until the published studies of Römer and Joseph, Hamburger, and others. Since then, these observations have been the foundation and starting point for much of the experimental work, which has resulted in a better understanding and, at least, a more plausible explanation of the effect of the injections, the reactions, and the therapeutic efforts in tuberculosis. Römer was able to inject sheep and render them completely insusceptible to intravenous quantities of bacilli that killed the control animals in a few weeks.

There is produced in the infected animal a condition designated by Pirquet as allergy, manifested clinically as immunity and hypersusceptibility; the former results when small amounts of the bacilli are introduced, while large and repeated injections produce disseminated disease and death of the animal. Since 1894, when Prudden reproduced pulmonary phthisis in tuberculous rabbits by intratracheal injections of streptococci, the secondary infections have been generally accepted as responsible for the destructive cavity formation. It would now appear that they are not necessary nor essential, for von Behring and others have produced typical phthisis by renewed inoculations of the already tuberculous animal.

Let us apply this knowledge to tuberculous infections in man. As we have found, according to autopsy records and Pirquet's test clinically, practically every individual is tuberculous by the time the thirteenth or fourteenth year of life is reached.

When the infection is small and limited, allergy in the form of immunity is the result, but if the infection is great or repeated, either from within or without, hypersensitiveness occurs and death takes place. Viewed in this light, the tuberculous infections of childhood are no longer to be considered from the standpoint of whether they are present or absent, but rather from the amount and degree of the virulence. It is precisely on this ground that Webb and Williams (20) attempted to produce protective immunity in tuberculosis free children by injecting gradually increasing numbers of live virulent tubercle bacilli. They believed, since every child will become infected by an unknown and perhaps fatal number, it was preferable to inoculate with a definite known number.

Von Behring's contention that tuberculous infection occurs in childhood by the gastrointestinal route by means of infected milk has a new meaning. Mild infections are not undesirable, but are really "beneficent vaccinations," producing immunity and protection against subsequent autoinfections and reinfections from without. As is well known, pulmonary tuberculosis is rare in the first decade or decade and a half of life; the most frequent forms being diffuse miliary and meningeal in the first years, and after the third or fourth years lymphatic, bone, and joint involvement. Investigation reveals that most of these are due to the bovine type of the bacillus. Pulmonary tuberculosis is practically always due to infection with the human type of the bacillus, probably by means of the pulmonary route, when the immunity is low or wanting, produced by a hypergastrointestinal infection or a superpulmonary infection. This means one large, overwhelming amount or probably as actually occurs, repeated smaller amounts of the bacilli.

From these considerations it would appear that the one and all important problem is, not the question of the presence or absence of a tuberculous infection as determined by a tuberculin reaction or any other means of physical examination now at our command, but the determination of the power of resistance or the immunity. This condition alone determines the subsequent course of the disease, resulting either in recovery or death.

We can all recall and cite cases, especially of diffuse miliary tuberculosis, with a rapid onset and course, where the diagnosis was made only at autopsy. On the other hand, cases of pulmonary tuberculosis, with pronounced signs and bacilli positive sputum extending over months or years, with finally a favorable termination, are by no means infrequent.

While the degree of immunity is the all important consideration, unfortunately, at the present time, the means of determining it is far from simple. So far no easily applied clinical method has been devised, but the procedure, like many another important test, is a purely laboratory procedure.

Some of the results obtained in the study of immunity in tuberculosis are not only interesting, but highly important and far reaching in reference to the reactions and therapy. Baldwin (21) was unable to produce a skin sensitiveness in a tuberculosis-free animal by using tuberculo-protein alone or in combination with varying amounts of the

various waxy substances of the tubercle bacillus. Stocker (22), one of the assistants of Professor Sahli, working with Beranek's tuberculin, was unable to create a sensitiveness. On the other hand, in tuberculosis free animals, sensitiveness is readily produced by using the whole bacillus, either alive or dead. It would seem from these findings that the resulting tubercle, produced by the living or dead bacillus, is essential in inducing a reaction or allergy and consequently must be equally essential in producing a prophylactic or therapeutic immunity.

White (23) has investigated the relative importance of the various partition elements in obtaining a skin reaction. A series of fifty patients were examined as follows:

Whole substance	100 per cent.
Protein 1 (Levene)	90 per cent.
Protein 2 (Levene)	30 per cent.
Protein 3 (Levene)	0 per cent.
Fat (alcohol)	20 per cent.
Fat (ether)	30 per cent.
Fat (benzol)	5 per cent.

When tubercle fat is added to any one of the proteins, the reaction is always greater than when a single substance is used.

Von Ruck (24) has advanced very materially our knowledge of the immunity in tuberculosis, by using the various partition substances, either alone or combined in varying amounts, and then determining the antibodies by the application of laboratory and biological methods. By such means, and after an enormous amount of work, he has been able to combine the various partition substances in the form of a highly efficient vaccine, which is equally serviceable either as a prophylactic or curative agent.

SUMMARY.

1. Tuberculin reactions, either positive or negative, are of no material assistance in diagnosis.

2. The degree of skin sensitiveness is no measure of the activity or latency of the tuberculous infection.

3. Tuberculin as a therapeutic agent is rapidly losing in repute, and, the indications justify the prediction that it will soon be quite generally discarded.

4. The important determination in any case is the amount of immunity, as estimated by laboratory and biological methods.

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31 NORTH STATE STREET.

MENINGOCOCCIC EMPYEMA.

Report of a Case.

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The role of the meningococcus in extrameningeal pathological processes has been a matter of much consideration and research since 1884, when Marchiafava and Celli first demonstrated the organisms and finally when Weichselbaum (1), in 1887, proved conclusively their relationship to suppurative meningitis. A review of the literature reveals extremely few reports of lesions outside of the cranial cavity from which the meningococcus was isolated, unless in association with meningococcic meningitis. The presence of the meningococcus in the nose, throat, and ear of not only diseased, but of a percentage of healthy individuals, has been conclusively proved by such workers as Weichselbaum, Ghon, Pfeiffer (2), Doering, as well as Goodwin and V. Sholly (3). Taylor reports a case of suppurating joint due to the meningococcus. The organism has been recovered from the blood in cases of sepsis by Liebermeister, Andrews, Portret, Simon, Gwyn, and others. Warfield reports a case of malignant ulcerative endocarditis from which he cultivated the meningococcus. The case forming the basis of the present communication is therefore of great interest, because in the literature no mention is made of a previous case of meningococcus isolated from an empyema.

CASE. G. K., female, white, aged fifty-five years, housewife, was admitted to the Mt. Sinai Hospital medical service of Dr. H. B. Shmookler, complaining of cardiac palpitation, dyspnea, dry cough, bloody expectoration, great asthenia, and severe pain on the left side of the chest. Temperature 102.4° F., respiration 38 and shallow, pulse wiry and 130. She had been treated at home by her physician for ten days prior to admission. Physical examination revealed a massive left sided empyema of the chest. Diagnostic puncture of chest revealed a thin brownish yellow pus. No other abnormal physical signs were present. The urine showed a one plus albumin and a few hyaline casts. Leucocyte count 16,200, polynuclears 92.5 per cent. Sputum was frothy, blood tinged, and large clumps of mucus were present. Smears showed staphylococci, pneumococci, Gram negative bacilli, and lephthothrix. Tubercle bacilli were not demonstrable.

Smears made from the pus obtained on chest puncture revealed an intracellular and extracellular Gram negative diplococcus, varying somewhat in size. Cultures on neutral ascites agar and Loeffler's blood serum revealed, in twenty-four hours, many small, flat, glistening, yellowish, gray, smooth edged colonies. On smears from this culture, a pure strain of Gram negative diplococci was demonstrated. On neutral agar the growth was not so luxuriant, and although the colonies were somewhat smaller, they presented the same characteristics. On further cultures we found that the organism fermented dextrose and maltose, but not lactose. We therefore eliminated the gonococcus, which does not grow on plain agar, nor ferment maltose nor produce colonies such as we described. We differentiated our organism from *Micrococcus catarrhalis* because the latter organism not only produces more profuse and raised colonies on the media, but does not ferment the sugars and has a tendency to liquify blood serum. The reactions of our organism on the sugar media significantly conformed to the tables of Elser and Huntoon (4) on differentiating Gram negative cocci. The blood cultures from the patient were sterile cultures from the nose, throat, and sputum did not yield any organisms that stimulated the organism obtained from the chest pus. We therefore concluded that the organism was a meningococcus.

Owing to the poor condition of the patient, opera-

tion was deemed inadvisable. Death occurred on the following morning. Unfortunately an autopsy was not permitted. Agglutination tests and complement fixation reactions would have proved interesting, but for obvious reasons they could not be performed.

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1832 SOUTH SIXTH STREET.

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLII.—How do you treat bedsores? (Answers due not later than November 16th.)

CLIII.—What has been your experience with condensed milk as a substitute for the mother's milk? (Answers due not later than December 15th.)

CLIV.—How do you treat prostatitis? (Answers due not later than January 15, 1915.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

A CHANGE IN PRIZE QUESTION CLIII.

We desire to draw the attention of our readers to an important change in Prize Question No. 153. We trust that there will be a hearty response to the new question, the importance of which need not be emphasized: *What has been your experience with condensed milk as a substitute for the mother's milk?* Answers will be received up to December 16th. Former question No. 153 becomes No. 154: *How do you treat prostatitis?* Those who answer this question will have a month longer than usual in which to prepare their essays, i. e., until January 15, 1915.

THE EDITORS.

Therapeutic Notes.

Autotherapy.—R. Becerro, in *Revue de thérapeutique médico-chirurgicale* for December 15, 1913, is stated to have obtained favorable results by a sort of autotherapy in cases of sudden cessation of the mammary flow during the period of lactation, a condition before which the practitioner is frequently helpless. Dietetic measures and the administration of thyroid or placental extracts, as advised by Hertoghe and Bouchacourt, are available where there is merely a slow diminution in the milk secretion, but of no value where there is a sudden decrease or complete cessation of the mammary

function. The author's procedure, which proved effectual in two out of three cases of the latter category, is as follows: When the diminution of milk flow is noted, the mother is ordered to bed and a diet of milk and carbohydrates prescribed. Supplementary feeding of the child is carried out, but nursing is continued every two hours for three entire days. At the end of this period the breast feeding is left off for four to six hours. One of the breasts is rendered surgically clean and milked with the hand, also previously cleansed, into a sterile receptacle. With a glass syringe, sterilized in boiling water beforehand, 5 drams (20 c. c.) of the milk is injected under the asepticized abdominal skin. A single such injection is in the majority of cases followed in thirty hours by an abundant secretion of milk. If the first injection is not sufficiently active, another is given.

Iodine in the Treatment of Pulmonary Tuberculosis.—L. Boudreau, in *Journal de médecine de Bordeaux* for January 4, 1914, recommends, after over ten years' experience, the continuous administration of the French tincture of iodine, one part by weight in twelve of alcohol, without potassium iodide, in large doses in the treatment of tuberculosis, especially pulmonary. The doses should be moderate at first, but later gradually pushed to the extreme limits of tolerance, from 100 to 350 drops of the tincture being ingested daily in milk, coffee, decoctions or infusions, or diluted wine. Only in pure water is the taste of the iodine unpleasant. Iodism is extremely infrequent, and the author considers tincture of iodine far less productive of untoward results than potassium iodide. From twenty-five to seventy drops of the tincture are taken in each glassful. The larger doses are used especially in the advanced cases of tuberculosis, and according to the author, have often brought about a surprising reversal from the lethal trend in these cases, with ultimate recovery. In the numerous incipient cases treated smaller amounts were frequently sufficient, but at times the larger amounts had to be used, and even then the condition was occasionally refractory to the treatment, a marked variation in this respect being noted in the various cases. In children six or seven years old forty to sixty drops a day, after a gradual ascent in doses, were perfectly borne. The benefit procured by the treatment, even in apparently hopeless cases, was shown in the unexpected recovery of many. Cures were obtained in grave cases even where the ordinary rest treatment was impracticable. The effect of the iodine in tuberculous cases is ascribed by the author to its increasing the leucocytes, especially large mononuclears, and augmenting phagocytic activity. The tonic and defensive functions of the ductless glands are also increased by iodine; it is possible that it is useful as a direct germicide. Degenerated and poorly staining tubercle bacilli were observed in the sputum in treated cases. In threatening tuberculosis of the intestines, from swallowing sputum, iodine rather promptly inhibits the morbid process. The author strongly advises that the treatment be used in cases of tuberculous meningitis, renal tuberculosis, and tuberculous lymphadenitis.

Local Anesthesia in Otology and Other Specialties.—Bonain, in *Revue hebdomadaire de laryngologie, d'otologie et de rhinologie* May 30, 1914, discusses the use of a local anesthetic mixture consisting of equal parts of phenol, menthol, and cocaine hydrochloride, with further addition of solid epinephrine hydrochloride. The phenol and menthol are first mixed to form a fluid, into which the cocaine salt is then dissolved and finally likewise the epinephrine in the proportion of one sixty-fifth of a grain (1 mm.) to every forty-six grains (3 grams) of the fluid previously obtained. Epinephrine solution must not be used, as proper admixture could not then be effected. Prepared with pure ingredients, the fluid is almost colorless, and its caustic action is, at the most, equal to that of a ten per cent. solution of silver nitrate. Applied to the tongue or other normal mucous surface, the fluid produces a white coloration, which disappears much sooner—in a half hour at most—than that caused by the silver solution. The normal tympanic membrane shows no change in color upon application of the author's preparation, but where the drum is inflamed, red, and shows changes in its superficial epidermal layer, the fluid produces the same white color as is seen in the case of normal mucous membranes. A three minute application of the fluid in this situation is generally sufficient for anesthetic purposes, although at times the author allows it to remain five minutes. It should then be removed with a dry camel's hair pencil. Use of alcohol, ether, or chloroform locally must be avoided. For ossiculectomy and curettage of fungous conditions the author uses his fluid constantly as local anesthetic, applying it repeatedly in the tympanic cavity, especially at the level of the attic, without the least untoward sequel at any time. The fluid is powerfully antiseptic, and may be used as local anesthetic in numerous operative procedures in the pharynx, larynx, and nasal fossæ.

Treatment of Chronic Mucocoele.—A. Niven Robertson, in the *Practitioner* for December, 1913, refers to chronic mucocoele as being, to all intents and purposes, merely a pyogenic abscess of the lacrymal sac, with complete or incomplete obstruction of the nasal duct. To promote drainage of the sac after making an artificial slit in the inferior canaliculus, the author has had made a small silver tube, the outer end of which is a semicircle or gutter that rests in the slit while the inner end is a complete tube which is inserted into the inner unslit part of the inferior canaliculus. To retain the tube in position a small hook is provided at the junction of the gutter and the circular part of the tube, which hook rests on the skin over the outside of the sac. In the treatment the silver tube is inserted into the canaliculus daily and the sac syringed out through it with half strength hydrogen dioxide solution. This is done several times, till the contents of the sac, pressed out through the tube, are clear. The hydrogen dioxide causes some temporary reddening and irritation of the mucous membrane of the inner canthus, and bubbles profusely—oxygen being liberated—in contact with the silver of the tube. The irritation leads to an

increase of blood supply to the sac and its vicinity. The patient is instructed to squeeze the contents of the sac out several times daily by pressure with his thumb, and before he leaves, a small quantity of an ointment of five grains (0.3 gram) of yellow oxide of mercury to the ounce (30 grams) of base is inserted with a glass rod into the inner canthus and as much of it as possible massaged into the sac. In a large number of cases this treatment, assiduously carried out, brings the sac to a healthy condition and restores permeability of the nasal duct. Where this does not result the nasal duct is dilated with probes and a lead style inserted to maintain its patency. The silver tube greatly facilitates washing out the sac, and prevents the formation of false passages by the nurse in making rough attempts to pass a syringe directly down the canaliculus. If left in charge of the case, she was merely to insert the end of Anel's syringe into the mouth of the canaliculus tube. The author has also left the tube *in situ* several hours as a drain preventing the cut edges of the slit from uniting, though only in hospital cases where it could be watched. Instead of hydrogen dioxide a solution of zinc sulphate, one grain (0.06 gram) to the ounce (30 c. c.), may be used to syringe out the sac.

Alkaline Treatment of Furunculosis in Diabetics.—A. Brunner, in *Medizinische Klinik* for February 8, 1914, reports good results from washing the furuncles twice daily with a five per cent. solution of sodium bicarbonate, with sterile gauze alone as dressing. Two days later the purulent discharge was less, and the tissue infiltration and edema had diminished. No further extension took place, and a few weeks later the condition was entirely cured. In a woman in diabetic coma with extensive and deep furunculosis of the back and thighs irrigation of the pus cavities with bicarbonate solution and the application of sterile gauze caused the discharge soon to cease and a tendency toward healing to be manifest. The patient succumbed soon after, however. The author thinks that the application of alkalis to the tissues entered during operations on diabetics might be of value in hastening local repair; the theory being to remove acidosis of the tissues.

Treatment of Confluent Herpes vulvæ.—Queyrat, in *Quinzaine thérapeutique* for May 25, 1914, is credited with the statement that in this grave variety of herpes, rest in bed is essential. A sitz bath containing starch should be ordered taken for twenty minutes each morning and evening. Poultices of cooked potato starch, prepared with boric acid solution or a one in 2,000 solution of mercury oxycyanide may be applied to the vulva. Topically, bismuth subnitrate or the following ointment should be applied:

R Guaiacolis, . . . } 3â gr. iii (0.2 gram);
Mentholis, . . . }
Zinci oxidi, ... gr. xxx (2 grams);
Unguenti aquæ rosæ recentis, ... 5v (20 grams).

M. et ft. unguentum.

Or, compresses of hydrogen dioxide solution, boric acid solution, or a saturated solution of picric acid may be employed.

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THE VALUE OF DISCUSSION.

In this issue of the JOURNAL, the respective writers pro and con having been duly consulted, the controversy on the present methods of treating tuberculosis comes to a close. It is not as if the writers were addressing an uninstructed audience; all our friends have doubtless treated numerous cases of tuberculosis and have long since decided on the merits of the present well organized attack on that disease. We have been criticised for publishing onslaughts on modern theories and methods, but we hope that the JOURNAL will always find room for the arguments of adversaries of any medical propaganda, no matter how firmly rooted scientifically it may appear to be. Attacks, if unjustifiable and not based on reason, can only leave the truth triumphant. We have been glad to present both sides of the recent theory of psychanalysis; the war goes merrily on between therapeutic enthusiasts and therapeutic nihilists; we have had sharp discussions between gastroenterologists; we have listened to advocates and adversaries of the "twilight sleep"; and we have even published arguments on purely moral questions. Not very long ago, indeed, we presented an attack on the very basis of our modern physiology, which no one felt impelled to answer, however. Discussions of this kind are of

great value, if they do nothing more than make the physician think. The too common attitude of accepting the theories and practice of some medical high priest, with a reverent lack of trial or argument, is disastrous to sound thinking and efficient practice.

THE PHYSICAL DEVELOPMENT OF
CHINESE STUDENTS.

Various reasons make accurate statistics of Chinese physical development of interest to the anthropologist and scientist in general as well as to the physician. In the modernization and rapid advance of China in every line today, America is playing no small part. American commerce, as well as American education, industrial methods, and statecraft hold first rank in the desires and the ideals of the Chinese. It needs but to mention the recent action of the Rockefeller Foundation in sending a medical commission to China to study medical and sanitary conditions there with a view to the most advantageous ways to promote health interests. In line with these considerations certain data are worthy of note in the annual report, in June, 1914, of the college of Yale-in-China, at Changsha in Hunan Province, to the parent organization at Yale University.

Complete physical examinations and measurements were made of 112 students of the college of Yale-in-China by Dr. E. H. Hume, the medical examiner, and Mr. P. S. Achilles, the physical director. The system of examination followed was the same as that used at Yale University and the 112 examinations at Yale-in-China were tabulated for comparison with the corresponding ages and heights at Yale University. Of the 112 students examined, the general physical condition was poor in twenty-five per cent., fair in fifty-three per cent., and satisfactory in only twenty-two per cent. Muscular development was poor in thirty-nine per cent., fair in forty-one per cent., and good in twenty per cent. In the strength tests the average was 306 points, five points below the average for Yale University students of corresponding height. General nutrition and fatty tissue were subnormal in twenty-seven per cent. and only fair in forty-six per cent. Estimation of digestive power from examination of stools showed thirty-three per cent. poor and twenty-five per cent. only fair. Seventy-four per cent. were affected with ascarides. Total neglect or very inefficient care of the teeth was evidenced in sixty-three per cent.

Throughout China tuberculosis is probably the most common disease and in some sections its incidence seems almost universal. In this group of

students, affections of the respiratory tract were particularly common, and this furnishes a side light on the frequency of pulmonary tuberculosis among the Chinese in general. Sixty per cent. presented lesions of the nose, throat, or lungs, requiring treatment. Thirty per cent. showed high pitched pulmonary resonance. Adenoids were found in eleven per cent., diseased tonsils in forty-seven per cent., polyps or narrowed nasal passages in eighteen per cent., deflected septum in thirty-three per cent., and hypertrophied turbinates in thirty-five per cent. Forty per cent. had defective vision, and sixteen per cent. suffered from trachoma. In spite of an average age of but 18.5 years, the radial arteries were notably thickened in about half. Cardiac hypertrophy was present in thirteen per cent., and twenty per cent. had murmurs or evidence of cardiac irritability.

At Yale the lowest stature for which an average is compiled is five feet two inches. Of the 112 Yale-in-China students examined, thirty-one were less, limiting the comparison to the remaining eighty-one, whose average age was 19.5 years. This is about equivalent to the age of Yale freshmen, allowing for discrepancies in the Chinese calendar and manner of reckoning. Beginning at five feet, two inches, comparisons were made at nine intervening heights up to five feet, eight and a half inches. Differences in measurement of neck, chest, calf, etc., at all nine heights were averaged, thus showing approximately the average difference between the Yale and the Yale-in-China student of the same height. With few exceptions the Yale-in-China student averages less than the Yale student of the same height and his strength is less.

At lower statures, the average measurements for the Yale-in-China student were closer to those for the Yale student, and in several places, as in the neck, calves, and shoulders, were better. This is probably due to the fact that lower statures are normal in China for a full grown man. At the greater heights, the differences were more markedly in favor of the Yale student. It is to be remembered that the population of China is most heterogeneous in respect of racial characteristics. Thus a standard for one province or section would not at all be applicable to other sections. For central China, however, the statements here given are trustworthy. Comment is scarcely necessary. The figures emphasize strikingly that the average combination of scholarship, good health, and normal physical development in the American student is distinctly not the rule in China. The causes for this cannot be discussed in our limited space, but their roots lie deep and western educators in China must take cognizance of them.

HEMIC INFECTIONS OF THE URINE.

In the *British Medical Journal* for October 24, 1914, Edward C. Hort presents some interesting observations on his bacteriological study of the urine. There are many cases in which there is an obvious bacterial infection of the blood, but in which blood cultures prove uniformly negative. This is believed to be due to the bactericidal action of the blood. In these cases Hort has found that culture of the urine yields a large number of positive results and permits the isolation and identification of the infecting organism. In pneumonia, bronchitis, and other pulmonary conditions, for example, he has been able constantly to isolate the infecting organism or organisms from the urine by culture. Even in persistent simple bronchitis, the pneumococcus, Friedländer's pneumobacillus, and the influenza bacillus of Pfeiffer were found in the urine, either alone or with other organisms. A host of other infections have yielded equally constant results from the bacteriological study of the urine, such as meningitis, appendicitis, infective cholecystitis, acute gastric and duodenal ulcer, acute phlebitis, acute rheumatic fever, etc. It was found that often the inoculation of the urine on artificial media, especially when the urine was clear when passed, failed to yield cultures. This failure could be overcome, however, by longer or shorter incubation of the urine alone before inoculation, followed by the examination of both the urinary deposit and the artificial cultures.

Perhaps the most interesting and valuable feature of Hort's studies relates to the bacteriology of typhus fever. He was able to discover in the urine of both human beings and inoculated monkeys a large number of large coccal and bacillary organisms similar to those found in the blood, and in addition to these forms, minute organisms which occurred singly, in pairs, or in clusters. These were also sometimes coccal in form and sometimes bacillary, even in the same cluster. They were both Gram positive and negative in the same cluster. After incubation of the urine these small forms rapidly vanished and only the larger forms remained. Inoculation of the larger forms failed to infect monkeys, but inoculation of the small forms, obtained by filtration of the fresh urine, was quite as successful in infecting monkeys as the direct inoculation of fresh blood. These observations suggested that the small forms alone were capable of carrying the infection from animal to animal. Fresh blood was then prepared by solution of the centrifugated red cells in bacteria free distilled water, and it was sometimes possible thus to demonstrate the presence of these small forms of organisms. Incubation of the forms thus obtained

from the fresh blood, like those obtained from filtration of the urine, promptly gave rise to a total replacement by the large forms.

THE CONSUMPTIVE AWAY FROM HOME.

Many consumptives seem to be under the impression that the cure of their trouble is a matter of a few weeks only if they can but get away to some congenial climate like that of Asheville, for example; they are likely to leave home with insufficient funds and ultimately to become charges upon the town. Dr. Thompson Frazer, of Asheville, has undertaken to combat this delusion and his plain, unequivocal statement of the facts may be found in Reprint No. 221 from the *Public Health Reports* for September 18, 1914. Aside from railroad fares, the consumptive patient will have to pay from ten to twelve dollars a week for a comfortable room with board and often an extra dollar for milk and an egg at ten and four o'clock. A good reclining chair costs fifteen dollars, laundry and other essentials about two dollars, and there still remain sputum cups, thermometer, blankets, and medicines, to say nothing of the services of a physician, of whom only the poorest will care to ask advice free. A minimum of \$700 may therefore be counted upon for an arbitrary period of ten months, that is, if the patient is alone. Doctor Frazer, without wishing to discredit the value of climate in the treatment of tuberculosis, points out that it is the least of the factors that make for improvement and is valueless without fresh air, good food, and proper care. If, because of the advice of the attending physician, or because home conditions are unsatisfactory, the patient must leave home, this step should not be taken without a full understanding of the obligations to be met.

CAMPBOR IN THE TREATMENT OF PNEUMONIA.

Camphor has received its widest application as a local sedative in the form of ointments, liniments, etc. Internally, it has been employed as an antispasmodic, and lately as a diffusible cardiac stimulant. Generally camphor has occupied rather an uncertain place in the physician's armamentarium; it is usually regarded as an old fashioned remedy of slight value. In *Roussky Vrach* for June 7, 1914, M. S. Markevitch contributes an exhaustive clinical study of this drug, alleging an almost specific action in croupous pneumonia. Since 1910 he has employed camphor and digitalis as a routine treatment in bad cases of pneumonia with results which seem to substantiate his assertions. Thus, an analysis of 548 cases of croupous pneumonia in one of the Petrograd hospitals shows a

mortality of 6.6 per cent. after camphor treatment against 9.9 per cent. after the usual treatment. The results are still more favorable when account is taken of the fact that among the patients who did not receive camphor a considerable number were not seriously ill and would have recovered under any treatment. In the administration of camphor, the author noted a marked improvement in the respiration, lowering of the temperature, diminished expectoration, and a return of appetite and vigor. The termination of the disease was always by lysis. The doses employed were large, ten c. c. of a twenty per cent. solution in oil injected twice daily; no untoward effects were observed, and this is attributed to the slow and continuous absorption from what the author calls a "depot" of camphor at the site of injection. The beneficial effects are credited by the author to the action of the drug on the heart and vasomotor centres and to its antiseptic action on the pneumococci. This view, however, is not shared by N. A. Bieloff. From an experimental study of the effect of large doses of camphor on rabbits (*Roussky Vrach*, June 7, 1914) he concludes that this drug produces a change in the gases given off and taken in by the organisms, both elimination of carbonic acid and absorption of oxygen being increased. Bieloff's explanation of the effect of camphor is hardly sufficient in view of the fact that inhalation of oxygen in pneumonia is of questionable value. Whatever the explanation, the fact remains that camphor is apparently a most valuable drug in the treatment of a grave affection.

THE X RAY IN THE FIELD.

Correspondence in the *Lancet* for October 24, 1914, from Australia informs us that Dr. Stanley Argyle has invented an x ray plant mounted on an automobile and movable at top speed. This plant, paid for by private subscription, will be sent to England along with the expeditionary force of the colony and in charge of Doctor Nicholas, of the Melbourne Hospital.

A CANADIAN MILITARY HOSPITAL IN ENGLAND.

With the approval of the War Office, Beachborough Park, near Shorncliffe, according to the *Lancet* for October 24, 1914, has been placed by Sir Arthur and Lady Markham at the disposal of the Canadian War Contingent Association for use as a military hospital, and for this purpose it has now been prepared and equipped. It is to be known as the Queen's Canadian Military Hospital and has accommodation for upward of fifty patients. The medical and surgical organization is under the supervision respectively of Sir William Osler and Mr. Donald Armour. The nursing staff consists of Canadian trained nurses.

THE PHILADELPHIA POSTGRADUATE SCHOOL OF NEUROLOGY.

With the approval of the director of the Department of Public Health and Charities, Dr. Richard H. Harte, the neurological staff of the Philadelphia General Hospital has organized a postgraduate school of neurology. The neurological wards of this hospital contain about four hundred patients and offer unusual facilities for postgraduate instruction in nervous disease, while the Philadelphia Hospital for the Insane, which is a part of the general hospital and situated on the same grounds, has more than two thousand patients. There will be a limited number of clinical lectures, but instruction will consist principally of ward visits and conferences. Short special courses on serology, pathology, neurological ophthalmology, and the jurisprudence of nervous disease and insanity will be offered in connection with the clinical teaching. The faculty is composed of the following members of the neurological staff of the Philadelphia General Hospital: Dr. Charles K. Mills, Dr. Charles W. Burr, Dr. William G. Spiller, Dr. James Hendrie Lloyd, Dr. Charles S. Potts, Dr. D. J. McCarthy, Dr. T. H. Weisenburg, and Dr. George E. Price. Dr. Francis X. Dercum, consulting neurologist to the hospital, will take part in the instruction. For information regarding this new and excellent school, our readers may address the dean, Dr. Charles K. Mills, 1909 Chestnut Street, Philadelphia.

News Items.

Changes of Address.—Dr. Sol Hirsch, to 145 West 143d Street, New York.

Dr. J. Lanes, to 325 East Thirteenth Street, New York.

Dr. P. Nilsson, to 1200 Lexington Avenue, New York.

Dr. J. Preston Miller, to 544 West 148th Street, New York.

Dr. Frank Cohen, to 602 West 137th Street, New York.

Radium and Its Rays.—A lecture on this subject will be delivered at the university by Horace C. Richards, professor of mathematical physics in the University of Pennsylvania, Philadelphia, on Saturday afternoon, November 14th, at three o'clock.

Pan-American Medical Congress.—At a meeting held in Cincinnati, Ohio, Wednesday, October 28th, Dr. C. A. L. Reed, of Cincinnati, was elected president, Dr. Ramon Guiteras, of New York, secretary, and Dr. Henry L. E. Johnson, of Washington, D. C., treasurer.

An American College of Physicians Proposed.—A resolution providing for the founding of an American college of physicians constituted an important feature of the sixth annual meeting of the American Association for Clinical Research held during the past week in Baltimore.

Diphtheria in Kansas City.—It is reported that owing to the existence of an epidemic of diphtheria in Kansas City, Mo., the health authorities have issued an official warning to the public. During the month of October 142 cases were reported, with 11 deaths; on November 6th 110 cases remained under quarantine.

The Alvarenga Prize.—A notice has been received from the secretary of the College of Physicians of Philadelphia stating that the title of Dr. H. B. Sheffield's essay, for which he received the Alvarenga Prize for 1914, was Idiocy and the Allied Mental Deficiencies in Infancy and Early Childhood, and not the Fundamental Principles Involved in the Use of the Bone Graft in Surgery, as originally stated.

Forsyth Dental Infirmary for Children.—The president and trustees of this institution, 140 The Fenway, Boston, have invited a number of professional guests to be present at the dedication of the building on Tuesday, November 24, 1914, at ten o'clock. Tea will be served at four o'clock.

Medical Society of the Borough of the Bronx.—The annual dinner of this society will be held at Ebling's Casino, 156th Street and St. Ann's Avenue, Thursday evening, December 17th, at 7:30 o'clock. For information concerning the function address the chairman of the dinner committee, Dr. Charles A. Clinton, 5 East 128th Street, New York.

Ohio Valley Medical Association.—The following officers were elected at the annual meeting of this association, held in Evansville, Ind., last week: President, Dr. E. O. Smith, of Cincinnati; first vice-president, Dr. G. M. Young, of Evansville; second vice-president, Dr. William Shimer, of Indianapolis; third vice-president, Dr. William Horsa, of Chicago; secretary and treasurer, Dr. Benjamin Floyd, of Evansville.

Montefiore Home Changes Its Name.—The name of this institution has been changed from the Montefiore Home, a Hospital for Chronic Invalids and a Country Sanatorium for Consumptives, to Montefiore Home and Hospital for Chronic Invalids. The change was made by a unanimous vote taken at the thirteenth annual meeting of the corporation held Sunday, November 8th, in the synagogue of the home.

The Friedmann Tuberculosis Cure Rejected by the United States Public Health Service.—The seal of official disapproval has been set on the tuberculosis "cure" brought to this country last year by Dr. Friedrich F. Friedmann, of Berlin. The announcement was made by the service on November 6th in making public an abstract of the report its investigations in hospitals and laboratories where tests of the Friedmann cultures were made.

Leo N. Levi Memorial Hospital.—The new Leo N. Levi Memorial Hospital, of Hot Springs, Ark., which was built by the Order of B'nai Brith, various lodges all over the country contributing, was opened to receive patients on November 2d. It is a charitable institution for the benefit of patients referred by organized charities. Dr. W. V. Laws is chairman of the medical board and Dr. W. H. Deaderick is chairman of the board of management. Other members of the board are Dr. O. E. Biggs, Dr. J. C. Minor, and Dr. S. D. Weil.

Medical Association of the Greater City of New York.

—A stated meeting of this association will be held in Du Bois Hall, New York Academy of Medicine, Monday evening, November 16th, at 8:30 o'clock. Dr. Samuel Goodwin Gant will read a paper entitled Modernized Proctology, and Dr. Martin B. Tinker, of Ithaca, N. Y., one on the Diagnosis of Thyroid Disease as Related to Surgical Treatment. Dr. Jerome M. Lynch will open the discussion of Doctor Gant's paper and among those who will discuss Doctor Tinker's paper are Dr. Walter L. Niles, Dr. Harry Miles Imboden, and Dr. Isaac Hartshorne.

Mississippi Valley Medical Association.—The fortieth annual meeting of this association was held in Cincinnati, Ohio, October 27th, 28th, and 29th, under the presidency of Dr. D'Orsay Hecht, of Chicago. Officers for the ensuing year were elected as follows: President, Dr. Hugh Cabot, of Boston; first vice-president, Dr. Willard J. Stone, of Toledo, Ohio; second vice-president, Dr. Albert H. Freiburg, of Cincinnati; Dr. Henry Enos Tuley, of Louisville, secretary (reelected); Dr. S. C. Stanton, of Chicago, treasurer. Next year's meeting will be held in Lexington, Ky., and Dr. C. L. Wheeler has been chosen chairman of the local committee on arrangements.

Extension Work in Public Health Education.—The Bureau of Public Health Education of the Department of Health of the City of New York is cooperating with a number of teachers in the training schools and high schools of New York in giving their students an insight into the work of the department of health. The students use one of the bureau's monographs as a textbook in their work in hygiene and in municipal government, following their book studies by a visit to the health exhibit on the fifth floor of the department building. In addition, the bureau has arranged for extension lectures to the students in their school similar to the lectures given in the courses arranged for the health department's employees.

Mount Sinai Hospital Clinical Society.—At a meeting held Wednesday, October 21st, the following officers were elected: President, Dr. Harry Lowenburg; vice-president, Dr. Simon Wendkos; secretary, Dr. Morris Schwartz.

Illinois State Civil Service Commission.—This commission will hold an examination for trained nurses on Saturday, December 5th, at fourteen points in the State, which will be open to residents of the United States between the ages of twenty-five and fifty years. The initial salary is \$40 a month, with maintenance, with a possible increase to \$75 a month. Several vacancies now exist in the College of Medicine of the University of Illinois, at Chicago, the Training School for Girls at Geneya, and the Illinois State Penitentiary.

Department of Health Publications.—The Department of Health of the City of New York has issued a number of monographs and reprints containing information concerning the activities of the department and matters of general public concern. Many of these are of special interest to physicians. A list of these publications, which will be sent free on request, will be found in the November 14th issue of the *Weekly Bulletin* of the department.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, November 16th, Philadelphia Clinical Association, Medical Society of the Woman's Hospital, Episcopal Hospital Clinical Society; Tuesday, November 17th, West Branch of the County Medical Society; Wednesday, November 18th, Section in Otology and Laryngology of the College of Physicians, Mount Sinai Hospital Clinical Society; Thursday, November 19th, Section in Ophthalmology of the College of Physicians and the Northeast Branch of the County Medical Society; Friday, November 20th, Southeast Branch of the County Medical Society and Jefferson Hospital Clinical Society.

Medical Inspection of School Children.—The special committee of the advisory council of the Department of Health of the City of New York, appointed recently to consider and make suggestions in regard to the numerical ratio of school nurses to school children and the frequency of physical examination of school children, has submitted a report to the effect that there should be on an average one nurse to every three hundred school children and that each child should have a careful physical examination each year. These recommendations were made on the understanding that the work of the school nurse should include service in the school, in the home, and in the clinic. It was further recommended that when 2,500 or more children were assembled in one school building, one nurse at least should be assigned for exclusive duty.

News of the Medical Schools.—A gift of \$113,750 from Mr. William K. Vanderbilt has enabled Columbia University to take title to the north half of the block bounded by 116th and 117th Streets, Amsterdam Avenue, and Morningside Drive. The property was a part of the Drexel estate which was acquired by the university with the original view of moving the College of Physicians and Surgeons to the Morningside Heights campus, but it seems doubtful now whether the college will be moved from its present site on Fifty-ninth Street.

Clinical instruction is hereafter to be provided for medical students at the Montefiore Home, and to carry on this instruction the following new appointments were made: Dr. Siegfried Wachsmann, professor of clinical medicine; Dr. George L. La Porte, assistant professor of clinical medicine; Dr. Bernard S. Oppenheimer, assistant professor of clinical medicine; Dr. S. Philip Goodhart, assistant professor of clinical medicine.

Dr. Arthur P. Coll and Dr. John Leshure have been appointed instructors in laryngology.

Dr. Warfield T. Longcope has been appointed to serve as a member of the board of managers of the George Crocker Special Research Fund. Dr. Theodore C. Janeway resigned from the service of the university, his resignation having been tendered last spring.

The council of the University of Paris announces that arrangements have been made for beginning courses in the various departments at the usual date.

Dr. R. A. Reeve has resigned as professor of ophthalmology in the University of Toronto and has been succeeded by Dr. J. M. McCallum; Dr. G. K. McDonagh has resigned as professor of otolaryngology in the same institution, and has been succeeded by Doctor Wishart.

A Police Health Manual.—The Police Department has just issued a booklet, *How to Keep Well*, containing simple rules of health prepared by a committee of police surgeons. In general, the rules lay emphasis on the prevention of disease and on the importance of consulting the district surgeon in the beginning of any illness. Striking paragraphs are devoted to eyes and ears, mouth and teeth, diet, food poisoning, care of bowels, skin diseases, feet, exercise, ventilation, contagious diseases, tuberculosis, and small cuts and injuries.

No Preservatives in Meningitis Serum.—The Department of Health of the City of New York has decided that hereafter no preservative shall be added to the meningitis serum prepared in its laboratory. This action was taken by the department on account of there having been reported cases in which untoward symptoms followed the administration of the serum, which were attributed to the toxic action of the trikresol used to preserve the serum. The department, however, had never encountered a single instance of collapse in the hundreds of cases in which the serum had been administered.

Society for the Advancement of Clinical Study.—The annual meeting of this society will be held in the New York Academy of Medicine on Wednesday afternoon, November 18th, at five o'clock. The society was organized for the purpose of maintaining a bureau of information which will furnish to resident and visiting physicians definite information regarding the clinical facilities of the hospitals and laboratories of the city of New York. For this purpose a bulletin board has been installed at the Academy of Medicine in charge of a special clerk, and on this all hospital clinics, both medical and surgical, are posted daily. These facilities will afford physicians an opportunity to witness operations and clinical demonstrations without resorting to extended inquiries at the various hospitals.

Medical Society of Virginia.—For the first time in the history of the organization the Medical Society of Virginia held its annual meeting outside the State, the forty-fifth having been held in Washington, D. C., on October 27th, 28th, and 29th. The following officers were elected: President, Dr. Samuel Lile, of Lynchburg; Dr. Samuel B. Moore, of Alexandria, first vice-president; Dr. Joseph T. Buxton, of Newport News, second vice-president; Dr. J. W. Preston, of Roanoke, third vice-president; Dr. Paulus A. Irving, of Farmville, secretary, and Dr. Mark W. Peyser, of Richmond, treasurer. Dr. Stephen Harnsberger, of Catlett, the retiring president, and Colonel William C. Gorgas, surgeon general of the United States Army, were elected honorary members of the society. Next year's meeting will be held in Richmond.

An Epidemic of Foot and Mouth Disease, *Aphthæ epizooticæ*, has been reported among the cattle in thirteen States and in Canada. Shipment of cattle from these States and from Canada has been prohibited. The Union Stockyards at Chicago have been closed on account of the disease. The premises have been thoroughly disinfected, and it was anticipated that the yards would be open by Monday next. Dr. M. J. Rosenau, of Harvard University, and Dr. Morton Price, of New York, are in Chicago to carry on researches into the etiology of the disease and Dr. Simon Flexner, of the Rockefeller Institute, is said to have gone thither in hopes of preparing an antitoxic serum. The Secretary of Agriculture has ordered the destruction of 834 prize cattle which had been sent to Chicago to take part in a dairy show. The owners of these cattle, which are valued at over two million dollars, have applied to the courts for an injunction restraining the execution of the order. Many herds of cattle have been destroyed in Illinois and in other States where the infection has made its appearance. Press reports dated November 10th state that a ten year old girl has been found in Akron, Ohio, suffering with all the symptoms of the disease; this is the first case reported in human beings during the present epidemic. Canada has prohibited the importation of cattle from the United States. There seems little danger of infection of human beings unless the disease becomes very much more general than it ever has been in the United States. It causes discomfort, but is not serious. The disease may be conveyed by milk, but this can be safeguarded against by pasteurization or boiling. The disease can be readily spread, however, among cattle through the clothing of persons coming in contact with infected herds.

Personal.—Dr. William Penn Vail has been elected assistant secretary of the Philadelphia County Medical Society and clerk of the board of directors, to fill out the unexpired term of Dr. Arthur H. Hopkins, who resigned recently.

Dr. C. R. Hyde, clinical professor of gynecology and associate visiting gynecologist to the Long Island College Hospital, Brooklyn, was the principal speaker at the 150th semiannual meeting of the Litchfield, Conn., County Medical Association, held in Torrington recently. His subject was Gynecological Cases Bordering on the Medical.

Dr. Mary Crawford, the Brooklyn physician who volunteered her services in the hospitals of the war zone, has arrived in Paris and has been accepted as a physician on the staff of the American Hospital. She is assisting Doctor Blake in the surgical ward.

The marriage of Dr. Fred Désiré La Rochelle, of Springfield, Mass., to Miss Elizabeth Sarah Henstridge, of Hamilton, Canada, took place at the bride's home on Saturday, November 7th. They will be at home after December 7th at 10 Chestnut Street, Springfield.

Dr. J. William White, emeritus professor of surgery at the University of Pennsylvania, Philadelphia, and Dr. R. Tait McKenzie, head of the department of physical education, have volunteered their professional services during the war to the British government.

Sir James Grant, of Ottawa, Canada, has been elected representative of the University of Ottawa on the Medical Council of Physicians and Surgeons of Ontario. He is the only surviving member of the original council of 1866.

Dr. Charles A. Hodgetts, of Ottawa, has been appointed commissioner for the Canadian Red Cross Society to Great Britain.

Dr. Howard H. Burnham, of Toronto, has gone to the front as a medical officer with the second brigade, Canadian Field Artillery.

In Memoriam.—The Society of the Alumni of Bellevue Hospital has learned with deep regret of the recent death of two of its members, Dr. H. Seymour Houghton and Dr. L. Bolton Bangs.

Doctor Houghton died suddenly on Friday, September 11th, while traveling in the subway. He was born in New York, April 7, 1862. He graduated from Amherst College in 1883 with the degree of A.B., and later received the master's degree from the same institution.

He graduated from Bellevue Hospital Medical College in 1886, and served as intern in Bellevue Hospital on the third surgical division until October 1, 1887. Doctor Houghton was one of the most earnest and enthusiastic members of the society in which he always played a prominent part. In 1910-1911 he served as vice-president and in 1911-1912 he was president. In 1911 the society celebrated its twenty-fifth anniversary and Doctor Houghton served as chairman of the entertainment committee. To his energy and able leadership must be attributed the success of this memorable occasion. He served as president of the New York County Medical Society during 1912. Doctor Houghton was a man of sterling character, of a most lovable and modest disposition, and the loss of his comradeship will continue to be deeply felt by all the members of the society. In grateful remembrance of the constant services rendered to the society and in commemoration of the loss which the society has sustained, be it therefore:

Directed: That this memorial notice be spread upon the minutes of the society, that a copy be sent to each of the current weekly journals of medicine, and that a copy of the same be sent to the family.

Doctor Bangs died at his residence in New York, October 4, 1914, after a short illness. He was born in New York, April 9, 1842, and at the time of his death was therefore seventy-two years of age.

He received his degree of M.D. in 1872 from the College of Physicians and Surgeons. He served on the third medical division of Bellevue Hospital, from which he graduated, October 1, 1873. He served on the visiting staff of St. Luke's, City, and Bellevue Hospitals and later was appointed to the consulting staff. He served also on the consulting staff of St. Vincent's Hospital and the Methodist Episcopal Hospital. For many years he was professor of genitourinary surgery at the Post-Graduate School and Hospital and held the same position on the University and Bellevue Hospital Medical College. In 1895, Doctor Bangs was president of the American Association of Genitourinary Surgeons. He was the editor of the *American Textbook on Genitourinary Diseases*, and was a frequent contributor to current medical journals. Doctor Bangs was a man of a rare and convincing personality, an acknowledged master of his special work; both in his writing and lectures there was always a felicity of expression and a smoothness of presentation which made him especially esteemed. The society feels that in his death it has sustained the loss of one of its most distinguished members and wishes to record its recognition of his eventful career, therefore be it

Resolved, That this notice be entered upon the minutes of the society, that a copy of this memorial be forwarded to the family of the deceased, and that they be published in the medical press.

ALBERT E. SELLENINGS, Chairman;
CHESTER F. S. WHITNEY,
HUGH B. BLACKWELL,
Committee on Resolutions.

November 4, 1914.

Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

August 24, 1914.

Distribution and Excretion of Radioactive Substances.—J. Plesch found that animals poisoned with radioactive substances showed the most marked changes in the marrow of the long bones. The fatty marrow was replaced by blood coagulum; the microscope revealed none of the characteristic marrow structure and no young erythrocytes. Twenty-four hours after administration it is possible to obtain a picture of the long bones through their direct action on a plate. After one hour, thirty-eight per cent. and after twenty-four hours, sixty-four per cent. of a dose of thorium x was found in the marrow. With radium bromide the content was seventy-five per cent. The same was true of other radioactive substances. After two hours the largest proportion of the radioactive substances thus excretable had passed out in the urine. A total of 2.19 per cent. of the amount ingested passed out by this channel. The feces excreted a total of 13.2 per cent. of the dose, but the excretion through this channel was slower. A considerable portion of the dose was taken up by the liver, but it was found that very little excretion occurred through the bile, so that the greatest part of that appearing in the feces was passed through the intestinal wall.

August 31, 1914.

Reactions to the Deycke-Much Tubercle Partial Antigens.—Theodor Kohrs says that the destruction of tubercle bacilli yields a filtrate L, and a residue M.Tb.R., the latter consisting of insoluble albuminoids A, a fatty acid lipid mixture F, and a neutral fat. By intracutaneous injection of very small amounts of these several fractions and mixtures of them, he obtained characteristic local reactions, the histology of which indicated the specific cell affinities of the fractions. Koch's old tuberculin gave 100 per cent. of lymphocytes in the injection site; fraction A gave about sixty-five per cent. of lymphocytes after injection of F; about ninety-five per cent. of the cells were lymphocytes; N gave about thirty-eight per cent.; the whole M.Tb.R. about fifty-five per cent. and M.Tb.R. plus L gave seventy-five per cent. of these cells. These observations possibly indicate the cells concerned in the production of immunity after the injection of these different portions of the tubercle bacillus, but the author is unable to give the reasons for the different cell reactions.

September 7, 1914.

Unrecognized Actions of Röntgen Rays.—H. Eckstein observed upon himself that x ray picture of a painful injured foot, to determine the presence or absence of a bony lesion, was followed almost at once by complete relief of the pain. On subsequent occasions he confirmed this observation on himself, finding that the relief of pain began in about fifteen seconds after exposure. The analgesic action of radiation had been casually observed by a number of authors; it was attributed to a psychic effect. On the strength of his personal experiences Eckstein has tried the method in such a way as to

avoid the element of suggestion, on over seventy patients suffering from pain of the most varied severity and diverse origin. In every case the analgesic effect of the exposure has been immediate and most marked. The mechanism of the action is not understood, but Eckstein ventures the suggestion that the rays depress the endings of the sensory nerves. This is supported in part by his observation that radiation also depresses normal reflexes such as those of the pharynx.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

October 13, 1914.

Rhythmical Auricular Tachycardia and Pulsus irregularis perpetuus.—H. E. Hering finds that cases of auricular tachycardia are usually accompanied by the missing of a heart beat; it is this irregularity which attracts attention and leads to subsequent discovery. Experiments on dogs have shown that when the auricular rate was raised from 150 to 240 there was a corresponding ventricular systole for every auricular systole, but when the rate reached 270 only every second contraction of the auricle was accompanied by a contraction of the ventricle. Whether missed contraction of the ventricle is the result of the auricular tachycardia depends on the relation between auricular frequency and transmission frequency. The question whether auricular tachycardia can lead to a pulsus irregularis perpetuus and whether there is any connection between these two conditions can be answered in the affirmative from an experimental standpoint. In both conditions many stimuli proceed from the auricles, all of which do not cause a corresponding systole of the ventricle and the greater the number of stimuli the more likelihood of irregular contraction of the ventricle seen in pulsus irregularis perpetuus. When the latter is distinctly present the auricle is probably fluttering. In auricular tachycardia the number of auricular contractions are increased, but they are rhythmical; in pulsus irregularis perpetuus the number of contractions are greater than in auricular tachycardia and there is arrhythmia in addition.

Traumatic Malacia in Fractures of the Semilunar and Scaphoid Bones.—Von Gaza made x ray pictures of two cases of a rare condition of the semilunar bone of the wrist. The one showed a fracture of the semilunar with atrophic changes in the bone, and in the other the diagnosis of a traumatic affection of the bone, traumatic malacia was made. In the latter case the x ray showed a fracture line, which was probably the etiological factor. Before the introduction of the x ray, fracture of the semilunar bone of the wrist was practically unknown. Fracture of this bone is caused by compression when the hand is in the position of ulnar flexion. Volar and dorsal flexion are at times hindered and the third metacarpal is displaced proximally and tapping of this bone may cause pain, especially when the hand is in ulnar flexion. Arthritic changes which occur later may in some cases render the prognosis bad as to future usefulness of the hand. This bone as well as the scaphoid at times shows the condition which has been termed traumatic malacia. It is seen in the form of a depression or fracture which is caused either primarily by a crushing of the bony lamellæ in the region of

the fracture lines, or, secondarily, through changes in the calcium content of the bone. The x ray shows this line to be paler than the remaining portion of the bone and in the semilunar the line is usually seen passing through the centre of the sickle and can be seen only when the exposure is made in the radio-ulnar position. The later changes are similar to those seen in conditions of spongy bones elsewhere in the body. These fractures may remain latent for a period of months or years and then cause great disturbance through secondary arthritic changes. Extirpation is the best treatment.

Two Abortive Cures in Syphilitic Reinfection.—Erich Hoffmann states that the longer the period between the cessation of the treatment and the appearance of a primary sore, the more likelihood there is of its being a reinfection. Following treatment with salvarsan and mercury the usual time for symptoms of relapse to appear is from five to six months after treatment has been stopped; it is only exceptionally that they are seen later. He reports a case which was treated with salvarsan and mercury, not very energetically, however, in which the continued effectiveness of the cure was controlled by careful clinical observation and repeated Wassermann examinations after provocative injections of salvarsan. Two years after the cessation of the treatment a small primary lesion appeared at a distance from the scar of the original primary lesion. The Wassermann reaction was negative. The primary sore was noticed only thirty-six days after intercourse and at the end of forty-five days it was as large as a lentil. In view of the long interval, the typical glandular swelling accompanying the primary lesion, the presence of many spirochætæ and a negative Wassermann, a diagnosis of reinfection was made. The result of the second course of treatment was the same as the first, although the latter was much more thorough. No symptoms have appeared since the cessation of the second course of treatment, a period of a year.

ZENTRALBLATT FÜR GYNÄKOLOGIE.

September, 1914.

Dangers of the Intrauterine Stem.—Opitz believes that inflammatory conditions may result from use of the intrauterine stem. He reports two cases, one in which there was an inflammation of the annexa with subsequent recovery. In the second instance infection occurred and death took place on the sixth day after the introduction of the stem.

Scopolamine.—Fonyo draws conclusions from his own results and from those of others. He believes that, on account of its toxicity and affinity for cerebral tissues, scopolamine hydrobromide, in its active or inactive form, when combined with morphine, is not the satisfactory anesthetic that it was formerly considered to be.

PRESSE MÉDICALE.

August 12, 1914.

Emergency Treatment of Wounds of the Eye.—V. Morax points out that wounds of the eyelids may lead to deformity from cicatricial contraction; he recommends the use of tincture of iodine to prevent local infection. The lids should first be washed with soap and water, pressure upon the eyeball

being avoided, and then irrigated with plain boiled water or normal saline solution. The iodine tincture should then be used, care being taken to prevent its entrance into the eye through the palpebral fissure. Separated tissues should be brought together by means of superficial sutures of fine thread, introduced with fine curved needles. Local anesthesia may be instituted for this purpose by injecting under the integument a one per cent. solution of cocaine; ten minutes should elapse before the suturing is begun. Special care to bring accurately together the margins of the wound is necessary where the latter is vertical or oblique in relation to the palpebral fissure.

August 19, 1914.

Electric Light Treatment of Infected Wounds.

—Chaput reports marked success in the treatment of sluggish leg ulcers, third or fourth degree burns, lymphangitis, traumatic gangrene, ulcerated cicatrices, etc., from the use of an ordinary sixteen candle power electric bulb, with reflector. The reflector, with bulb attached, is placed on either side of the affected area on folded towels, the bulb being kept as near as possible to the lesion without causing an unpleasant sensation of heat. The treatment was applied daily or on alternate days for an hour. It was observed to cause a copious outpouring of serum at the affected area and a surrounding patchy erythema which disappeared a few minutes after the end of the exposure. Rapid healing of previously rebellious ulcerations and disinfection of local infectious processes were secured by the author with this procedure. In a case of osteomyelitis with sinus formation and severe lymphangitis of the leg and foot, the electric light treatment annulled the infectious process and overcame sepsis in the bone after a few sittings.

RIFORMA MEDICA.

October 3, 1914.

Blood Diseases; Splenic Enlargement.—G. Rummo considers the action of x ray and of radium in these conditions. The red corpuscles are not much affected by thorium x; its action is mainly on the leucocytes. In large doses it causes leucopenia. In small doses it induces polynuclear leucocytosis. In cases of leucemia treated with thorium x, there has been regular diminution of the number of leucocytes. This reduction is greater in splenomedullary leucemia than in the lymphatic form. There may be also an increase of red cells. In all cases so treated, there is a marked diminution in the size of the spleen, and the glandular swelling also becomes less evident. In advanced cases of leucemia where x rays had done no good, there were beneficial results from thorium x. The author begins with mild applications of x rays over the splenic region twice a week, and at the same time gives injections of thorium x. Benzol and olive oil in equal proportions are given in capsules, beginning with a daily dose of 0.5 gram. The dose is increased according to the individual resistance, up to a maximum daily dose of two grams. It is absolutely necessary to make a daily blood examination, with both the red and white cell count.

October 10, 1914.

Therapeutics of Arteriosclerosis.—G. Rummo says: The morbid processes produced by adrenaline

are entirely different from those of arteriosclerosis. Cholesterin has been found abundantly in the cortical substance of the suprarenal bodies in arteriosclerotics and also in the blood. All foods, and especially animal food, contain cholesterin. Age is not a sufficient nor a necessary factor. The author believes there is an individual hereditary tendency to arteriosclerosis independent of other factors and of toxic causes. Therapeutics are founded on cause. Contributory causes, intoxication by lead, tobacco, alcohol, uric acid, infections, syphilis, and malaria, are to be removed. Above all these is placed alimentary hygiene. There should be no abuse of meats, especially of red meats; smoked meat, soups, game, smoked fish, as these contain toxic extractives. The foods most suitable for arteriosclerotic patients are milk, milk foods, and fresh vegetables, while farinaceous foods may be given to those not obese. The author limits red meats in spite of the opinion of authorities like von Noorden who see no difference in the influence of red and white meats on arteriosclerosis, and he is inclined to rely on his own experience of twenty years both in the clinic and laboratory. Water must be used sparingly as excess of water produces hypertension. The calcium salt theory involves cutting down foods which contain much of such salts. Cabbage and lettuce are rich in calcium, while potatoes and carrots are almost free; consequently the latter are to be preferred. Cholesterinemia must be avoided by moderate use of meat; glandular organs, smoked meat, salt meat, and shell fish are not desirable. Seasoned cheese and eggs are not as good as milk, milk foods, and vegetables. Too much sodium chloride must be avoided. Tea and coffee are absolutely to be forbidden. These patients should drink either pure water or water which is weakly mineralized and diuretic. Tobacco, as well as mental and physical overwork, are to be prohibited. It is necessary, in short, that the patient give care to the function of all his organs whose activity is compromised by arteriosclerosis.

Mitral Infantilism.—Vecchio states: This condition is one of a noticeable lack of mental, physical, and functional development in patients with mitral stenosis. In adolescence there still persists the indecision of body outline which characterizes puberty. Menstruation begins sometimes as late as twenty years of age. In young women the angularity of figure is not rounded off, the breasts are not developed, the shoulders are thin. In young men of twenty or over, the expression and voice are puerile, the chest is so poorly developed as to exempt them from military duty.

Tabetic Dyspepsia.—Vecchio observes that there are three principal forms, painful, with vomiting, and secretory. The mechanism is spasm of the cardia. Dyspepsia is distinguished from true gastric crises; it is progressive, and presents four stages, early cramplike condition, flatulence, late pains, true paralysis of the stomach. Gastric crises are due to a subacute inflammation of the meninges and posterior roots; chronic dyspepsia to sclerosis and atrophy of the axis cylinder and fragmentation of the myelin and slow progressive meningoradiculitis. The pneumogastric and sympathetic systems are the intermediate mechanisms involved. The predominance of the vagus seems demonstrated by the proved

efficacy of belladonna and atropine in these conditions, as the action of these drugs is markedly inhibitory on this nerve.

ROUSSKY VRATCH.

June 21, 1914.

Tannalbin and Opium and the Digestion and Absorption of Food in Partial Resection of Intestine.—P. P. Bruchanoff determined by experiments on animals in which portions of the intestines were removed that neither tannalbin nor opium has the slightest effect in improving digestion. His findings are opposed to the opinion entertained by clinicians that in resection of the intestine, tannin or opium favors digestion by preventing the rapid passage of the food through the gastrointestinal tract.

Röntgen Ray and Thymus Gland in Basedow's Disease.—A. A. Sinozersky reports favorable results in twenty cases of exophthalmic goitre following x ray treatment of the thymus gland. The presence of an enlarged thymus was established by percussion, x ray examination and study of the blood, the author having found in these cases a marked decrease of polymorphonuclear neutrophiles and an increase of lymphocytes. Having determined by experiments on animals that the application of the x ray produces involution of the thymus, the author applied the treatment to his patients. The rays were applied to the chest through a diaphragm ten cm. in diameter at a distance of twenty-five cm. from the anode, either an aluminum or a sole leather filter being employed. The hardness of the tube was 8.5 to 9.5 Bauer, the duration was ten minutes, the quantity 2H according to Hezknicht's scale and the interval between treatments three to four days. After fifteen to thirty treatments the symptoms practically disappeared and the blood returned to normal. The author does not state how long the improvement kept up or whether any permanent cures were obtained.

Adrenaline and Blood Pressure in Typhoid Fever and Croupous Pneumonia.—S. M. Mansvetova reports a series of observations on the effect of adrenaline on the blood pressure in such acute infections as typhoid or pneumonia where it was necessary to maintain the circulation. He found that one c. c. of adrenaline injected subcutaneously caused a sudden rise of pressure with but a slight increase of the amplitude of the pulse; 0.75 c. c. produces less rise in pressure but greater pulse amplitude both on account of increased systolic and lowered diastolic pressure; 0.5 c. c. does not apparently produce any constriction of the peripheral bloodvessels, but by dilating the venous system and acting on the nerve mechanism of the heart, it improves the venous circulation and consequently the nutrition of the heart. The large doses are indicated in cases in which the pressure must be raised promptly as in postoperative shock, collapse, or acute poisoning; otherwise the smaller doses are safer and productive of better results.

Nucleoprotein of the Dysentery Bacillus.—E. A. Neits isolated a nucleoprotein from the Shiga-Kruse bacillus, which he found highly toxic and which he regards as the specific endotoxin.

July 5, 1914.

Hydrophobia Vaccine in Epilepsy.—M. P. Nikitin had under his observation a woman who suffered from epilepsy until she was twenty-one years old. At that time she was bitten by a rabid dog and underwent the usual prophylactic treatment. She received eighteen injections of virus. Following the treatment she had one fit and this was the last in twenty-two years. This case led the author to the conclusion that there may have been some relation between the Pasteur treatment and the cure of epilepsy. He then undertook to treat eight epileptics with normal rabbit cord, making daily injections for sixteen days. The results were negative. Fifteen epileptics were then treated with rabies virus according to the usual method employed in the prophylactic treatment. Of these only one patient remained long enough after the treatment to make the observation of value. In this case the attacks of epilepsy were unabated during the treatment, became more frequent for eight days afterward, disappeared for ten days, reappeared for eight days, and then disappeared altogether. In another series of nine cases the treatment had the following results: Two patients left the clinic and subsequent history could not be obtained; one patient had infrequent attacks and the results in this case are not conclusive; in three patients the attacks diminished in frequency to a marked extent; one patient improved temporarily, the relapse being coincident with the advent of pregnancy; two patients were not benefited in the least; one of them, however, presented symptoms which rendered a differential diagnosis between epilepsy and hysteria difficult. The author seems to be impressed with the favorable action of rabies virus in epilepsy and, while not attempting to explain the exact mode of action, suggests the possibility of some effect of the virus on metabolism as well as a probable specific effect in view of the clinical similarity between the attacks of hydrophobia and epilepsy.

July 19, 1914.

Petrolatum in the Peritoneal Cavity.—S. N. Lisovska and U. U. Dzhanlidze established experimentally the fact that petrolatum remains in the abdominal cavity for a considerable time, is practically innocuous, but does not prevent peritoneal adhesions.

Functional Achylia.—F. N. Orloff noted in a number of cases of gastric achylia a diminution of pancreatic secretion as shown by the absence of trypsin and diastatic ferments. He states that pancreatin is of value in the treatment of pancreatic achylia.

REVISTA DE MEDICINA Y CIRURGIA PRACTICAS

October 7, 1914.

Technic of the Motais Operation for Ptosis.—M. Marquez describes the operation which consists in using a portion of the superior rectus muscle to supply the loss of the levator palpebræ superioris, thus correcting ptosis of the upper lid. The tendon of the superior rectus is split; a portion is inserted into the upper lid. The object is to cause union in this position so that to the action of the

muscle in turning the eyeball upward is added that of raising the upper lid at the same time.

October 14, 1914.

Myasthenia paralytica.—R. Novoa Santos reports: In myasthenia paralytica the symptoms are the opposite of those of tetany which is known to be due to parathyroid deficiency. It is common to observe myasthenic symptoms and reactions in cases of Basedow's disease. The myasthenic reaction is observed in animals injected with parathyroids. The author's case was one of thyroid insufficiency with myasthenia paralytica, which improved rapidly under treatment with thyroid extract.

Purgatives Administered Subcutaneously.—J. C. Castellvi recommends this method in cases of gastric ulcer, carcinoma of stomach or esophagus, dysphagia of whatever origin, uncontrollable vomiting, for patients who refuse to take a purgative (as the insane) or who are nauseated by it. It seems to be absolutely without contraindication. The writer describes the action of magnesium sulphate given hypodermically in doses of one to 1.5 gram. He asserts that he has had no failures even in a case which had gone twenty days without a bowel movement. It seems as though the purgative action does not increase with the size of the dose, and the preliminary administration of a saline or oily laxative favors the action. In doses of 1.25 gram there is no local reaction nor evidence of a toxic systemic action. Large doses are as harmless as small ones, but less potent and less lasting in effect. The injections are always given in the abdominal wall of the left iliac fossa; and are absolutely painless.

BRITISH MEDICAL JOURNAL.

October 21, 1914.

Insects and War.—A. E. Shipley considers some of the less common flies. Of these he mentions *Fannia canicularis*, or lesser house fly; *Fannia scalaris*, or latrine fly; and the several types of bottle flies. The lesser house fly is smaller than *Musca domestica*. In spring, it is often found in the house in greater abundance. It is commonly mistaken for the young of the ordinary house fly. It is capable of spreading disease. More important is the latrine fly which inhabits open privies and lives and breeds largely in human dejecta. This fly is particularly dangerous as a typhoid carrier. Bottle flies not only carry diseases; they lay their eggs in wounds or even in the open body cavities of living human beings, giving rise to the affection known as myiasis. This affection may take a number of forms: 1. Larvæ which suck blood through punctures in the skin. 2. Larvæ deposited in the natural body cavities. 3. Deposited in neglected wounds. 4. Living in the subcutaneous tissue. 5. And passing through the gastrointestinal tract. Types 1 and 3 are uncommon in the temperate regions. Type 2 may occur, but is relatively rare. Type 5 is also uncommon, but it is possible to take these larvæ into the body on over-ripe fruit, etc., and they may be passed in considerable numbers in the stools. In some cases no symptoms arise from their presence, but in others there may be violent abdominal pains, vertigo, and the digestive functions may be disturbed. The most important form of myiasis, however, is the infec-

tion of neglected wounds with larvæ. This is especially liable to occur under the conditions of warfare, where the wounded are often left helpless for hours in the hot sun. These larvæ, in wounds, cause widespread and rapid destruction of the tissue which calls for immediate attention.

Action of Radiations on Cells.—W. S. Lazarus-Barlow studied the effects of various doses of radium on the dry squamous epithelium of the rat's tail, the moist squamous epithelium of the anus, and the columnar epithelium within the rectum. In the treatment of cancer, the experiments seem to show that in order to produce the maximum damage to epithelial cells and the minimum to sub-epithelial tissues, different procedures must be adopted in different regions. The optimum results are obtained by reckoning the amount of radium, and the time of exposure in the case of a carcinoma of a dry squamous surface. Amount must be increased and time diminished to obtain the optimum effects in the case of a columnar celled carcinoma of a moist surface. The increase in the time factor acts injuriously on submucous tissue, hence if the growth is small and the submucous tissue in close relation, the time factor should be kept as low as possible and the quantity factor should be high. On the other hand, if the growth is large and submucous tissue relatively distant, the time factor should be raised and the quantity kept as low as possible.

Variability among Bacteria.—M. C. W. Young brings forward some interesting results of his work on the growth and morphological characteristics of pathogenic organisms. It is probable that bacteria form merely stages in the life history of a group of organisms with an extremely complicated life cycle, part of which is protozoal in character, and often parasitic. The cycle of appearance and disappearance of the bacillus stage in cultivations may take place several times.

Nitrites in the Urine.—John Cruickshank and John Murray Moyes come to the conclusion that nitrites in the urine are not associated with any special disease. The test for nitrite in the urine is a very simple one which can be carried out readily by the practitioner and constitutes an excellent method for the diagnosis of bacilluria. Administration of hexamethylenamin removed the nitrituria.

Aneurysm of the Aorta.—J. M. Morgan and John H. Teacher present record of five instances of aortic aneurysm, the result of bacterial infection. Each was associated with ulcerative endocarditis, and, while in only one was bacterial examination made, the signs in the others were perfectly typical of an acute infective endocarditis. Syphilis could be excluded in all the cases.

LANCET

October 24, 1914.

Pyloric Obstruction in Infants.—Charles H. Miller has studied ten cases. Six of the patients recovered completely, the other three died. Those who recovered were treated medically throughout. The treatment consisted in keeping the patient adequately warm with the aid of the hot air bath; in gastric lavage, frequent at first and diminishing as

progress was made; in feeding exclusively with predigested milk, small amounts at frequent intervals, gradually lengthening the intervals and increasing the amounts; and in the occasional use of tincture of opium, castor oil, gray powder, petroleum emulsion, or phenolphthalein. Belladonna was found useless. The characteristic symptoms and physical signs were: Vomiting of a projectile type, wasting and constipation, and visible peristalsis. The last is a variable sign; it is regarded by the author as an index of wasting rather than of hypertrophy of the gastric musculature. Advantages of surgical treatment in shortening illness are outweighed by its risks.

Prognosis in Cancer of the Tongue.—Wilfred Trotter divides epithelioma of the tongue into two stages for the purpose of prognosis—the superficial and diffuse stages. If the growth is removed in the superficial stage, with a margin of half to three quarters of an inch of healthy tissue, recurrence is practically certain not to take place. In the diffuse stage the most important sign is a loss of definite outline of the growth, the margins no longer being hard and well defined. This condition is associated with submucous involvement and bears no relation to size of the growth. Regardless of the extent of the operation that may be done in this stage, it is impossible safely to give a favorable prognosis. The nodular type of cancer belongs particularly to this class. The same two stages or types of glandular invasion can be recognized and are of much the same prognostic import. Corresponding to the superficial stage of cancer are the glands, which are hard, well defined, and free from any trace of inflammation. If a thorough operation is performed, the presence of these glands detracts little if at all from favorable prognosis. When the glands are ill defined, rather soft, and possibly the seat of brawny infiltration, they correspond to the diffuse type of carcinoma; the prognosis here is bad. The greater the bulk of a tumor which projects above the surrounding surface, the less its tendency to malignancy—in other words, papillary and cauliflower growths are less malignant than ulcerous and nodular forms. The precocious development of early diffuse invasion by cancer cells seems especially likely to occur in strong, healthy, well nourished individuals of florid appearance.

CHINA MEDICAL JOURNAL.

September, 1914.

Intracapsular Rupture of the Spleen.—J. P. Maxwell reports a case of enlarged spleen after malarial fever. Two months before admission to the Yungchun hospital, in the course of a fight the patient, forty years old, was thrown down, kicked, and struck in the abdomen by the end of a carrying pole. A swelling gradually formed in the abdomen. This had not changed in the last month. The patient was anemic and ill, but had no fever. In the abdomen was a large swelling, evidently containing fluid, which was well over to the right side and extended three finger breadths below the umbilicus; the diagnosis was that of a fluid swelling in connection with the spleen, probably a blood cyst and probably adherent to the abdominal wall. With a fine needle ten ounces of

fluid were withdrawn, and this was found to contain granular brown debris, but no bacteria were seen in smears. The swelling having again become tense, an incision was made over its most prominent part, and it was found that it consisted of the enlarged spleen. The fluid was immediately beneath the thickened capsule, but, contrary to expectations, there were no adhesions. The spleen having been picked up by two sutures attaching the peritoneal wall to the capsule, the cyst was opened and the cut edges of the capsule were attached with two stitches to the tissues of the abdominal wall. About forty ounces of fluid were evacuated, and, a large rubber drainage tube having been inserted to the bottom of the cavity, the flow of fluid was for the first three days very free. The progress of the case was interrupted by a sharp attack of malarial fever, but the patient eventually made an excellent recovery.

An Endemic Goitre Region in North China.—R. A. Bolt, having described the prevalence of goitre in the territory referred to, states that the local geographical formation is extremely interesting. The outlying foothills seem to be of considerable quantities of lime and sandstone. 1. There is a well marked endemic goitre region in the mountainous country to the east and north of Peking. 2. This region of goitre appears to have some relation to the water supply of the district. 3. It would be very instructive to have some one properly qualified make a thorough study of the geology of the region, make chemical and bacteriological examinations of the water, and devote some time to clinical study of the goitre cases there. A study of the thyroid glands of the domestic animals and fish might also throw some light upon the problem of the etiology of goitre.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

October 31, 1914.

Results in One Hundred Operations Performed on the Diagnosis of Brain Tumor, by H. Küttner.—This paper was abstracted in our issue for July 4th, page 1308.

Late Manifestations of Inherited Syphilis, by H. F. Stoll.—This paper was abstracted in our issue for July 4th, page 42.

New Method of Reflex Elicitation, by W. B. Swift.—This paper was abstracted in our issue for July 4th, page 50.

Surgical Experiences with Pituitary Disorders.—Harvey Cushing states that when a pituitary derangement, even of lesser degree, is accompanied by an extreme glandular enlargement, or when secretory activity of the gland is impeded by pressure of a suprasellar tumor, symptoms may arise quite different from constitutional disorders of the disease. Local and neighborhood symptoms, being essentially of a mechanical (pressure) nature, call for mechanical (operative) means of relief. Of ninety-five patients operated on by him, nineteen were subjected to a decompressive craniectomy in addition to the direct attack on the tumor. There were 125 operations and ten deaths. These mortality figures can be improved with increased familiarity and better operative methods.

Studies in Liver Function.—A. M. Chesney, E. K. Marshall, Jr., and L. G. Rowntree draw the

following conclusions: 1. Changes in liver function can be demonstrated in most cases of advanced liver cirrhosis, in markedly congested livers associated with myocardial insufficiency, in carcinoma of the liver, in syphilitic livers, and in cachexia with marked anemia. 2. Functional changes have been most marked in cirrhosis, neoplasm of the liver, and cachectic conditions associated with severe anemia. In chronic passive congestion, functional changes have not been frequent or pronounced. 3. Most of the tests indicated either a decreased or a normal function. However, lack of agreement is striking in other cases. The determination of the phenoltrachlorophthalein excretion, of the fibrinogen, and the nitrogen partition in the blood and urine are of decided value in revealing the presence, and to a less degree the extent of functional involvement, while the demonstration of a fibrinolytic ferment is of decided diagnostic importance. The determination of the sugar tolerance and of the lipolytic activity of the blood apparently afford information of much less value.

Ninety-three Persons Infected by a Typhoid Carrier at a Public Dinner.—W. B. Wilbur reports an outbreak of typhoid fever, with ninety-three cases, which occurred at Hanford, Cal., and from his investigation concludes: 1. The source of infection in these cases was a typhoid carrier who prepared food at a public dinner. 2. The vehicle of the infection was a large pan of Spanish spaghetti prepared by the carrier. This dish was baked after it had been infected, but the baking was shown by laboratory experiments to have incubated the bacteria, instead of sterilizing the food. Certain customary methods of cooking are thus shown to be inadequate as a protection against infection. 3. The incubation period in the majority of the cases in this epidemic proved to be shorter than the time usually regarded as the minimum in typhoid. The first case developed three days after infection, and more cases showed their first definite symptoms six days after the infected food was eaten than on any other one day. 4. The ways in which a carrier may transmit infection are so varied and so numerous that attempts at the control of mere channels of infection will not offer sufficient protection. The best protection against carriers will come through thorough investigation of the source of infection in every case of typhoid fever. When carriers are discovered, they can be advised and controlled. 5. Until there are more trained epidemiologists among State and local health officials, the danger from carriers will not be noticeably diminished, and the individual will find in antityphoid vaccination his best protection against infection.

MEDICAL RECORD.

October 31, 1914.

Treatment of Advanced Pulmonary Tuberculosis.—S. A. Knopf advises that two beds should be provided, one for the day and one for the night. In winter a device should be used to support the heavy coverings, so arranged as to keep the feet and body warm and yet not interfere with the patient's comfort. Pure, fresh air is essential, and among the well to do and in sanatoriums, beds can be so arranged that the patient can have the neces-

sary amount without suffering from the cold. The only means by which the poor consumptive may be rendered fairly comfortable is an indoor window tent. For the well to do there are several types of newer constructions for outdoor sleeping devices, particularly adaptable, because they can be attached directly to the bedroom. The patient should have a flask with watertight cover, preferably of oval form and metal, which he can place under his pillow ready to receive his expectoration. Whenever the circumstances of the patient permit, linen mesh underwear and night gowns are recommended. In cold weather woolen socks should be worn, and the bed should always be warmed before the patient enters it. In hot weather an electric fan will add much to his comfort. The care of the skin is essential to avoid bedsores and other unpleasant complications. To avoid any possibility of the spread of the disease, everything coming in contact with the patient should be of a material which can be boiled and easily washed. The room selected for the patient should, if possible, have a cheerful outlook, and should, of course, be protected against flies and mosquitoes. The symptomatic treatment the author regards as perhaps the most important of all, and he offers many valuable suggestions in regard to cough, hemoptysis, night sweats, insomnia, gastrointestinal disturbances, etc. He considers artificial pneumothorax as one of the most valuable of modern therapeutic measures in advanced tuberculosis, though its applicability is limited.

Fractures about the Elbow Joint.—W. E. Hartshorn recommends that after the fracture has been reduced the forearm should be placed in the acutely flexed position, and the following dressing applied: 1. A gauze bandage extending from the wrist to the elbow, but permitting the free movement of the elbow. 2. An adhesive strip applied as suggested by Scudder, extending from wrist to arm. 3. Starting at the elbow, the centre of a strip of adhesive plaster one and a half cm. wide, and sufficiently long to encircle the forearm, is placed posterior to the elbow, and its ends are brought forward to the anterior surface in the manner employed in strapping the knee joint. A second strip is applied overlapping this one half, followed by more strips of a similar nature, gradually ascending until the forearm and arm have been completely covered, both anteriorly and posteriorly. 4. The application of a strip five cm. wide along the dorsum of the forearm and over the shoulder on the uninjured side. 5. A similar strip around the arm and chest just above the elbow. The subsequent treatment requires daily inspection for one week. At the end of this time the adhesive plaster is removed, and passive motion, leading toward extension, applied. If acute flexion can be easily regained, the dressing is reapplied, reducing the angle of flexion by substituting a muslin or gauze swath for the plaster; allowing only the adhesive band, already described, to remain. This is left for one week longer, when some form of external angular splint allowing adjustment of the angle should be applied. After the second week massage and passive motion are applied each second day until both flexion and extension are approximately normal.

Vasomotor Disorders.—W. H. Thomson says

that there are but few medicinal remedies available. One of the most powerful agents for derangements of the vasomotor centres is the reaction from cold. Cold as a remedy should be defined as an irritant which is primarily a sedative, but which is followed by reaction. This property gives it what is popularly known as its tonic effect, but in practice its application should always be proportioned to the power of reaction from it. Thus, a cold shower bath may be a valuable vasomotor tonic in a young patient, because of his vigorous reaction. Cold douches applied daily to the nape of the neck (where one of the great vasomotor centres is situated), and followed by friction, will frequently cure a long standing nasal catarrh. Here there is another irritant added, the blow of the falling water. All chronic inflammations are apt to produce local weakness of the vasomotor nerves. For example, a knee or ankle may swell and become weak from its own nerves becoming involved in a chronic inflammation, and nothing restores such conditions better than cold douches followed by active friction.

LANCET-CLINIC.

October 31, 1914.

Extraction of Steel from the Eye with the Electromagnet.—Victor Ray says that fifteen to twenty years ago there was no means of treating cases of this sort. The eyes were lost as far as their usefulness was concerned. The introduction of the x ray has enabled us to localize these foreign bodies. The method generally employed is that of Doctor Sweet. Manganese steel and nickel steel are not magnetizable on account of the alloy they contain. The magnets in use at present are modifications of the hand magnet of Hirschberg and of the giant magnet of Haab. The anterior tip of the magnet is of small size so that it can be used to the best advantage. The wound of entrance of the foreign body is never made use of unless the wound is only one or two hours old. The objections to entering the vitreous with the magnet are infection and detachment of the retina. In the author's experience of 100 cases, infection has never been encountered, and Sweet, who has given much attention to this work, has never seen detachment of the retina occur at the point of the scleral incision. When making a scleral incision a general anesthetic is advisable. A triangular conjunctival flap with its edges within three to four mm. of the limbus is made. Sutures are placed in the insertions of the two adjoining muscles. These are used to rotate the eye instead of forceps as the latter cannot be used when the magnet is employed. A small incision is made into the sclera and the largest tip available should be used. After the foreign body has been removed the wound is flushed with sterile salt solution, the conjunctival flap is sutured, a bandage applied, and the patient kept in bed a few days. Atropine is instilled into the eye to keep the ciliary muscle under control.

Inflammation of the Accessory Sinuses.—Christian R. Holmes states that most cases are caused by influenza and ordinary catarrhal colds and a few by carious molars. The cavities affected are, in the order of frequency, antrum, anterior and posterior ethmoid, sphenoid, frontal. The ethmoids

are almost always involved in chronic frontal sinusitis. The conditions which cause chronic inflammation of sinuses to follow colds, influenza, or the exanthematous diseases are: 1. Lack of recuperative power; 2, rapid succession of colds; 3, anatomical peculiarities or anomalies; 4, abuse of alcohol and tobacco. A radical operation should be performed when the ethmoids and frontals are extensively involved and the removal of the middle turbinate and opening of the accessible ethmoid cells fail after several weeks to bring about a permanent cessation of the discharge. In making the diagnosis the point of exit of the pus and the use of the x ray and transillumination are important.

Inebriety in Old Age.—T. D. Crothers regards the breaking out of the drink symptom late in life as a pathological symptom of some serious impairment of the brain centres. There seems to be a connection between the early and later use of spirits and a long interval between the early and later drinking periods may exist. In these cases examination of the brain cells and tissues may show a thickening of the arterial walls, cirrhosis, and other changes which had no connection with the final disease. Two pathological conditions which are almost specific are neuritis of the extremities and cirrhosis of the liver. Patients who have been alcoholic and then abstemious for a long period may suddenly become rheumatic or manifest some stomach or liver trouble. An examination of the history reveals an early period of excessive drinking and the connection is clear.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

October, 1914.

Prevention and Treatment of Vulvovaginitis in Children, by F. J. Taussig.—This paper was commented on editorially in our issue for October 10th.

Clinical Value of Expectorants.—J. L. Miller finds, as the result of experimental work, that ammonium chloride and ammonium carbonate and the emetic group of expectorants, as apomorphine and ipecac, when given in sufficiently large doses to animals, increase bronchial secretion. Ammonium salts *per os*, in moderate doses equivalent to two mg. in an adult man, do not increase bronchial secretion in the dog. Apomorphine and emetine, when given to dogs in doses considerably larger than the ordinary therapeutic dose for man, do not excite increased bronchial secretion.

Relative Pulmonic Insufficiency.—J. N. Hall states that in the study of valvular diseases of the heart a general agreement among clinicians may be noted in almost every field except the one in question. He cites Gibson's experiments to show the reasonableness of the diagnosis of relative insufficiency under conditions of high pulmonary arterial pressure, and says that analogy would lead us to expect to find relative leakage at the pulmonary orifice as at other valves; so that it is difficult to understand the position of certain authorities who ignore the existence of the condition, or virtually state that it does not occur. Personally, he regards relative pulmonary regurgitation as being a not very infrequent complication of advanced mitral stenosis and extensive fibroid phthisis, and as being occasionally found in other conditions in which the pulmon-

ary tension is high. The diagnosis, which, in his opinion, has as secure a basis as that of the other valvular diseases, rests upon the association of the following findings: 1. Some definite cause for increased pulmonary tension, notably mitral stenosis or advanced fibroid phthisis. 2. Increased precordial area of dullness. 3. A soft diastolic murmur, heard at the region of the pulmonary valves and transmitted downward from the second or third left intercostal space along the left side of the sternum. 4. Absence of thrill. 5. The murmur may be increased in intensity by expiration, especially with the closed glottis, and a similar increase may be noted after exertion.

Direct Examination of the Duodenal Contents (also Bile) as an Aid in the Diagnosis of Gallbladder and Pancreatic Affections.—Max Einhorn describes his present methods as follows: The best way to obtain the duodenal contents for examination is either to have the patient fasting, the tube having been inserted before he retires, or else about a half hour after the ingestion of a cup of tea with sugar, or of clear bouillon, the patient having taken the tube a few hours before the examination. For the examination of the pancreatic juice the same method of preparation of the patient may be used, or any liquid diet, about 200 c. c., administered from one or two hours previously. The duodenal contents are usually obtained by careful aspiration, with frequent intermissions. In case nothing has appeared when the aspiration has been continued for from five to ten minutes, two measures may be employed. One is the injection of secretin subcutaneously, and aspirating a few minutes later, and the other is the employment of duodenal lavage. Absence of both bile and pancreatic juice indicates a mechanical obstruction of the common duct, just above Vater's papilla, which blocks the entrance into the duodenum of either bile or pancreatic juice. In such instances it is advisable to ascertain positively the position of the capsule end of the tube in the duodenum by the milk test or Röntgen rays, as there is otherwise very little to go by.

Disseminated Sclerosis.—Joseph Collins and Edmund Baehr conclude: Disseminated sclerosis is encountered much less frequently here than abroad. The fully developed, classical Charcot type is rarely seen. Trauma, including occupation, injury, intoxications, biological crises, mental shocks, etc., play only a contributing role in the development of the disorder. The disease is recognized by the authors to be a parenchymatous degeneration due to the action of a toxin circulating in the cerebrospinal fluid. There can be no rigid grouping of types of the disease; nevertheless, three general groups can be assumed: A spastic parietic, an ataxic, and a hemiplegic group. The best single aid in the differential diagnosis is the condition of the cerebrospinal fluid. The Wassermann reaction is practically always negative. The number of lymphocytes is less than fifteen, and there is no excess of globulin. This is of special value in ruling out cerebral syphilis. The remissions which sometimes occur are singularly characteristic of the diseases; in their series, however, they were rarely encountered. The absence of the abdominal reflexes, upper and lower, is an important diagnostic sign.

ANNALS OF SURGERY.

September, 1914.

Disease of the Thyroid Gland.—John Rogers believes that the treatment of hyperthyroidism by removal of one lobe, or one lobe and the isthmus of the diseased gland, can undoubtedly yield perfect and lasting cures. These, according to statistics which include hundreds of cases, amount to between fifty per cent. and seventy-five per cent. of all the cases so treated. The mortality from the operation is between one per cent. and six per cent., but would probably appear higher, if the statistics of all operations were obtainable. The interruption of the blood and nerve supply of the gland seems safer than thyroidectomy, and in conjunction with anti-serum and organ therapy appears to offer a better prognosis. The results have proved its great advantages over the serum treatment alone, but have been extremely difficult to compare convincingly with the results of radical thyroidectomy. The superior vessels are reached by the usual transverse incision, and the tips of the lobes have generally been included in the ligature and excised to insure the division of the arteries. The lower arteries have been reached through a vertical incision over the lower end of the posterior border of the sternomastoid. The approach exposes and passes in front of the phrenic nerve on the scalenus anticus. The inferior thyroid can then be felt and reached behind the internal jugular and common carotid. There seems to be little or no pain sense in these deeper parts of the neck.

Preparation of Dry Bony Areas for Skin Grafting.—C. H. Mayo says that the extreme slowness of healing of such large exposed areas of bone is a source of great discomfort as well as of prolonged disability to the patient. Such areas may be found on the tibia or the maxilla, but are usually on the skull, most commonly occasioned by denudation from traumatic scalping. To avoid the long delay, the writer employs the following technic: By means of a small drill the entire dry area of bone is perforated like a sieve, or cribriform plate, all over its surface. These perforations are about a quarter of an inch apart and penetrate to the diploe of the skull or to the blood supply of the bone involved so that each perforation shows a slight hemorrhage. Through these perforations, granulations are rapidly thrown out and soon merge on the surface, allowing an abundant blood supply for the skin grafts. Since infection of the diploe or vascular area of the bone may occur, such a wound must receive excellent care, at least until protective granulations appear.

Polyps of the Male Urethra.—Alexander Randall employs the following technic in their removal: He prefers to use a plain open (air) straight endoscope of 24 or 26 French calibre, whose sterilization can be simple, rapid, and sure. The removal of the polyp is accomplished by means of either a snare or a delicate alligator rongeur forceps. The snare is a simple one, similar to Blake's nasal snare, with the shaft made the necessary length, and the instrument slightly more angulated. The alligator forceps is the best instrument to use if possible,

and if made slender with biting rongeur blades, accurate work, rapid removal, and splendid specimens may be obtained. In the posterior urethra following removal, he nearly always touches the point of attachment with either twenty per cent. silver nitrate, or the pure crystal fused on the point of a probe. It is essential to dry the area with cotton after the use of caustics.

JOURNAL OF CUTANEOUS DISEASES.

October, 1914.

Calcium Lactate in the Treatment of Certain Dermatoses.—Charles J. White says its effect is not striking, yet the drug was efficient in some of the cases. Calcium is certainly not a specific for any skin disease; it is a drug which may render distinct and most welcome service; it should always be tried in obstinate examples of urticaria, erythema multiforme, pernio, hyperidrosis, and possibly purpura.

Skin Diseases in the American Negro.—H. H. Hazen says that mulattoes suffer more severely from skin diseases than do full blooded negroes. The following diseases are more prevalent among negroes than among whites: Dermatitis papillaris capillitii, keloids, dry seborrhea, syphilis, tinea tonsurans, urticaria, and vitiligo, while the following are less prevalent among them: Alopecia areata, cancer, dermatitis actinica, acute eczema, erythema multiforme, furuncles, boils, angiomas, naevi, pediculosis capitis, psoriasis, rosacea, sycosis vulgaris, tinea cruris and xanthelasma.

Proceedings of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Joint Meeting with the Richmond County Medical Society, Held at St. George, Staten Island, June 1, 1914.

Dr. HENRY C. JOHNSON in the Chair.

Artificial Pneumothorax.—This paper, by Dr. CHARLES R. KINGSLEY, Jr., will be published in the JOURNAL.

Dr. EDWARD WALLACE LEE said that to him artificial pneumothorax was an old subject revived, for he remembered that at the meeting of the American Medical Association in 1898, Dr. Joseph B. Murphy, of Chicago, had exploited it as a wonderful advance in treatment, stating that a large number of patients had been greatly benefited.

The treatment was taken up by probably 1,500 physicians and surgeons all over the land, though the cases, so far as he knew, were not as carefully selected as had been advised by Doctor Kingsley. Personally, he had employed it extensively. The results, however, did not fulfil expectations, and in four or five years it had fallen into disuse. Within the past two or three years Murphy had again taken up artificial pneumothorax, and the subject was once more attracting attention. The rest afforded the lung which had been spoken of, might be an advantage, though he did not believe it as good as fixation of a diseased joint. Whether the treatment had any effect on the tubercle bacilli he did not

know, but he thought not. Fresh air and sunlight only would kill the bacilli. He did not wish to discourage Doctor Kingsley. In properly selected cases, and with the present improved technic, artificial pneumothorax might prove of some benefit.

Doctor HOROWICZ, of the Sea View Hospital for consumptives, Staten Island, had employed artificial pneumothorax to a limited extent in that institution. The cases were practically hopeless ones, in which all other treatment had failed. In a few instances no marked improvement had resulted, with the exception of a reduction of temperature. Other patients had been greatly benefited. Thus, one young woman who without the treatment would certainly have been dead by this time, was now able to sit up and was feeling comfortable. He did not use a sharp needle, like Doctor Kingsley, but the Floyd-Robinson blunt needle, which he believed to be preferable. He also made use of the x ray, which had not been mentioned in the paper.

Dr. LEOPOLD M. ROHR said that at the Riverside Hospital, under Doctor Knopf and Doctor Pulley, this treatment was being employed. Doctor Pulley was greatly interested, and had compiled more than 150 cases, with some very brilliant results. He thought they should not be discouraged on account of more or less lack of success at first, for he was convinced that this procedure would prove to be of great advantage.

Doctor KINGSLEY, in closing, said that the production of artificial pneumothorax had been suggested as early as 1822, but it was not till the nineties that it was taken up as a practical procedure. Men were carried away by enthusiasm in consequence of Murphy's too confident reports, and it was only natural that later there should have been a reaction, and that the method had fallen into disrepute. He could not see why rest should not be as beneficial for a diseased lung as for a diseased joint. In this treatment, after a time, no tubercle bacilli were to be found, and this showed that no active process was going on in the compressed lung. Artificial pneumothorax should be resorted to only in unilateral cases and in those without pleuritic adhesions.

Valvular Disease of the Heart in Infancy and Childhood.—This paper, by Dr. ROBERT ABRAHAM, was published in the JOURNAL for July 18th, page 127.

Dr. HENRY ILLOWAY said the age of the child made a great difference.

Dr. GEORGE DOW SCOTT said that the parent and the infancy of the child had much to do with heart trouble. As the result of faulty conditions, often from improper care on the part of the mother, the child might have acidosis or intestinal poisoning. The most frequent affection was endocarditis, and the most important treatment was rest. Next came bathing, and he would have the child bathed, not twice a week, but three or four times a day. The water should be lukewarm at first, and then gradually made colder. It was important to avoid constipation, the bane of child life, and fruits and vegetables were the best agents; they acted, not only as laxatives, but as diuretics and tonics.

Dr. J. MILTON MABBOTT said that Doctor Abrahams had advised a maximum of eggs, milk, cream,

fruit, and vegetables. In his opinion, however, eggs should be as far away from the maximum as possible. At the Post-Graduate Hospital, eggs had been given up to twelve a day, and it was found that when more than ten a day were taken rheumatism was likely to develop. When a young child presented vague symptoms, and no lesion or definite evidences of disease could be found, the condition was most often rheumatism.

Dr. THOMAS S. SOUTHWORTH had recently been much impressed by the helpful work in children with valvular disease carried on by the social service department of the Massachusetts General Hospital in Boston. This offered the best chance for the future of these heart cases. Without proper care or supervision such patients, having improved under a course of appropriate treatment, generally relapsed, or else acquired some infection. An important part of the work was to prevent the children from being placed in occupations involving undue strain upon the heart.

Dr. REYNOLD WEBB WILCOX thought that the cardiac remedy most suitable for children was strophanthus. Up to the age of puberty the treatment of heart affections was comparatively simple. The thing to contend against was anemia.

Doctor ABRAHAMS, in closing, said that aortic disease due to syphilitic tonsillitis was a cause of valvular disease, but most physicians did not examine the heart. Eighty per cent. of aortic disease was due to nephritis. As to rheumatism, he had not stated that this was the only cause of heart trouble. Influenza was an important etiological factor. Other factors were typhoid fever, measles, and scarlet fever. He had said that rheumatism of the heart might occur without the slightest trouble in the joints. Rheumatism in children might be characterized as a "sneaking" disease. It was the kind of rheumatism which affected the heart. For a long time the only thing which might be noticed was hypertrophy; but later in life, when the hypertrophy gave place to dilatation, the serious trouble began. Personally, he did not make any distinction between children in the earlier part and those in the later part of the period embracing the first twelve or thirteen years of life. He agreed as to the importance of anemia. He always gave iron. Anemia was entirely secondary to the condition in the heart. This could be proved by certain physical signs. Wherever there was primary anemia, if the radial pulse was taken while the arm was raised above the head, it would be found that the volume was diminished and that the beats were increased in rate, but without irregularity. In secondary anemia there was a rapid pulse and irregularity. As to Doctor Mabbott's criticism of eggs, the quantity which children would take was not large; they were rather distasteful to children, and it was often difficult to get them to eat eggs at all. One might find inflammation, but the child was not introspective enough to complain. An endocarditis never really healed up.

Some Essential Points in Infant Feeding.—This paper, by Dr. EDWARD S. RIMER, was published in the JOURNAL, page 921.

Dr. GEORGE P. JESSUP said that at the Seaside Hospital of St. John's Guild at New Dorp cane sugar, rather than lactose, was now used exclusively

in the feeding of babies. It was economical and had other advantages. When milk sugar was used, the stomach contents, when vomited, had a very sour, nasty smell; but not with cane sugar. Doctor Rimer had quoted Holt as stating that in New York State not more than twenty-five per cent. of mothers nursed their infants. He was convinced, however, that on Staten Island, at least, fully fifty per cent. of mothers nursed their babies. As to pasteurization, its beneficial effects depended largely on the intelligence of the mother. The milk should be pasteurized just before it was fed to the child. Undoubtedly, raw milk was preferable when it could be procured fresh and of good quality. He had found overfeeding a more common source of trouble than underfeeding; a weak and sickly infant was often restored to health simply by adequate nourishment. For acute conditions, however, starvation was usually advisable. Barley water, even plain water, might be used. Opiates were not often required. Formerly, when he gave these, the mortality had been large; but now, under the use of calomel, castor oil, and barley water, the babies did not die. In some instances he employed protein milk, though it was difficult to prepare. In the bottle feeding of infants, care of the rubber nipples was essential, and the safest plan was to boil them. In concluding, Doctor Jessup read the following rules on the feeding of infants, prepared by a committee of which Dr. A. Jacobi and Dr. Rowland Freeman were members, which had been adopted by the medical board of St. John's Guild Seaside Hospital:

1. The feeding of the infants and children in the hospital is under the control of the attending physicians or their representatives, the adjunct attending physicians, and their orders are to be followed in all cases. These hints are designed to establish a general practice and to guide the house physicians and their assistants in cases where no special orders have been given.
2. The use of proprietary foods is to be avoided, and they should be employed only upon the order of an attending physician or his representative. They should not be accepted as gifts from their manufacturers or vendors.
3. As a rule, no infant or child should be brought up without milk. Temporary exceptions to this principle are demanded by certain intestinal diseases.
4. No milk should be fed raw unless scurvy demands a temporary change.
5. Milk should be pasteurized, or, when that is not practicable, brought to near the boiling point for a mere second.
6. Infants should not be given cows' milk undiluted. The dilution should not be made with water, but with a cereal decoction, such as barley water or, in case of constipation, oatmeal water.
7. Babies who show early symptoms of rickets, or who show no signs of teething at seven months, should have six or eight ounces of meat broth daily.

Dr. FREDERIC H. BARTLETT agreed with Doctor Rimer and Doctor Jessup that whole milk properly diluted was the most satisfactory food for bottle fed infants. He could see no advantage in top milk mixtures, and from the point of economy they were objectionable. Cane sugar met all the requirements and was more economical than milk sugar. Malt sugars might be employed to cause a gain in weight. Caloric feeding was a good guide as to whether an infant was being overfed or underfed. Protein milk was a valuable addition to their resources in cases of severe diarrhea. Another substitute, though probably not so good, was butter-

milk. Tablets containing *Bacillus bulgaricus* had not, in his experience, proved of service.

Doctor Mabbott protested against the condemnation of top milk mixtures, as he had found them of great practical utility.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Ileo-Cæcal Valve. By A. H. RUTHERFORD, M. D., Edin. New York: Paul B. Hoeber, 1914. Pp. 62. With 32 Half Tones and five plates.

This monograph of about sixty pages comprises a thorough study of the ileocecal valve. The first section of the book gives a detailed description of the valve, gross and microscopical, its function, competence, the value of its muscular fibres, and in a very complete way deals with the literature of the subject. In the second part the author gives us the results of his observations on the living subject and a description of thirty-two human specimens hardened in formalin, aided by splendid photographic plates and photomicrographic studies. The thesis impresses us with its careful preparation and consideration of the subject and the arrangement of the matter.

Diseases of Bones and Joints. By LEONARD W. ELY, M. D., Associate Professor of Surgery, Leland Stanford Junior University, San Francisco, Cal. New York: Surgery Publishing Company, 1914. Pp. 218. (Price \$2.)

The unusual interest now manifested by the profession in acute and chronic arthritis, as well as other forms of bone and joint diseases, makes this book particularly timely. Professor Ely is well equipped from experience to present an authoritative work, having specialized in this branch of surgery for years. In a brief way, he presents the anatomy, physiology, and pathology of bones and joints, acute and chronic arthritis of various types, ankylosis, diseases of the shafts, acute osteomyelitis, chronic inflammations in the bone shafts, new growths in bone, etc. The profuse photomicrographs with other illustrations aid materially in placing up to the eye of the reader the contents of the book, and the marginal side heads, printed in contrasting colors, permit of ready reference. The volume lays down broad general principles, shorn of a mass of details, and then shows in a practical way how these principles may be applied. We recommend the book as one which will be appreciated by the general practitioner and read with the assurance that it presents valuable instruction from an authoritative source upon a subject where much light is needed.

Guiding Principles in Surgical Practice. By FREDERICK-EMIL NEEF, B. S., M. L., M. D., New York City. New York: Surgery Publishing Company, 1914. Pp. 180. (Price \$1.50.)

The author answers herein some of the questions which present themselves to the general practitioner and surgeon, particularly in the beginning of his career, during the period in which he formulates for himself the rules which are likely to direct him in his future work. The viewpoint is based on clinical studies in the operating room and at the bedside of the patient. The book covers the practical points in the preparation of the patient for an operation, the arrangement of the operating room, the important relations between the surgeon and his anesthetist, the assistant, the family physician, the nurse during the course of the operation, also the aftercare of the case. Other chapters in the book cover such important considerations as sterile washes and wound dressings, sterilization of utensils and instruments for the operation, the surgeon's hands, wound healing and scar formation, sepsis, suture material, anesthesia, incision, the course of the operation, the treatment of unclean wounds. In fact, within this book of 180 pages will be found those essentials that guide in the successful handling of operative work. The mechanical features of the book are superb, presenting throughout marginal headings in contrasting ink, facilitating ready reference.

Textbook of Local Anesthesia. For Students and Practitioners. By Professor Dr. GEORG HIRSCHFEL, Heidelberg, I. Assistant in the Surgical Clinic. With an Introductory Preface by Prof. Dr. WILMS. With 103 Illustrations in the Text. Translated by RONALD E. S. KROHN, M. D., London. New York: William Wood & Co., 1914. Pp. xii-181. (Price \$2.75.)

The rapid advances constantly being made in local anesthesia afford justification for the recent appearance of a number of works on this subject, and of these the present book can be stated to be one of the best. Although not as lengthy as Braun's pioneer work, Hirschfel's presentation of the subject gains in that he has made a special effort to impart, with the aid of numerous photographic reproductions, the precise anatomy of the parts in which local anesthesia is to be employed. This applies especially to the head, to which nearly one half the volume is devoted; forty-three illustrations are provided to guide the anesthetist along proper lines of procedure in this part. The remaining sections of the book are devoted, seriatim, to local anesthesia in operations on the neck, thorax, and breast, to abdominal operations, paravertebral conduction anesthesia, kidney operations, laminectomy, operations for hernia, hydrocele, and testicular disease, operations on the penis and female genitalia, prostate, anus, and rectum, upper extremity, and lower extremity. There is also a short section on extradural anesthesia, a comprehensive bibliography, and an index. The author seems to use a one or two per cent. solution of novocaine exclusively in his anesthetizing work, and considers this drug to be only one seventh as toxic as cocaine, although he has seen collapse in one instance after its injection into the spinal canal. The novocaine solution is sterilized and kept in a stock bottle, suprarenine being added only just before the anesthetization. A well illustrated section on dental anesthesia is included in the volume. The translation is entirely adequate.

Sclerocorneal Trephining in The Operative Treatment of Glaucoma. By ROBERT HENRY ELLIOT, M. D., B. S. Lond., Sc. D. Edin., F. R. C. S. Eng., etc., Lieut.-Colonel, I. M. S. Superintendent of the Government Ophthalmic Hospital, Madras; Professor of Ophthalmology in the Medical College, Madras; Hon. Fellow of the American Academy of Ophthalmology; and Hon. Member of the Minnesota Academy of Ophthalmology, of the Chicago Ophthalmological Society, and of the Detroit Ophthalmological Club. First Edition, 1913. Second Edition, 1914. New York: Paul B. Hoeber; London: George Putnam & Sons, Limited. The Ophthalmoscope Press, 1914. Pp. xxvi-187. (Price \$3.)

The author maintains that the technic of this operation is simpler than that of any other operation undertaken for glaucoma, and that it can be performed in all varieties of this condition. The chapter on the preparation for operation pays attention to even the slightest detail, special consideration being given to the patient's position on the table, the instruments, the surgeon's hands, etc. The technic of the operation is also fully gone into—the site of trephining, the method of forming the flap, the size of the trephine to be used, all being fully and precisely described. The advantages of performing iridectomy in connection with the operation of trephining are brought out, the different complications that may arise during the course of the operation are enumerated, and the plan to be followed when they occur is given in every instance. Considerable space is devoted to the management of the case after operation; also to complications which may arise at this time. The difficulty in making the correct diagnosis at times is dwelt upon and consideration is given to the various factors which help to determine the presence of this disease. The estimation of the tension of the eye by means of the tenometer is recommended as one of the most valuable aids in making the diagnosis. Copies of record blanks are shown, which take into account every complication that is liable to occur in the course of the operation or in the after-treatment; also every detail in the history of the case that may be of interest or of aid when performing the operation in the future. The author gives the results of over 1,000 cases operated in by him, as well as a résumé of the results obtained by other ophthalmological surgeons. The importance of the site of trephining is discussed by E. Temple Smith, who shows the advantages of trephining in the

upper quadrant. A comparative study of the modern operations for glaucoma follows. The various operations for glaucoma are reviewed—iridectomy, the operations of Herbert, Lagrange, Fergus—and fully discussed and criticized. The final chapter contains an anatomical and pathological review of the operation. The modifications of the author's flap as devised by different operators are described and the pathology of the various complications met with during or after the operation is given. The book is a practical one, as the subject is thoroughly covered and the details are presented in a clear and concise fashion.

A Textbook of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By HOBART AMORY HARE, M. D., B. Sc., Professor of Therapeutics, Materia Medica, and Diagnosis in the Jefferson College of Philadelphia; Physician to the Jefferson Medical College Hospital; One time Clinical Professor of Diseases of Children in the University of Pennsylvania. Fifteenth Edition, Enlarged, Thoroughly Revised, and Largely Rewritten. Illustrated with 144 Engravings and 7 Plates. Philadelphia and New York: Lea & Febiger, 1914. Pp. x-998.

The fifteenth edition of this standard work follows the admirable traditions of the former editions, and the work can still be cordially commended to the college student for a preliminary view of the all important subject of therapeutics, as well as to the practitioner for reference and review. The division of the book, by which the various agents are first discussed and subsequently the treatment of each pathological condition is taken up, is excellent, especially for reference. The author states that the time has come to discard both therapeutic nihilism and therapeutic optimism and to stand fast by rationalism in the exhibition of drugs and other remedial agents. Dr. George E. deSchweinitz and Dr. Barton C. Hirst continue their valuable contributions to this edition, and Dr. Edward Martin discusses the important antiseptics and the treatment of gonorrhea and syphilis. As a textbook which gives definite and satisfactory advice and does not perplex the busy reader by finespun arguments pro and con, Hare's practical work will continue to supply a strongly felt demand.

Interclinical Notes.

The *Outlook* for October 28th was the monthly magazine number, a handsome and astonishing production, as usual. An editorial article on aerial warfare furnishes food for reflection on the ethics, if any, of modern conflicts. Other journals give us so little of local socialism and its protagonists, that one reads with special eagerness of the wonderful Steinmetz. Not many socialists earn \$100,000 per annum, and it is encouraging to think that great wealth does not always obliterate the logical and other intellectual qualities. The roster of socialism presents an imposing list of names, if one considers mentality as distinct from the money gathering faculty.

* * *

The ability to get rich is not an intellectual gift, but an overdeveloped instinct. Just as some individuals are oversexed, so are others overselfpreservative, so to speak; they keep on piling up the defences against poverty beyond all reason or necessity, with the danger of atrophy of other attributes of a well rounded individuality. They frequently acquire an extraordinary fluency concerning subjects of which they know little or nothing, but this may be due to an innocent desire to conceal their narrowness.

* * *

Our colleague, Dr. Rupert Hughes, has produced a fine piece of work in *Empty Pockets* now running in the *Red Book*, and the November instalment continues the adventures of that pleasing young man, Dr. Clinton Worthing.

* * *

"Myself, Robert Brown, assistant to one of the Little-beach medicos," tells in the October *Strand* about Making Sure of Archie; in real life, however, the author is R. S. Warren Bell. We think that in the United States Archie would have been known as a "lush." One of the curiosities of English society, however, is the remarkable ten-

acity of its members on their position; once a man has received the hall mark, apparently he can do anything without loss of prestige; anything, that is, that does not violate some purely social taboo.

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Our sole recollection of Sarawak is the picture of Rajah Brooke on the stamps of two decades ago. The *Wide World* for October has an account of the adventures in Sarawak of the present Rani, wife of the rajah who is nephew and successor of Brooke. Life in all parts of Borneo is interesting and peculiar, and the comic opera effect of these reminiscences is undeniable. Among other strange but true stories in this issue is that of Fern Hobbs, a girl typist, who led United States troops into the rough mining camp of Copperfield.

* * *

"The data necessary is within sight," writes B. Horowitz, in his article on the Ultrascientific School in the November *Popular Science Monthly*. This led us to think that the editor preferred to consider data a singular, as some grammarians do; but two pages further on, Horowitz is permitted to say "sufficient experimental data are at hand." Editors should be obliged to nail their colors to the mast.

* * *

Charles Edward Russell tells Who Made This War in the November *Pearson's*. We still like our own theory, to the effect that the normal man under thirty years of age, will drop any other occupation in order to fight. They say that they have deprived the Chinese of opium; if this is true, the coming generation will turn to war instead. Our own more excitable population might have all its warlike proclivities held in abeyance by the morphine-scopolamine combination. Of the two evils, we shall leave the choice to our wise statesmen.

* * *

A picturesque and impartial account of the war and its participants, actual and probable, continues to appear in *Current Opinion*, and the cartoons from various European journals are a helpful feature in the November issue. Local issues are not neglected and there is a sympathetic history of the career and accomplishments of Miss Katherine B. Davis. Science and discovery, religion and ethics, literature and art, music and drama, and the business world furnish most interesting reading and make up a well rounded and satisfactory periodical.

Meetings of Local Medical Societies.

MONDAY, November 16th.—New York Academy of Medicine (Section in Ophthalmology; Yorkville Medical Society (annual); Medical Association of the Greater City of New York.

TUESDAY, November 17th.—New York Academy of Medicine (Section in Medicine); Tompkins County Medical Society; Buffalo Academy of Medicine (Section in Obstetrics and Gynecology); Tri-Professional Medical Society of New York; Medical Society of the County of Kings; Binghamton Academy of Medicine; Syracuse Academy of Medicine; Ogdensburgh Medical Association; Oswego Academy of Medicine; Medical Society of the County of Westchester (annual).

WEDNESDAY, November 18th.—New York Academy of Medicine (Section in Genitourinary Diseases); Alumni Association of City Hospital, New York; Schenectady Academy of Medicine; Women's Medical Association of New York City (New York Academy of Medicine); Medico-Legal Society, New York; Buffalo Medical Club; Northwestern Medical and Surgical Society of New York.

THURSDAY, November 19th.—New York Academy of Medicine (stated meeting); Auburn City Medical Society; Geneva Medical Society; German Medical Society, Brooklyn; Æsculapian Club of Buffalo; New York Celtic Medical Society.

FRIDAY, November 20th.—New York Academy of Medicine (Section in Orthopedic Surgery); Mount Vernon Medical Society; Clinical Society of the New York Post-Graduate Medical School and Hospital; New York Microscopical Society; Alumni Association of Roosevelt Hospital.

Official News.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending November 7, 1914:

Farmer, H. G., First Lieutenant, Medical Reserve Corps. Relieved from duty at Madison Barracks, New York, and placed on the inactive list on arrival at his home. **Garcia**, Leon C., Captain, Medical Corps. Has reported for duty at Fort Levett, Maine. **Johnson**, Thomas H., Captain, Medical Corps. Granted four months' leave on arrival in the United States. **Little**, William L., Major, Medical Corps. Relieved from duty at Fort Wadsworth, New York, on arrival of Major William T. Davidson, Medical Corps, and will then proceed to Texas City, Texas, for duty. **Meraux**, L. A., First Lieutenant, Medical Reserve Corps. Relieved from duty at Jackson Barracks, Louisiana, and placed on the inactive list on arrival at his home. **Metcalfe**, R. F., Major, Medical Corps. Relieved from duty in the office of the attending surgeon, Washington, D. C., and ordered to Fort Porter, New York, for duty.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending November 4, 1914:

Anderson, J. F., Surgeon. Granted twelve days' leave of absence from November 2, 1914. **Gardner**, C. H., Surgeon. Granted one day's leave of absence, November 3, 1914, under paragraph 193, Service Regulations. **Goldberger**, Joseph, Surgeon. Directed to visit such insane asylums in the States of Rhode Island, Massachusetts, and Michigan, as may be necessary for the study of dietary conditions in connection with pellagra. **Kerr**, J. W., Assistant Surgeon General. Directed to proceed to Topeka, Kansas, and such other places in that State as may be necessary, for consultation with the State authorities, and to advise in respect to State and local health administration. **Le Prince**, J. A. A., Sanitary Engineer. Relieved from duty at the Marine Hospital, Mobile, Ala., and directed to proceed to New Orleans, La., for duty in investigations of malaria. **McBurney**, J. W., Sanitary Bacteriologist. Relieved from duty in investigations of the pollution of the Ohio River, and directed to proceed to Washington, D. C., for duty in other field investigations. **McIntosh**, W. P., Surgeon. Granted one month's leave of absence, or so much thereof as may be necessary, on account of sickness, from November 2, 1914. **Meyer**, E. M., Sanitary Bacteriologist. Relieved from duty at Pittsburgh, Pa., and directed to proceed to Cincinnati, Ohio, for duty in investigations of the pollution of the Ohio River. **Mitzmain**, M. D., Technical Assistant. Relieved from duty at the Marine Hospital, Mobile, Ala., and directed to proceed to New Orleans, La., for duty in investigations of malaria. **Molloy**, D. M., Technical Assistant. Relieved from duty at the Marine Hospital, Mobile, Ala., and directed to proceed to New Orleans, La., for duty in investigations of malaria. **Mullan**, E. H., Passed Assistant Surgeon. Detailed, at the request of the Commission to Investigate Provision for the Mentally Deficient in the State of New York, to conduct investigations as to number of mentally defective persons in institutions in Westchester County, N. Y. **Robertson**, H. McG., Passed Assistant Surgeon. Granted seven days' additional leave of absence from November 7, 1914. **Smith**, J. H., Jr., Assistant Surgeon. Granted twenty-one days' leave of absence from November 10, 1914. **Taylor**, H. A., Technical Assistant. Relieved from duty at the Marine Hospital, Mobile, Ala., and directed to proceed to New Orleans, La., for duty in investigations of malaria. **Trask**, J. W., Assistant Surgeon General. Directed, upon the request of the Secretary of Commerce, to confer with the Director of the Census regarding the present methods of collecting and presenting vital statistics with a view to their improvement. **Wheeler**, G. A., Assistant Surgeon. Granted

seven days' leave of absence upon termination of duty in field investigation of rural sanitation at Cambridge, Md.

Board Convened.

Board of medical officers convened to meet at Detroit, Mich., for the reexamination of an alien. Detail for the Board: Senior Surgeon H. W. Austin, chairman; Surgeon H. W. Wickes, member; Acting Assistant Surgeon K. L. Weber, recorder.

Births, Marriages, and Deaths.

Married.

Barber—Bell.—In Rochester, N. Y., on Wednesday, October 28th, Dr. Frank Barber and Miss Dorothy Bell. **Barry—Westney**.—In Philadelphia, on Thursday, October 29th, Dr. Rolla Grant Barry, of Worcester, Mass., and Miss Mae W. Westney. **Bowman—Word**.—In Summer Shade, Ky., on Saturday, October 31st, Dr. S. M. Bowman and Miss Vic Word. **Davis—Winfield**.—In Morristown, Pa., on Wednesday, October 28th, Dr. Albert Goodman Davis and Miss Katherine Winfield. **Fenwick—Martin**.—In Chelsea, Mass., on Wednesday, November 4th, Dr. George B. Fenwick and Miss Elsie Martin. **Gaither—Langrall**.—In Baltimore, Md., on Wednesday, November 4th, Dr. Ernest Howard Gaither and Miss Elsie Carola Langrall. **Hopkinson—Savage**.—In Philadelphia, on Wednesday, November 4th, Dr. Richard Dale Hopkinson and Miss Florence Adele Savage. **Johnson—Tafts**.—In Toronto, Canada, on Thursday, October 2d, Dr. Roy Wilton Johnson, of Kansas, Ill., and Miss Gladys Wilhelmina Tafts. **McGrath—Nicholson**.—In Edgefield, S. C., on Wednesday, October 28th, Dr. John F. McGrath, of New York, and Miss Lillian Lee Nicholson. **Miller—Trotcky**.—In Indianapolis, Ind., on Tuesday, October 27th, Dr. Don L. Miller and Miss Jennie B. Trotcky. **Peckham—Wade**.—In Albany, N. Y., on Saturday, October 24th, Dr. A. L. Peckham, of Poughkeepsie, and Mrs. Margaret Chisholm Wade. **Price—Fitzsimmons**.—In Harrisonburg, Va., on Saturday, October 31st, Dr. Robert Lee Price, of Muskeokee, Okla., and Miss Mary Baker Fitzsimmons. **Stevenson—Wood**.—In Philadelphia, on Wednesday, October 28th, Dr. Frank B. Stevenson and Miss Elizabeth Hindman Wood. **Sturgis—Fiske**.—In Rockland, Me., on Wednesday, October 28th, Dr. Karl B. Sturgis and Miss Alice W. Fiske.

Died.

Babcock.—In Dedham, Mass., on Monday, October 26th, Dr. Francis L. Babcock, aged sixty-five years. **Bryan**.—In Philadelphia, on Monday, November 2d, Dr. Henry Northam Bryan, aged sixty-one years. **Cardozo**.—In Brooklyn, on Tuesday, November 3d, Dr. J. Lopes Cardozo, aged eighty-three years. **Carroll**.—In North Dunwich, Ontario, on Sunday, October 25th, Dr. Robert C. Carroll, of Calgary, Alberta, aged thirty-one years. **Cherry**.—In Philadelphia, on Wednesday, October 28th, Dr. Robert K. Cherry, aged thirty-four years. **Gifford**.—In Erie, Pa., on Friday, October 23d, Dr. Edward F. Gifford, aged forty-eight years. **Hayward**.—In Rochester, N. Y., on Tuesday, November 3d, Dr. Edwin S. Hayward, aged fifty-five years. **Hodges**.—In Brooklyn, on Friday, October 30th, Dr. Edward Hodges, aged forty-four years. **Lynde**.—In New York, on Thursday, November 5th, Dr. George Stanley Lynde, aged fifty-three years. **Maaser**.—In Montreal, Canada, on Sunday, October 18th, Dr. Carl Maaser. **Marmison**.—In Havana, Ill., on Tuesday, October 20th, Dr. David C. Marmison, aged seventy years. **Nelson**.—In Las Cruces, N. M., on Sunday, October 18th, Dr. C. H. Nelson, aged forty-four years. **Sheedy**.—In Poughkeepsie, N. Y., on Saturday, October 31st, Dr. Daniel M. Sheedy, aged forty-eight years. **Stacy**.—In Magee, N. Y., on Tuesday, October 27th, Dr. W. M. Stacey, aged fifty-four years. **Taft**.—In Milford, N. H., on Wednesday, November 4th, Dr. Edward H. Taft, aged forty-four years. **Way**.—In Brattleboro, Vt., on Monday, October 26th, Dr. Osmon B. Way, aged seventy-four years. **Woodburn**.—In Central City, Ky., on Monday, November 2d, Dr. James Taylor Woodburn, aged sixty-six years.

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INSANITY AND DIVORCE.*

BY ALFRED GORDON, M. D.,
Philadelphia.

The problem of insanity and divorce is one of such a vast importance from a social standpoint, that it deserves full discussion in medical and legal circles. For the solution of this problem the alienist is indispensable. The legislator must appeal, whether he wishes or not, in such matters to those who daily come in contact with the mental anguish and suffering of unfortunate couples.

Legal separation of the two people who have contracted marriage may be viewed from a purely sentimental or from a social standpoint. The first view is held by those who believe that insanity should be considered on the same ground as any other disease, that both contracting parties owe mutual assistance, that one should support the other, no matter how painful the consequences of the disease may be, that divorce should therefore not be granted. The other view concerning insanity and divorce is not based on sentiment, but on ideas which have for object the welfare of society as well as of its component individuals. Insanity is certainly a disease, and a disease developing after marriage should not be a reason for separation. There are many maladies outside of insanity which make conjugal life almost an impossibility. There are diseases which are repugnant, incurable, but they cannot be considered as causes for divorce. A disease must form a part of the conjugal risk. If we compare physical affection with mental, we must admit that the latter is a disease *sui generis*. It alters or abolishes the normal personality, and there precisely lies the fundamental difference between the two.

Marriage presupposes common interest, especially from a mental standpoint. Affection and devotion are given because each party is able to receive and respond. When the mentality of one becomes disturbed, his individuality is annihilated; it becomes either automatic or else a new personality appears; the former personality that contracted marriage is no more in existence. Consequently mental derangement *per se* is a dissolution of marriage. A distinction should be made between mental affections which are amenable to treatment and therefore curable, and those which are incurable.

In the first case the personality of the individual is but temporarily altered. In such cases divorce would be an injustice. But when the intellectual and moral personality of the individual has disappeared without hope of return to normal, what should the judicial attitude be?

Before answering this important question, let us first briefly view the legislative acts in various European countries and in the States of the Union. In 1910 the new Civil Code of Germany generalized the various legal dispositions which existed in various forms in the individual States of that country, and admitted divorce in cases of insanity. (*Psychiatrisch-neurologische Wochenschrift*, article 1569. Marhold. Halle.) The new law says: Divorce may be granted when insanity has existed during married life for at least three years, when it reaches such a degree that common mental interest ceases and when all expectations for recovery are given up. It makes a provision, however, that maintenance of the insane person must be kept up by the person who obtains the divorce. This clause is highly moral and humanitarian and it prevents at the same time the possibility of another motive in request for divorce, namely, avoidance of supplying the needs of the insane married person. So constructed, the law cannot raise serious objections.

Switzerland adopted, in 1874, a federal law according to which insanity is placed among the causes of divorce, but it must last three years and must be declared incurable by experts. Besides, it must be shown that the conjugal life is difficult or impossible for the person that asks divorce, that the health, life, reputation, success in affairs, and future of the children, are all jeopardized if life in common is continued.

In Sweden similar legislation has been in existence for the last hundred years. The royal decree says: If one of the parties is suffering from a veritable mental affection which has lasted uninterruptedly at least three years, and if according to competent medical testimony there is no hope for recovery, the courts may grant divorce at the request of the other party. It must also be proved that the mental affection has not been caused or aggravated by the conduct of the sane party. The term "veritable" does not impose any restriction, as all mental affections are veritable. But the term "uninterruptedly" includes at once the recurrent or the periodical psychoses, which limits the application of the law to a certain group of insanities.

In Bulgaria, the law of 1897 admits divorce when one of the parties after marriage is affected with

*Read before the Medico-Legal Society of Philadelphia, October 27, 1914.

dementia, idiocy, epilepsy, or syphilis. In these cases divorce is permitted only after all other means have failed to bring about recovery. In Ecuador, according to the law of 1902, insane individuals cannot marry, and insanity is a cause for annulment of marriage. In Monaco, the law of 1907 says: When one of the parties is affected with insanity, epilepsy, alcoholic delirium, or syphilis, divorce may be granted on the following conditions: 1. If the disease is incurable; 2, if the disease is of such nature as to compromise the security and health of the other party or of the children born or to be born; 3, if the disease has lasted three years; 4, if the attacks of epilepsy or of alcoholic delirium are frequent. It is evident that these provisions give full protection to the family and prevent the procreation of children with undesirable inheritance.

In Portugal a law of 1910 permits divorce for incurable mental derangement which has been in existence three years. Germany, Sweden, Switzerland, Monaco, Bulgaria, and Portugal are to be the only European countries which, to my knowledge, have accepted insanity as a sufficient cause for dissolution of the marriage bond. Protection of the sane members of the family is apparently of great concern; the sentimental point of view is ignored. The majority accept three years as the lowest period for a test of curability or incurability of a mental affection. Some of the terms employed by the legislators who formulated the laws may lead to controversies and litigation, as from a psychiatric standpoint they are debatable and do not cover all forms of mental disorder. Nevertheless, the laws themselves tend to prove decided progress in administrative and prophylactic measures when the security of society and the race is in jeopardy.

Let us now turn our attention to what has been accomplished in that direction in our own country. The following have no provision whatsoever with regard to mental disorder as a cause for divorce: Texas, New Jersey, the Philippines. In the following States only, the law permits divorce for intemperance in the use of alcoholic beverages, but actual mental diseases, which not only incapacitate the individual, but render others in the family insecure and create a possibility of engendering new lives which will be tainted—the law does not mention. They are: North Carolina, Illinois, Alabama, Arizona, Colorado, Connecticut, Kentucky, Louisiana, Michigan, Minnesota, Nevada, New Hampshire, Ohio, and Rhode Island. Moreover, in some of these States a period of three years (New Hampshire and Ohio), in some of two years (Illinois), in others one year (Minnesota) of continuous inebriety is necessary to obtain divorce. In all others no limit of intemperance is set.

In all other States of the Union, mental disturbances are mentioned; alcoholic intoxication is included in some and not in others. In South Carolina, where divorces are not allowed, annulment of marriages is permissible on the ground of "idiocy or lunacy." We observe the same peculiarity in construction of the law with regard to alcoholic intoxication as to insanities, indefiniteness of thought and expression. For example, in the State of Washington absolute divorce is permitted for drunkenness, chronic mania, or dementia; the two

latter must last ten years before divorce is granted. In the first place, from a psychiatric standpoint, it is unscientific to consider chronic mania and dementia as the only insanities; by this provision all other psychoses are eliminated. In the next place, when a patient suffering from a mental disease has reached the phase of dementia, the condition is incurable. Then why wait ten years, and condemn the sane party to great inconveniences and difficulties during such a long period of time? Another peculiar feature of the law is the term "drunkenness." It is curious that no specification is made as to its degree and duration. Besides, no protection is given either individual, as on one hand the drinking person may be taken advantage of and, on the other, one individual who is anxious to get rid of the other, may intentionally absorb alcohol for the purpose of becoming and of being considered drunk.

In the provisions of some States (Wisconsin, Oregon, Oklahoma, Kansas) we find instead of the term "insanity" the expression, "want of understanding." This is again inadequate from a psychiatric standpoint. There are periods in some forms of insanity where the understanding is good. In paranoia, for example, the understanding in many directions may be good, and still the individual is not fit to cohabit with another person and bring children into the world.

In the State of New York partial divorce is granted when the conduct on the part of the defendant is such as to render cohabitation unsafe and improper. Of course this provision includes insanity; but in cases of mild melancholia or of dementia or of a stuporous state, the guardians of the defendant may assert that his condition is not unsafe for the members of his household, as nothing has occurred heretofore to warrant fear. The case consequently may be contested and divorce denied. Nevertheless, the individual's mentality is perhaps genuinely affected.

In Idaho, the law is quite embarrassing. It directs that absolute divorce be granted in cases of permanent insanity, but no divorce shall be granted on the ground of insanity unless the insane person has been regularly confined in an insane asylum for at least six years next preceding the commencement of the action for divorce. The question arises: How about the insane individuals that are kept in the homes of immediate relatives? If a sojourn in an asylum is indispensable for obtaining divorce, the latter class of individuals are not provided for by the law.

In the laws of other States, the terms, "hopeless insanity," "incurable insanity" are used. In the State of Pennsylvania, hopeless insanity has been a cause of divorce since 1843 (Section 8, April 13th). It was amended in 1905, but the substance of the original act remains the same. It is the experience of every alienist that in a number of cases it is impossible to tell at any period of the disease, even years after the onset, whether recovery will follow or not. The so called "remission," during which there may be great lucidity of mind, may be, as is frequently the case, considered as a recovery; yet the patient is only temporarily improved. These remissions may be multiplied during the patient's

illness, which may last many years. Because of the remissions, expectations for total recovery are held by those who are unfamiliar with the disease, and divorce is denied. In Pennsylvania the law seems to be so formulated that an avenue for misinterpretations is left open, even in cases of incurable insanity. After this law was passed by the Legislature in 1905, the Superior Court in 1907 found by means of a hair splitting argument a way of rejecting a decision of the Court of Common Pleas by which divorce was granted for a case pronounced incurable by psychiatric experts. (*Baughman vs. Baughman*; 34 Superior Court, p. 271; 1907.)

The term "idiotcy" is frequently mentioned as a cause of insanity in several States. If an individual is found to be an idiot, his idiotcy must not have developed after marriage. The scientific conception of idiotcy implies a mental state which exists from infancy and therefore it could not be discovered only after marriage. If the legislators intended to protect either of the contracting parties against mental disorders beside insanity, it would have rendered greater service if protection had been extended against mental deficiency in general. It stands to reason that an idiot is utterly unfit for cohabitation. But there is a large category of individuals suffering from obsessions, special fears, deficient will, deficient inhibition; there are hypochondriacs, individuals who possess extraordinary instability of character, of disposition, of mentality, extraordinary impressionability. The number of such psychoneurotic individuals is legion. Persons with this special makeup are far from being fit for cohabitation. The lack of stability characteristic of these individuals renders marital relations impossible; all the household is bound to suffer. From a psychiatric standpoint, psychoneurotic individuals are not insane in the strict sense of the word; they have borderline cases which have not yet crossed the line. As the law concerns only lunacy, divorce will be refused in cases of psychoneuroses, and yet from the standpoint of society, which demands the welfare and happiness of each component member, the sane party of the marriage contract is compelled to suffer indefinitely from cohabitation with the psychoneurotic party.

Beside idiotcy, there is a very large class of mental deficient who are not mentioned in the provisions of the majority of States. I wish to speak of various degrees of imbecility or feeble-mindedness, conditions which are not covered by the term idiotcy or insanity. The unfitness of an imbecile or a feeble minded individual for conjugal life, the essential requirement of which is common mental interest, is self evident, and still the law that sees fit to annul marriage in cases of idiotcy or insanity does not make any provision for this class of individuals.

If divorce or annulment of marriage is to be granted on the ground of insanity, I believe that the following States have enacted the wisest law: California, Delaware, Tennessee, Utah, Virginia, West Virginia, Wyoming, Porto Rico, South Carolina, South Dakota, New Mexico, North Dakota, Massachusetts, Mississippi, Montana, Nebraska, Iowa, Maine, Hawaii. In these communities the term "insanity" evidently covers all forms, irrespective

of its intensity and character. All possible controversies and misunderstandings are thus eliminated, unless a court of justice has the power of declaring it unconstitutional, as we have seen in Pennsylvania. Georgia, Indiana, and Kansas recognize as cause for divorce or for annulment of marriage, mental incapacity existing only at the time of marriage contract. But if insanity develops during married life, the parties evidently cannot be separated.

This brief review of legal provisions in various countries is sufficient to prove that not one is liberal enough to cover all phases of dissolution of marriage for cause of insanity. Let us consider now briefly the state of mentality characteristic of various classical psychoses, also their duration; both factors will perhaps enable us to draw conclusions with regard to the desirability of rupture of the matrimonial bond.

Paranoia, which is characterized essentially by systematized delusions mostly of persecutory character, is a mental malady of the gravest kind and presents, generally speaking, a most unfavorable prognosis. It usually develops in individuals with a degenerative makeup. Common mental interest cannot exist between two parties who contract marriage if one is suffering from paranoia. Remissions occur in paranoia, characterized by apparent lucidity of mind. In spite of such improvement, the paranoiac tendency always exists—never leaves the patient. A certain specific delusion may disappear for a period of time, but sooner or later another delusion of analogous nature will develop and take place of the former. Otherwise speaking, paranoia is essentially an incurable disease.

Dementia præcox is another serious mental disease which usually develops in youth and in which the affective faculties suffer first and most. Delusive ideas of various nature, hallucinations of all kinds may or may not accompany the disease. A gradually developing quantitative and qualitative loss of mentality is the chief manifestation. The disease is of long duration. Complete recovery is exceedingly rare; occasionally considerable improvement in a general way is observed, but even then the activity, intelligence and the affections are all restricted. In spite of great amelioration, recurrences are always to be expected.

Manic depressive insanity is characterized by alternating phases of morbid depression and exaltation. Each of the phases may last a variable time, but what is particularly important from the standpoint of our thesis, is the fact that each attack may be followed by complete restoration of normal mentality. This lucid interval may last an indefinite time. In some cases it is very brief, days or weeks, in other cases it may last months and even years. The special feature of this malady is that, in spite of the lucidity in the intervals, the patient is always threatened with an attack, as indeed in the majority of instances repetition of a depressive or exalted condition is the rule during the patient's lifetime. It should always be borne in mind that in some cases the temporary lucidity is not always complete. The prognosis therefore in such cases is to be made guardedly.

Paresis is characterized essentially by a progres-

sive enfeeblement of the mental faculties. The disease begins usually in the most insidious manner; memory and power of criticism both suffer early. Sometimes characteristic physical signs accompany the mental manifestations at the onset. The affection has for its anatomical substratum irreparable changes in the brain and in its membranes, also in the tracts of fibres issuing from the brain. Besides, it is well established that syphilis is the original and direct cause of paresis. The affection is incurable. Remissions or lucid intervals are observed, but, as a rule, are not of long duration. In the majority of cases the duration of paresis is from two to three years.

Melancholia is characterized by a gradual development of a painful emotional state, with depression to which delusional conceptions are added. Among the latter the most frequent are ideas of worthlessness and self blame. A tendency to self destruction is always present. Suicide is frequent. In some cases this is preceded by homicide. The disease usually occurs during the period of involution. The duration is long, two, three, or more years. In the majority of cases dementia is the terminal stage. Recovery has been observed in a small percentage of cases, but repetition of an attack of melancholia is frequent.

Mental disturbance due to alcoholism deserves mention. The delirious and confusional states of acute alcoholism are well known. They are recoverable conditions. But in cases of relapse, which is always to be feared in alcoholic intoxication, the mental state becomes serious from the standpoint of the profound changes which alcohol is apt to produce. Chronic alcoholism leads to a gradually developing intellectual feebleness or dementia. The prognosis is very unfavorable. Weakness of will power and energy, cloudy memory, loss of power of application for work, apathy, loss of sense of propriety, finally delusive ideas which are sometimes intensified by hallucinatory images. Such is the mental status in chronic alcoholism. It is progressive and the ultimate result is dementia.

In epilepsy there is usually complete lucidity of mind during the intervals. If, however, the epileptic attacks repeat themselves frequently, a persistent change of personality may be developed. Intellectual dullness is conspicuous; the memory is weakened, conceptions are restricted. Affective faculties also suffer; patients have outbursts of anger and violence, they are egotistic and brutal. This group of symptoms constitutes the so called "epileptic dementia." The prognosis is unfavorable.

The few typical examples of mental affections just described demonstrate the extreme seriousness of the situation in which one party of the marriage contract is placed when the other is mentally affected. There are many other varieties of mental disorder, which constitute mixed groups or unclassifiable affections. There are other mental conditions which technically cannot be called insanities in the strict sense of the term, but the individuals affected are future candidates; they have not yet crossed the borderline, but they are predisposed. The instability of their character and disposition, eccentricities, abnormal tendencies, etc., render their

married life most unfortunate. In such cases the common mental interest which is the most essential requisite of marriage is entirely wanting. The same remarks are applicable to the large group of mentally deficient individuals.

CONCLUSIONS.

Divorce is certainly regrettable; but the complexity of modern life and consideration of the social order render it unavoidable. Psychiatry has a certain relationship to the question of divorce, because in a number of cases the conflict between the contracting parties is the consequence of a mental disorder. It is of course desirable in every case to avoid matrimony with a person who presents a degenerative or neuropathic makeup or suspicious hereditary tendencies. But once the marriage contract is concluded and mental disturbances develop some time later, a grave question arises: Should the matrimonial bond be dissolved? Is it an act of social justice to condemn an individual of marriageable age to celibacy? Is it fair to permit procreation of children who will inherit a morbid tendency to mental affections or to mental deficiency and thus throw a heavy burden on the community? It is incontestable that disease, generally speaking, should not figure among the causes of divorce. But when personal safety and life are concerned, legal separation is logically indicated. Cohabitation with an insane or otherwise mentally defective individual not only places the life of the sane party in jeopardy, but, what is more important from a social standpoint, it induces the procreation of tainted beings.

With the exception of milder cases, the chronic forms of mental diseases are, generally speaking, incurable. No alienist can tell with any degree of precision how long any given malady will last. Even in the so called curable psychoses, the number of which is limited, one cannot predict their duration.

An attack of delirium or confusion following an infectious disease usually disappears without leaving any trace. The same occurs in an occasional alcoholic intoxication. Divorce in such cases is out of the question. If alcoholic delirium or confusion is repeated, however, there is a great possibility that the individual will suffer from chronic alcoholic intoxication and that his mentality will undergo deterioration. The common mental interest which is essential in married life, can no more exist and continuous cohabitation is an injustice to the sane person.

Chronic alcoholics, paretics, paranoiacs, and persons suffering from other incurable mental affections enumerated above, threaten the race with deterioration by transmitting to the offspring profound degenerative stigmata. Qualitative as well as quantitative depopulation is bound to follow.

Approximately eighty or ninety per cent. of mental affections are incurable. The patients are a source of constant danger to their neighbors. What shall a woman do if her husband is incurably insane? If she has children, should she not be permitted to remarry and by these means insure their existence? If the mother is insane, the husband can no more rely on her bringing up the children. Should he not be permitted to place them in the

hands of another woman who will legally confer motherly care and attention?

A great many persons are opposed to divorce for religious or sentimental reasons. Fortunately marriage in modern society is acquiring more and more social importance. It is considered as a civil treaty concluded for the purpose of carrying out mutual rights and duties. These mutual obligations are unquestionably sacred, but when the latter cannot be kept up because one of the contracting parties is no more capable of appreciating the importance of the great contract, justice demands protection of the other party whose mentality is normal. Divorce is evidently a progress in cases of impossible married life. It is a measure of defense for the same party and of preservation of the society and race against the procreation of the mentally abnormal. In the interest of nation and race, divorce should be permitted in cases of incurable mental disorders.

I have shown the inadequacy of the legal provisions of various States in this country. I have emphasized the fact, that wherever the law considers insanity as a cause for divorce, it is so formulated that it does not cover all forms and varieties of mental disorder, and leaves, therefore, possibilities for contest and litigation. If divorce is to be granted on this basis, the legal provision should be so formulated that it includes not only the absolutely incurable psychoses, but also all varieties of mental deficiencies and abnormalities which from a psychiatric standpoint render marital life an impossibility.

The jurist and the psychiatrist are to be intrusted with the formulation of such a law. In preparing this important project for legislation they must bear in mind the findings of the science of psychiatry. The curability and incurability of various mental disorders are pretty well established. Assuming that the approximate duration of a given psychosis cannot be ascertained for the purpose of its being included in the list of affections permitting divorce, a divorce should nevertheless be granted, and for this reason, that experience teaches that serious forms of insanity usually develop in individuals of a degenerative makeup. If they are considered to have recovered, for practical purposes there is no guarantee that a recurrence in one or another form will not take place. Besides, they should not be placed in a position for procreation. Lucid intervals in the course of mental affections are misleading and should not be taken as recoveries. Otherwise the individual will be allowed to cohabit and thus procreation will be facilitated. Paresis is an incurable disease and no special period of time should be required for the test of curability.

In working out a law which should do justice to both parties of the marriage contract as well as to the community, a detailed analysis of every possible mental disorder should be undertaken. The assistance of psychiatric science is here of prime importance. The study of this question must be undertaken with scientific sangfroid. Justice, but not sentimentality, must be our guide in this endeavor.

1812 SPRUCE STREET.

TERATOMA TESTIS WITH TUBERCLE BACILLI IN THE URINE.*

By VICTOR COX PEDERSEN, A. M., M. D.,
New York,

Associate in Urology and Chief of Clinic in Urology for Men, Women, and Children, St. Mark's Hospital.

The following rare combination of early teratoma of the testis and tubercle bacilli in the urine is well worth clinical report.

CASE 13,012. M., United States, white, aged about forty years, married, writer, first seen in April, 1914. Diagnosis, early tuberculosis of the right testicle and epididymis. Family history negative. Wife without female disease; two healthy children. Neoplasm and tuberculosis unknown to the patient. *Personal history.* Had always had excellent health; no infectious disease with renal or other known sequels; no emaciation; appetite and bowels normal; no vicious habits as to alcohol, tobacco, drugs, or sexual relations; all venereal disease consistently and persistently denied. *Present history.* About three months prior to his first visit, without traumatism or other known cause, noticed a swelling in the right testicle near its lower pole, slightly sensitive and rather slowly increasing in size, without physical or sexual disturbance. There seemed to be a slight frequency of urination without definite limits. During this same period there had been no change in general bodily health.

Physical examination showed a large, muscular, healthy man without suggestion of tuberculosis of lungs or other

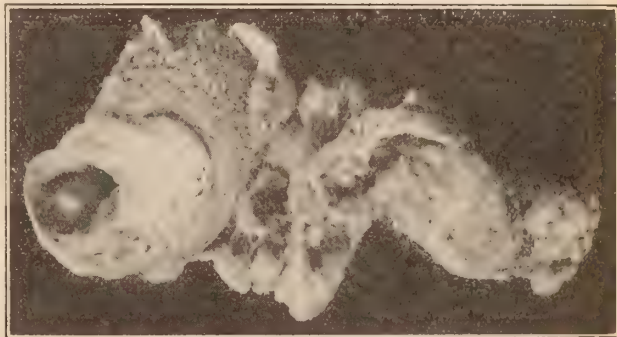


FIG. 1.—Pedersen's case of teratoma testis.

organs or lesions of any other kind in heart, lungs, kidneys, nervous or other system. All sexual organs normal, except the right testicle, which as a whole was not enlarged, but showed its lower pole, in front of and practically identified with the globus minor of the epididymis, a firm rounded slightly sensitive nodule, without adhesion of the tunica vaginalis or skin and without signs of infection. The provisional diagnosis of tuberculosis of the testicle was made and cystoscopy and urethroscopy under local anesthesia were carefully performed with entirely negative results. Even the outlet of the right vas deferens in the colliculus appeared normal.

Laboratory examination. The thoroughness of the investigation into tuberculosis is exemplified by the fact that five urinalyses were made before organisms that seemed to be tubercle bacilli were found by one of the private laboratories of the city. In order to avoid the possibility of error, it was decided to submit these slides to another authority for verification, and Cornell University Medical College was selected. Dr. James Ewing, of the Department of Pathology, submitted the following report, July 28, 1914. "I found the acidfast bacilli in the slide received this morning. These bacilli have the form of tubercle bacilli, and I submitted them to ten minutes decolorization in absolute alcohol, which they resisted. I can therefore only say that they give the usual morphological tests of tubercle bacilli. It is of course quite possible that the patient had tuberculosis of the genitourinary tract as well as teratoma testis. I did not find it in the testis which is now in your possession. Perhaps you can find it elsewhere." (Signed).

*Case report presented to the New York Society of the American Urological Association, October 7, 1914.

On the theory that this was a case of tuberculosis of both the urinary and sexual organs with the main focus in the testicle and probably the eliminating activity of the kidneys toward the organisms still efficient and not compromised, castration was recommended and gladly accepted and carried out with the following details.

In the right groin a short hernia incision was made, exposing the superficial abdominal ring and cord emerging from it. With the utmost gentleness the cord was dissected from its bed, tied twice just distal to the ring, divided, and both stumps were seared with the Paquelin cautery. The distal stump was held still in the artery clamp, with which gentle traction was maintained and the testicle with its tunica vaginalis intact enucleated upward with blunt dissection, until the gubernaculum testis was reached, tied twice, divided, and retired

nence and great hardness. The writer immediately remarked to Dr. Walter B. Brouner, who was associated with him in the case, that the specimen was probably one of teratoma of the testicle. Upon this point Professor James Ewing has submitted the following report:

NEW YORK, July 6, 1914.

The tumor, a sharply circumscribed mass quite separate from testis, in the rete testis, measuring four cm. in diameter. It is firm, opaque, and contains many small cysts.

On section, the tumor is composed chiefly of fibromuscular tissue containing many small cavities lined by cylindrical epithelium probably representing entoderm. No traces of ectoderm are seen.

The tumor is adult in type and relatively benign, and a good prognosis can be given.

In a later report, July 8th, Professor Ewing stated that the tumor was correctly teratoma. The writer is indebted to him for the beautiful photomicrograph shown in Fig. 2.

This clinical note is in the nature of a preliminary report and will be followed by the final report should any outcome other than the present cure already established occur. It is sincerely hoped that the good prognosis indicated in the pathological diagnosis will be fulfilled.

45 WEST NINTH STREET.

IMPLANTATION OF PITUITARY GLAND.*

*In a Case of Congenital Genital Obesity
(Dystrophia adiposogenitalis).*

BY EDWARD WAITZFELDER, M. D.,
New York.

The subjects of infantilism and pituitary disease have been so thoroughly presented in a recent number of the *American Journal of the Medical Sciences* (August, 1914), that I shall not attempt to discuss the question of their pathology or classification, referring only to the papers of Dr. Arthur D. Dunn and Dr. August Strauch as most complete and answering every question that can be answered with our present rather limited knowledge of the subject.

There is such a close interrelation and interdependence between many of the ductless glands that a lesion or abnormality of one is apt to be reflected and cause perverse action in another, and the complete removal of a gland is frequently followed by psychical or physical manifestations, the etiology of which is not yet understood.

We are somewhat familiar with the action of the internal secretion of the thyroid, suprarenals, testes, and ovaries, and in a measure with the thymus, but as to the hypophysis, with its different lobes, each having a distinct secretion acting in a different way, we have many problems still to be worked out. Whether, for example, the internal secretion of the testicle and pituitary are synergistic or antagonistic in their action; whether the persistent thymus gland reacts on the pituitary and gives rise to symptoms due to faulty function of the latter gland, and not the former as we have heretofore supposed, as in case of status lymphaticus, rickets, etc.; how far, as suggested by Dunn, a disturbance of the function of the pituitary gland may be a factor in causing

*Case presented before the Medical Association of the Greater City of New York, October 19, 1914.



FIG. 2.—Photomicrograph of the growth shown in Fig. 1.

into the scrotum, whose inversion was restored. The proximal stump of the cord was left where it had fallen into the opening of the ring. Suture without drainage and a large dressing for firm even pressure secured primary union and uneventful preliminary recovery.

The present condition of the patient is one of complete general and local health without apparent nodes in the scrotum or groin. The last uranalysis which was done after the operation showed no tubercle bacilli.

The specimen revealed on gross examination the following features, of which some are shown in Fig. 1. The node was seen to be in the testicle alone and not associated with the globus minor of the epididymis as external palpation seemed to establish. No infiltrations appeared in the epididymis, vas, or other structures of the cord. On dividing the testicle from pole to pole along the free border back to the epididymis through the node, a moderate hydrocele was encountered, normal testicular tissue in the upper two thirds, and the tumor in the lower third of the organ. The neoplasm consisted of an outer whitish mass containing a cavity of serous fluid, and a brownish or blackish central node of promi-

epileptic attacks, migraine, and other of the so called functional neuroses—all these are questions for the future to solve and it is with this thought I am presenting this case.

CASE. H. A., aged twenty-seven years; Swede; occupation, ship's cook. Family history, negative as to mental or physical disease. Had four brothers and one sister all

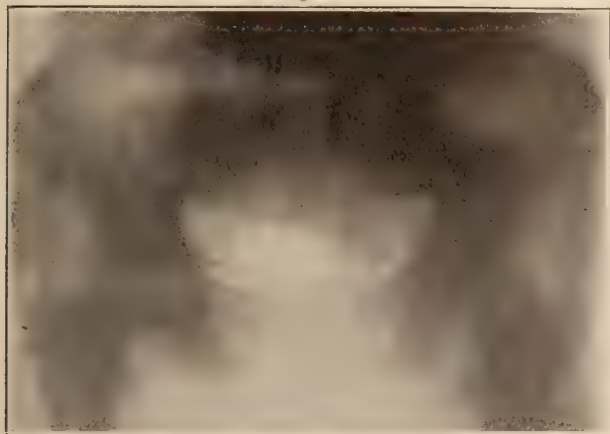


FIG. 1.—Skiagraph of pelvis of Doctor Waitzfelder's patient, showing the feminine type.

normal. Except for an attack of measles when a child patient never had any illness. As a child he was always stouter than his companions; was of average intelligence, graduating from school at the age of fourteen years. He had no playmates because he did not care for companionship and because his schoolmates called him "a woman." He says, "I never liked girls or boys; I never liked anyone; I wanted to be alone. I liked to sew and help in the kitchen. I did not like outdoor, rough play." At the age of fifteen years, he went to sea as ship's cook and followed that occupation for twelve years. Did not use tobacco or alcohol and denied coitus, masturbation, and libido.

One year ago he was "assaulted" and received a severe blow on the head. Since that time, suffered from headache and it was for this symptom he came into my service



FIG. 2.—Portrait of patient.

at Gouverneur Hospital on July 20, 1914, when the following note was made: Height, 5 feet 6 inches; weight, 156 pounds; circumference of head, 20 $\frac{3}{4}$ inches; breadth of shoulders, 17 inches; reach of arms, 71 inches; circumference of chest at level of mammae, 33 $\frac{3}{4}$ inches, circumference of abdomen at level of epigastrium, 30 $\frac{3}{4}$ inches; circumference of abdomen at level of umbilicus, 37 inches; distance of umbilicus to xiphoid, 6 inches; distance of umbilicus to symphysis, 6 $\frac{1}{4}$ inches; distance of symphysis from floor, 36 inches; circumference of thigh at level of perineum, 21 $\frac{3}{4}$ inches; circumference of upper arm, 11 $\frac{1}{4}$ inches; distance of cristæ ilii, 12 inches.

Patient had the beardless moon face frequently seen

anteroposterior diameter. The testicles were very small; as felt through the scrotal skin they appeared to be about 6 or 7 mm. in diameter and it was doubtful as to the presence of a second one. Heart, lungs, and kidneys normal. The larynx was small and cartilaginous and the thyroid gland could not be felt. The voice was high pitched and feminine. Temperature, pulse, and respiration normal; blood pressure averaged 120 mm. Hg. There was absence of axillary and pubic hair.

Patient was fairly intelligent; much more so than the ordinary sailor; could read and write and said when he was a boy, he could play the piano. During the first three weeks of his stay in the hospital, he was quiet and reserved, not familiar nor chatty with the other patients or nurses. He seemed to be willing to help about the wards making beds, carrying food trays to beds, etc. He was neat about himself and in no way troublesome. During that time he could best be described as an eccentric rather than a disagreeable patient.

As the matter of the relation of the pituitary gland to the pancreas was not under consideration, no examination for sugar tolerance was made.

An x ray examination of the skull (Fig. 4) showed a marked diminution in the size of the sella turcica, the transverse diameter being 10 mm. and the longitudinal 6 mm. A bridge or arch of bone (undoubtedly congenital) over the fossa enabled us to get the latter measurement. Fig. 1, an x ray examination of the bony pelvis, showed a decided departure from the male pelvis; the pubic arch was much wider, the ilium more flaring, the outlet of the pelvis larger than usually seen in the male. The femur also somewhat resembled that of a female.

The extreme smallness of the pituitary fossa indicated an absent or inefficient pituitary gland, and I determined to transplant one at the first opportunity. This occurred on August 15th. A robust German, aged twenty-five years, in apparent good health, committed suicide



FIG. 3.—Another portrait, showing the feminine type of face and body.

by hanging; ten hours after death the pituitary and pineal glands were removed, under strict aseptic precautions and transplanted into my patient, the former in the axillary border of the right pectoral muscle, the latter in the left pectoral muscle. The operation, which was done under nitrous oxide anesthesia, was followed by primary union.

On the day following, a remarkable change took place in the patient and continued until his discharge from the hospital two weeks subsequently. He became noisy, abusive, and unruly; he refused to do anything he was told, persisted in tearing off the bandages over his wounds, insisted on taking off his clothes and going about the ward naked; before the transplantation, he was modest in speech and action, now he was profane, continually cursing the nurses and patients and indecently exposing himself. He became very filthy about himself, refusing to wash and frequently wetting the bed. He would sleep during the day and get out of bed

a dozen times in the night and walk about the ward. When remonstrated with, he became very obscene and attempted to strike the nurse. His speech was thickened and muttering, and at times it was impossible to understand him. He finally became so unmanageable that I was compelled to transfer him, on August 31st, to the City Hospital to the service of Dr. Evan M. Evans, who kindly placed a bed at my disposal. For a week following his transfer, he acted in the same violent way, at times requiring restraint. He then gradually became more reasonable and quiet, and at his request was discharged after a three weeks' stay.

He returned to my service in Gouverneur Hospital on October 10th, and has been under observation for ten days. During this time he has acted just as he did prior to the transplantation; he was modest, quiet and reserved, and showed no abnor-

cess." As a Wier's celluloid testicle was placed in the scrotum, the question naturally arises whether the successful functional result was psychic or visceral.¹ Doctor Dawbarn has suggested to me that the gland be introduced in a condition of fine subdivision, so that capillary anastomosis may take place rapidly and the normal defense of the blood stream be operative before the macrocytic disintegration of the gland occurs. I think this idea worthy of consideration and should occasion arise, I shall try it.

It is unfortunate that the attempts (four in number) to get an x ray picture of the thymus gland were unsuccessful, because, in all probability, of the excessive fat deposits over the thorax. The patient's appearance was suggestive of status lymphaticus, a condition in which we frequently find an enlarged thymus gland.

The mental state of the patient subsequent to the transplantation has given me considerable thought. Within twenty-four hours he seemed to revert in his mentality to the condition of prehistoric man; the veneer of civilization was torn off and his mental and physical state was that of a cave dweller or of the stone age. I had anticipated, if any change occurred, an ascent in the intellectual scale, instead of which a marked decline occurred.

It seems a fair inference that what took place was due to the activity of the internal secretion of the pituitary, inasmuch as it developed on the day following the introduction of the gland and subsided after a length of time which might be sufficient to allow the gland to be absorbed. It seemed to be coincident with the viability and activity of the pituitary gland.

This case, one of congenital genital obesity—*dystrophia adiposogenitalis*—presents so many problems for explanation, the question of glandular inefficiency, the correlation of the ductless glands, the mode and probable success of transplantation, the domination of one gland over the others, the importance of the pituitary gland in the etiology of the psychoses and neuroses, etc., that I present it for consideration.

104 WEST SEVENTY-FOURTH STREET.

THE SOLUTION OF THE PROBLEM OF CRIMINAL ABORTION.

*Doctor Rabinovitz's Dangerous Doctrine.**

BY PATRICK S. MADIGAN, A. B., M. D.,
Washington, D. C.

Medical Department, Georgetown University.

From a careful consideration of Doctor Rabinovitz's article and from one's own experience, it is self evident that something should be done at least for the prevention of the promiscuous performance of "criminal abortion." The solution offered by Doctor Rabinovitz is that criminal abortion should be permitted by law, that it should be performed by a skillful surgeon, and under the strict aseptic precautions of operating rooms in our general and private hospitals; that it should be considered like any other operation of its kind, appendicectomy, chole-

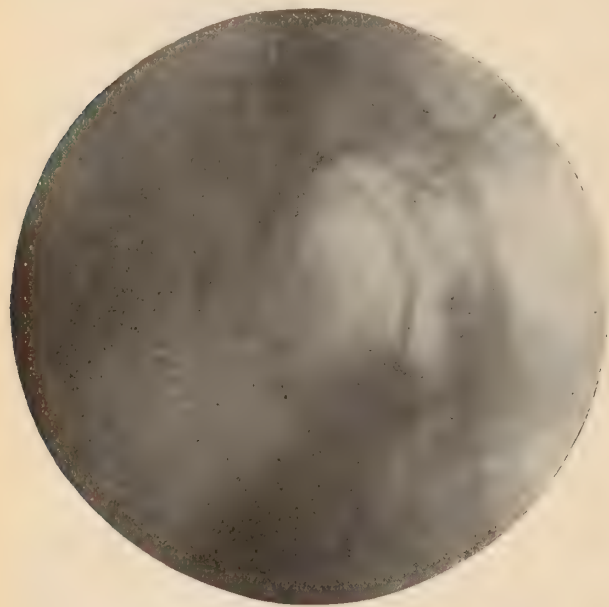


FIG. 4.—Skiagraph of sella turcica in Doctor Waitzfelder's case, showing abnormal congenital bony arch; transverse diameter of sella, 10 mm.; longitudinal diameter, 6 mm.

mality other than such as were present on his first admission to the hospital.

A fairly extensive search through the literature on the pituitary gland has failed to reveal a parallel case, either in its absence, or in an attempt to establish this internal secretion by the transplantation of a gland taken from a human body. Numerous cases of successful autotransplantation of the ovaries have been recorded; notably the series of 204 cases of Professor Tuffier of Paris (*NEW YORK MEDICAL JOURNAL*, August 29, 1914), of which number a large percentage were successful. However, he reports twenty-four cases of heterotransplantation, all of which resulted in failure. He believes, and with this view I am in thorough accord, that an improvement in our technic may bring success. Dr. Robert T. Morris has reported (*NEW YORK MEDICAL JOURNAL*, October 17, 1914) a heterotransplantation of a portion of the human testicle into the tissues of a castrate. Five months after the operation the patient writes: "I had an opportunity to exercise the function resulting from the operation. Your operation is a great suc-

¹See also G. Frank Lydston's communication, *NEW YORK MEDICAL JOURNAL*, October 17, 24, 31, and November 7, 1914.

*See *JOURNAL*, October 24, 1914, page 808.

cystectomy, etc., both by the profession and laity. The surgeon himself is to be the judge whether or not the abortion should be performed. In support of this solution Doctor Rabinovitz puts forth the following arguments: 1. That causes broader than mere sexual indiscretion lie at the bottom, namely, social and economic inequalities that are becoming more and more acute under the present socioeconomic system; 2, that laws are the creation of men; that they should be changed to suit modern times and progress, and that it is sheer folly to adhere stubbornly to old and obsolete dogmas that are the creation of the preceding generations; 3, that it is time for society at large to see things as they really are, and not as they ought to be.

Before attempting to answer these arguments, I deem it proper to consider just why it is morally wrong to interrupt a pregnancy. Certainly it is not because we may have an ascending infection, mild, moderate, or severe as the case may be; for it is possible, theoretically at least, that we may escape infection entirely. Nor is it because the cul-de-sac or the uterine wall may be perforated, for this can be avoided or, even at the most, can be treated in a scientific manner. Interrupting a pregnancy is morally wrong from the fact that we are destroying a human life, and not merely emptying the uterine cavity of some offending pathological growth.

The author's first argument that our present socioeconomic system, and not merely sexual indiscretion, requires the interruption of pregnancies, seems to be misleading, since the majority of cases that have come into public notice have been strictly due to the latter circumstances rather than to the so called socioeconomic system. Furthermore, since there is nothing mysterious or unforeseen in regard to the cause and effect of impregnation, our socioeconomic system, whatever standard may exist, is no reason why the pregnancy should be interrupted. Even granting that the worst possible conditions exist, it would not be justifiable, if we keep in mind the fact that we are destroying human life upon our own authority.

Under the second head, Doctor Rabinovitz holds that laws are the creation of men and should be changed at will to suit times and progress. In the first place not all laws are the creation of men, either past or present. If they were, an action that would be radically wrong today could be made justifiable tomorrow by the mere change in the whims and fashions of men at different times and places; but this is impossible, since many laws spring from the essences of things, and that which springs from the essence of a thing cannot be changed. Therefore, knowing that it is radically wrong today, we have to concede that it will be wrong tomorrow. Here is the danger spot in the doctor's contention, that throws wide the doors to all that hideous slaughter of fetal life which the doctor seems trying to combat. If the law, "Thou shalt not kill," is man made, as the doctor contends, then it can be man remade or man abrogated, as men may choose. What ground then is left for the doctor's contention that abortion—killing of the unborn babe—should be limited to hospitals and left to the discretion of the skilled physician? Will the doctor kindly show us what previous generation

made this law, Thou shalt not kill? Will he tell us times and peoples wherein it did not exist—point out to us the men that made it?

It is just such crude, ignorant, immoral principles as this that are today bringing the medical profession into well merited contempt among thoughtful men. If the law, Thou shalt not kill, is man made, then it can be man remade until the doctor's life becomes as cheap as his own estimation of the life of the unborn babe which he so mercilessly consigns to the hospital and skilled physician. The mere circumstance that it is a quack in his private office, or a skilled physician in a hospital who destroys a human life, has absolutely no bearing on the question.

No, doctor, this is no man made law, and your contention strikes a death blow at the very foundations of all morality. Even the cultured pagan recognized laws that were not man made. *Est hæc non scripta sed nata lex*, said Cicero. And if there is any such law above human framing—really divine—such must be the law that proclaims the sacredness of human life, whether in the born or unborn babe, for no sane and logical mind has ever discovered a difference between the two. With regard to the third argument, that society should see things as they really are and not as they ought to be, what can the doctor mean? Apparently one would suppose that by setting before society the disastrous results of criminal abortion rather than the object and end of the operation, i. e., the destruction of human life, all such operations would cease. That this is a fallacy may be proved from Doctor Rabinovitz's article, wherein he says that criminal abortion is not limited to the ignorant laborer or store girl, but is found in the higher circles of society as well. Surely it cannot be said that these latter are ignorant of what they are doing. So we see that knowledge alone is by no means a safeguard against the transgression of the law.

In conclusion, I would ask Doctor Rabinovitz what is really the underlying principle that has kept him and the rest of honorable, self respecting, and ethical surgeons, gynecologists, and obstetricians from the performance of criminal abortion? Is it the fact that they are afraid of a virulent infection or some accident during the operation? Is it due to the fact that if they are caught, they will be disgraced, at least in the eyes of the profession, and maybe punished by civil law? Or is it due to some principle beyond the domain of human legislative ability, and to the fact that we are destroying human life by such an operation? I dare say that the majority of men will give the last named as their main reason.

Now Doctor Rabinovitz's solution of the problem is to permit the interruption of pregnancy by law. The law has no such power; but conceding that this would at least diminish some of the accidents and infections connected with the operation as it is now done, the question still remains whether this would decrease or rather tend to increase the frequency of abortion. It seems clear that it could only increase doubly the amount of operations, as all restrictions would be removed, both from the patient and from the surgeon who would be willing to take this aspect of the operation.

Therefore the only means at our disposal, in my estimation, is more stringent legal procedure and a

better class of medical students. I sincerely trust that my views on this subject will be taken in the same light as were Doctor Rabinovitz's, honestly and judiciously.

2302 NICHOLS AVENUE.

INTRASPINOUS MEDICATION.

BY OSCAR BERGHAUSEN, B. A., M. D.,
Cincinnati.

(From the Serological Division, Pathological Laboratory,
Cincinnati General Hospital.)

The ever increasing importance of intraspinal medication must lead us to a consideration of its dangers and limitations. We all know of the brilliant results obtainable with Flexner's serum in the

treatment of epidemic meningitis, yet it not infrequently occurs that patients treated relatively early, eventually succumb to the ravages of the infectious organism, *Diplococcus intracellularis*, owing apparently to its limitation to the cerebrum, in which instances the serum does not reach the main seat of infection, although direct treatment through the ventricles has been attempted. The failure in the specific treatment of other infectious types of cerebrospinal meningitis must be attributed to the lack of effectiveness in the specific serums at our disposal. The recent introduction of Swift's auto-salvarsanized serum in the management of syphilitic infections of the central nervous system, lends increasing interest.

The following experiments were made upon the dog under ether anesthesia, to determine the variations as registered upon the revolving drum through a cannula inserted into the carotid artery. In Chart I, No. 1, we found the tracing as registered, following the introduction of five c. c. normal saline solution rather rapidly into the common carotid above the insertion of the cannula. A gradual increase in the pressure was noted, there being no sudden variations; however, in Chart I, No. 2, we found the changes as registered when tricrosol is added in 0.5 per cent. concentration, to the normal saline solution. A sudden rise, then a fall, and a secondary rise, were registered through the carotid. The same result is obtainable when the tricrosol is added to distilled water in the same concentration. In the same Chart I, No. 3, we found the tracings as registered in the same animal following the preceding experiments. In this case the needle was introduced into the spine, a few drops of fluid were allowed to flow, the needle was withdrawn, then introduced into another interspace in the lower lumbar spine, and so on. We find distinct variations in pressure as registered upon the drum, now a rise and then a fall. Apparently, then, the simple procedure of spinal puncture is likely to be followed by variations in the peripheral blood pressure, and we are forced to use some care in all types of intraspinal medication.

In Chart II we have the tracing as registered in another dog under ether anesthesia, following the injection of 0.5 per cent. tricrosol in normal saline solution, directly into the spinal canal. We notice slight variations following the puncture, and the withdrawal of the fluid, the normal tendency be-

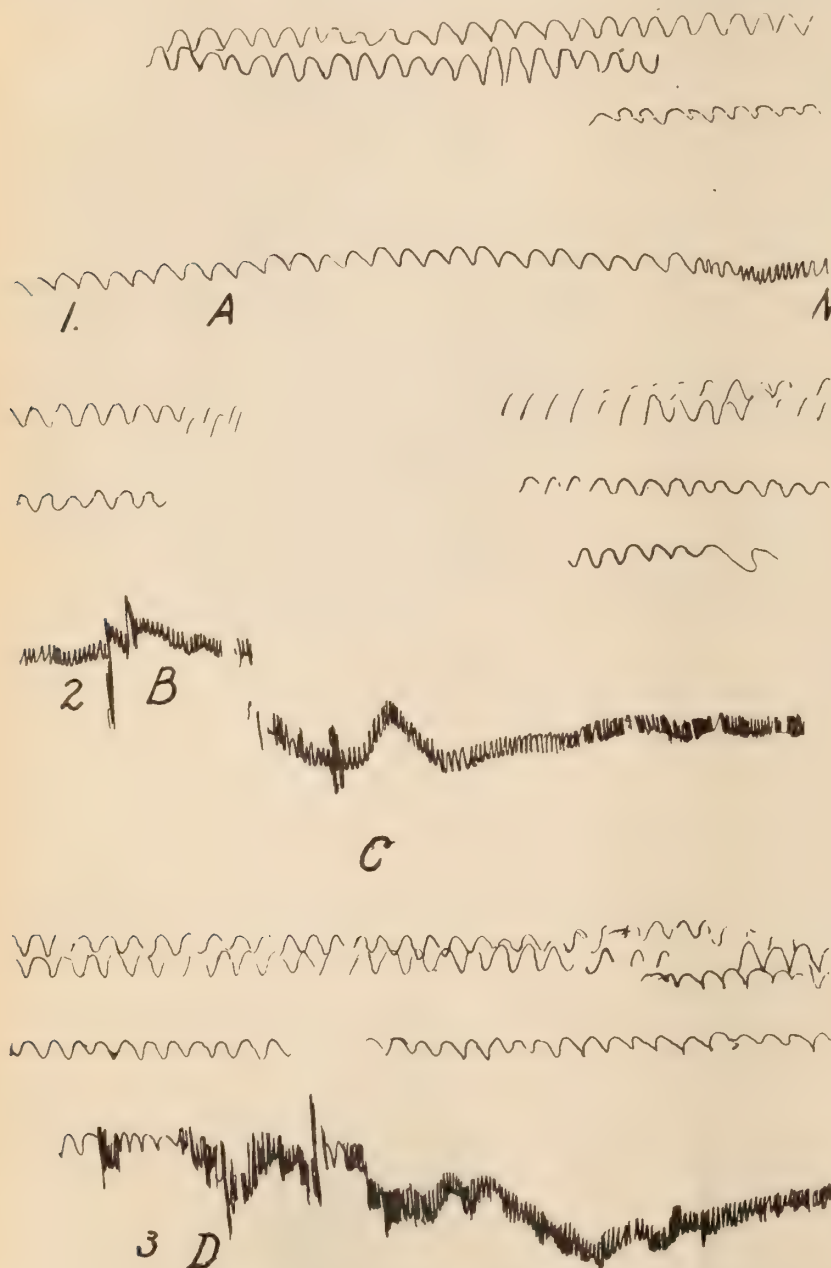


FIG. 1.—Chart showing tracing registered in a dog. No. 1: Salt water injection, rapid, 5 c. c.; No. 2: a, Tricrosol salt, 5 c. c., rapid into carotid; b, tricrosol, distilled water into carotid, 0.5 per cent., rapid injection, 5 c. c.; No. 3: Tracing of dog under anesthesia, with trials at lumbar puncture.

ing for a slight fall and then a rise. Five c. c. of fluid were withdrawn and then ten c. c. of tricrosol was injected in small amounts at a time. Now a more marked drop, followed by a rise in peripheral blood pressure was detectable. When five c. c. had been injected, equaling the amount which had been withdrawn, the peripheral pressure more nearly approached that which had been obtained at the outset of the experiment. When, in addition, two and three c. c. were injected, a less marked drop and then a rise were registered. The final pressure after the withdrawal of the fluid was above that which was registered at the beginning of the ex-

tion into the central canal and, if possible, by this route to the fourth ventricle. The animal showed no sudden respiratory failure, however, and after recovery from the anesthetic was apparently in excellent health except for the paralysis, until killed by chloroform one day later.

The foregoing experiments teach us that sudden variations in peripheral blood pressure are likely to follow the simple procedure of spinal puncture and the subsequent injection of simple solutions; that the addition of tricrosol in 0.5 per cent. concentration has no distinct deleterious effect beyond the slight toxic effect which all phenol derivatives

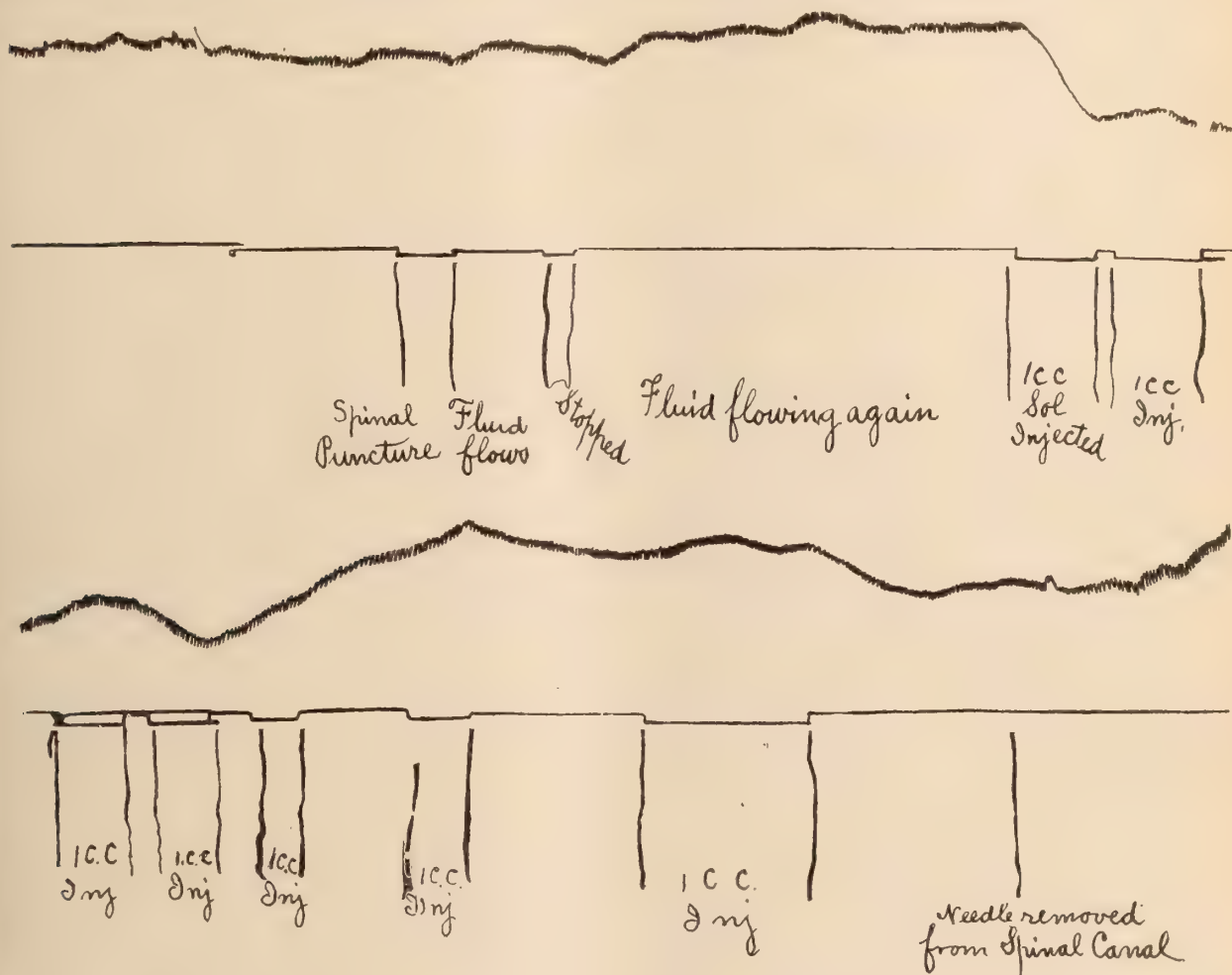


FIG. 2.—Chart showing tracing registered in a dog following the injection of 10 c. c. 0.5 per cent. tricrosol in normal saline solution.

periment, five c. c. more fluid than had been withdrawn having been injected.

During these experiments, no accurate tracings of the respiratory phenomena were made. These movements were merely observed, and no sudden changes were detectable. The animal recovered, but on the following days it was noticed that both hind legs were completely paralyzed. The animal was then killed and the cord dissected out. Examination showed a marked swelling and subdural hemorrhage in the lower third, extending over a length of about two inches. The needle had exactly penetrated the cord and central canal, leaving a track stained by blood after its withdrawal (see Fig. 4). After the withdrawal the way was apparently open for the entrance of the tricrosol solu-

possess in this concentration and which makes them useful as antiseptics; that serious damage can be done to the cord through the insertion of the needle too high (the cord reaches lower in the dog) into the spine, the immediate damage being probably due to hemorrhage, chiefly subdural.

In accordance with these findings, we have controlled all intraspinal injections at the Cincinnati hospital by taking the peripheral blood pressure after the method of Sophian. Particularly in epidemic meningitis, sudden variations in the peripheral blood pressure are noticeable. In fact, it not infrequently becomes necessary again to withdraw the serum (using the gravity method only), owing to the fact that the blood pressure had fallen distinctly, at times thirty to fifty mm. below the original

pressure. In our experience, sudden respiratory changes follow only when the blood pressure has suffered a marked change, usually a drop. It is a safe rule never to withdraw the needle until the blood pressure at the close of the injection has about reached that which was registered at the outset. The gravity method is of distinct value in attaining this end, since we have therewith a ready means of withdrawing the serum and fluid.

Peculiarly when serum is used intraspinaly in the management of nonpurulent infections of the central nervous system, as in tetanus and syphilis,

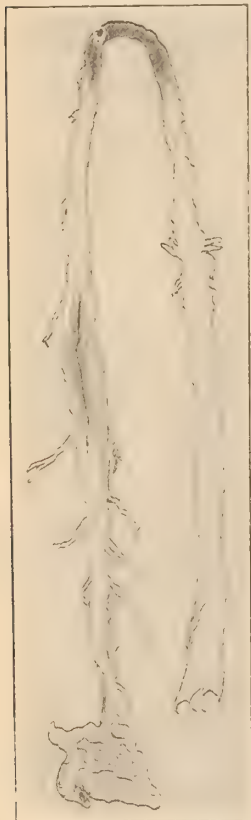


FIG. 3.—Showing the subdural hemorrhage and swelling following the insertion of a needle during the act of spinal puncture in a dog.



FIG. 4.—Same as Fig. 3 after median incision of the cord to show the track (a) made by the needle.

these sudden and marked changes in the peripheral blood pressure are as a rule not noticeable. Late in the course of tetanus sudden respiratory changes are commonly seen, due possibly to the selective action of the toxin. In purulent conditions, however, the process is always acute, and the increased sensitiveness to spinal manipulations is always present. In a recent case of pneumococcic infection of the meninges, the intraspinal injection of pneumolytic serum was likewise only possible through the use of the blood pressure control method. These results are given to the profession for due consideration, and tend to show that care should be exercised in all intraspinal medication.

In conclusion, the author wishes to express his indebtedness to Dr. E. A. Wagner and Dr. A. E. Osmond, Mr. Thomas Kelly, and Mr. Wade Oliver.

19 WEST SEVENTH STREET.

HYPERCHLORHYDRIA.

Based on Seventy-five Clinic Cases and Twenty-five Cases in Private Practice.

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Most authorities are agreed that by hyperchlorhydria is meant an increase in the secretion of hydrochloric acid during the digestion of food within the stomach; that this increased percentage of acid is not accompanied by any increase in the quantity of gastric juice, that the excessive secretion of the acid is confined to the actual time of stomach digestion and not when the organ is free from food, and that all organic changes, within the stomach, or outside of it, which are capable of reflexly exciting a hyperacid secretion in the stomach have been excluded. When a series of hyperacid cases is trimmed and pruned to meet the requirements of this qualified definition, there is left a goodly number of cases, which present symptoms, often vague and indefinite, but fairly constant, and, fitted to an individual, stamp him as one of a type rather than the sufferer from a definite disease. These are the patients who appear regularly, rain or shine, at the gastric clinics. In private practice they are frequently seen. Carlsbad, and all similar resorts, are largely supported by these patients. To the busy practitioner they are at once a nuisance and a problem, for it must be realized that, only a very few years back, nearly all hyperacid cases were placed in this same class, and until the more exact modern methods of diagnosis were brought to bear, obscure organic lesions were allowed ample time to progress beyond the danger line.

It is, therefore, our duty to exclude by a thorough examination these possible sources of irritation before the patient is dismissed with a lecture on hygiene and a bottle of rhubarb and soda mixture.

In the writer's Cornell series, the following diagnoses have been made subsequent to complete investigations in cases diagnosed by him provisionally from the anamneses as hyperchlorhydria: Chronic gastric and duodenal ulcer, erosions, gastroparesis and visceropareses generally, atony, gastritis, gallstones, chronic appendicitis, cirrhosis of the liver, incipient and chronic phthisis, hyperthyroidism, diabetes, cardiac disease, and arteriosclerosis.

Before we can hope to understand fully the etiology of hyperchlorhydria, physiology, advanced as it is, must go still further and prove or disprove the many hazy theories that we have brought forward to explain the origin of the impulses back of the secretion of the gastric juice. Pavloff seems to have proved that the first part of the gastric secretion, called the appetite, primary or psychical juice, is brought about through the action of the two vagi. This portion of the juice is poured out within five minutes of the time that food is taken into the mouth. It does not depend upon the stimulation of food directly on the stomach membrane, as it was proved in those animal experiments, where the food was recovered through an opening in the esophagus.

that the secretion goes on, even though the food does not reach the stomach. It was also proved that the sight of food, the odor, or even the sound of food being prepared, was capable of exciting a flow of primary gastric juice. When, however, the two vagi were divided, a sham meal or sensory impulses were incapable of exciting any secretion. When certain foods were introduced directly into the stomach, even though the vagi were cut, a secretion of acid gastric juice (secondary secretion) took place after an interval of about forty-five minutes. Some kinds of food, such as albumen and starch, were found to have no effect in this way. Pavloff, therefore, concludes that there is, within the stomach walls, a local nervous mechanism which is responsible for the secondary secretion. Edkins is inclined to believe it is a chemical process entirely and that it depends on a secretin or hormone which is manufactured in the pyloric mucous membrane and, taken up by the blood, acts directly on the gastric glands. He demonstrates this rather convincingly in that experiment in which, after dividing the vagi, he causes a flow of true gastric juice by introducing into the jugular vein small quantities of an acidulated or peptonized watery extract of pyloric mucous membrane. In the control experiments, acid, peptone, broth, or dextrin, used in this manner had no effect, nor did the extracts made from any other part of the stomach.

This sketchy account of the Pavloff and Edkins experiments has been gathered principally from Starling's *Physiology*. In the same work, Pavloff is reported as stating "that the primary juice, whatever the previous diet of the animal, has always the same character, the same digestive power, and the same percentage of hydrochloric acid; that in the case of the secondary secretion, there is considerable variation in composition of the juice, according to the character of the food that has been eaten." This, if it can be proved, would place the blame for the erratic secretion in the secretory neuroses, upon the local mechanism in the stomach, which has control of the secondary secretion.

Dr. John Rogers, of Cornell, sees an analogy to this disease in hyperthyroidism. He classes both as glandular fatigue disorders. He thinks that the hormone theory is correct, but that the hormones act by way of the end filaments of the sympathetic, rather than directly on the gastric cells. This would help to explain the erratic course of the disorder, which so frequently resists persistent efforts at diet and medication, while a change in environment, with rest, will nearly always bring relief. It is true that experimental proof is lacking that the sympathetic system outside of the stomach is involved.

The writer, associated with Doctor Rogers, watched with interest the effects of cutting the fibres of the sympathetic nerves that enter the stomach along with the gastric artery. In the first three experiments, there was a marked reduction of acid following the operation, but later results were discouraging, and it was decided that errors in technic were responsible for the earlier interesting findings. Eleven anesthetized dogs were used, and in all that survived, there was at first a lowering of the acid, but in all but two the acid returned to the normal level within ten days. Popielsky found that

with all fibres of the sympathetic leading to the stomach and the two vagi divided, he could excite a secondary juice by the introduction into the stomach of meats and broths. Substances such as bread or albumen, unless predigested, had no effect. The writer feels that these findings do not necessarily prove that chemistry alone can explain the phenomenon. An organ that has, within itself, a mechanism capable of inducing and maintaining for hours, rhythmical peristaltic motion, when the organ has been completely separated from the body, with all nerves and vessels divided, as has been demonstrated recently by Carrel, of the Rockefeller Institute, and Monod, of Paris, is surely also capable of modifying through a system of ganglia within its own walls, the secretions and chemistry of the organ. The writer believes, that when coordinate action is interfered with, because of fatigue or degeneration of the sympathetic fibres which connect the stomach with other organs, having some kind of a regulating influence over the stomach glands, the local mechanism in the gastric walls runs amuck and an erratic secretion is the result.

Sex does not seem to have any bearing on the etiology. Sixty-eight per cent. of the writer's clinic patients were males. This is accounted for by the fact that male patients are in excess throughout the clinic. In private practice, females are slightly in excess in the hyperchlorhydria tabulation, and this proportion holds good for all the gastric neuroses. The disorder is seen more often between the ages of twenty and forty years, but it is possible at practically all ages. Dr. William Shannon, of the Pediatrics Department in Cornell, states that it is not infrequently met with in infants. He suggests that instability of the acid secretion in infants, through an imperfectly formed control system, is somewhat similar to that instability of the heat control centres due to a relatively slow development of that portion of the brain. The writer has treated many aged persons for this trouble, though to be sure, achylia or the other low acid states are far more frequent in those past middle life. Racial predisposition is one of the strongest factors in the etiology. Hebrews, particularly those from Russia, seem to be the most frequent and greatest sufferers. Hungarian peasants, and the emigrants from south-eastern Europe, are particularly prone to this neurosis. The Latin races are somewhat more susceptible than are the Anglo-Saxon, or other northern peoples. It is difficult to put one's finger on a particular occupation which predisposes to any of the gastric neuroses. Tailors and salesmen are in the lead in the writer's clinic series, but all trades and occupations seem to be represented. It is the writer's impression that the kind of work does not matter, so long as the individual is structurally and temperamentally fitted for his "job." It is "the square peg in the round hole" that gets into trouble. This suggests another, and perhaps the most important etiological factor, *structural predisposition*. Just why those of the habitus enteropticus (long waisted individuals, with long, acute costal angles, flat chests, and vertically placed stomachs) should be so universally predisposed to the functional neuroses, it is difficult to say. Such is the case, however. The writer finds that eighty-three per

cent. of his clinic cases of gastric neuroses are entered as "enteroptotic." These do not include the cases in which the stomach has been ptosed to any great extent. All such cases have been tabulated in with the visceroptoses, the hyperchlorhydria being secondary.

Constipation was present in eighty-one per cent. of the Cornell series. In nineteen per cent. of these, the constipation had preceded the onset of the gastric symptoms. It has been shown very clearly that the lesions which interfere with the motility either of the stomach or the intestines, are accompanied by hyperchlorhydria or hypersecretion. It is, therefore, not improbable, that in many cases, an atonic constipation is the first link in the etiological chain, back of functional hyperchlorhydria.

Prolonged physical and mental fatigue, worries, and grief will nearly always cause acute exacerbations of the disorder in those who are structurally predisposed.

The writer believes that errors in diet and alcoholic excesses, as etiological factors, have been exaggerated by most authorities. There is no doubt that acute attacks are precipitated by gastronomic excesses, but in the writer's experience, in both clinic and private practice, hyperchlorhydria and the other gastric neuroses attack those of abstemious habits quite as frequently as they do the *bon vivant*. The abnormally large appetites seen in the high acid states which in hyperchlorhydria often amount to bulimia, are caused by the irritation of the gastric membrane by the excessive percentage of acid. These patients crave meats and other rich protein food, because the stomach demands it for acid binding purposes. The reverse of this is seen in achylia and anacid gastritis. In the Cornell series, only eighteen per cent. acknowledged a moderate indulgence in any form of alcohol. In only six per cent. was a history of excessive drinking obtained, or evidences of such abuse observed. Excessive use of tobacco is a common cause of hyperchlorhydria. This is accomplished through the nerves, probably the vagi. The writer has noticed that an alimentary hypersecretion occasionally accompanies the high acid where there is a history of heavy smoking. Pepper and the other hot aromatic condiments are accessories before and after the fact, rather than principals. Intemperate tea drinking in young adults (Irish servant girls), is known to be a factor in hyperchlorhydria, but sooner or later, according to the method used in brewing the beverage, tannin and other extractives cause an atrophy of the gastric cells and an atrophic gastritis takes the place of the earlier neurosis. Erratic nerve control, the price of sexual abuse, gives this excess a not inconspicuous place in the etiology.

Postoperative neuroses are very common, and hyperchlorhydria is perhaps the form most frequently met with in a gastric clinic. A considerable percentage of secondary operations for "adhesions" would be dispensed with, if the surgeons only considered more often this possibility.

SYMPTOMS.

The symptoms of hyperchlorhydria are, in most cases, vague and changeable. The diagnosis can never be made from one or two symptoms, either

subjective or objective, or from laboratory findings alone, but there is usually no difficulty in attaining this end when the symptoms are grouped and the temperament and structural peculiarities of the patient are considered.

The following list of subjective symptoms have been complained of by the writer's clinic and private patients. The "moderns" will have it, "that actual pain is not met with in this neurosis, that when it is a symptom, there must be a lesion somewhere to explain it." The writer's experience is at variance with this theory. He sees patients daily who complain bitterly of pain, which is relieved completely by simple measures. Three cases in this series were brought to operation with the diagnosis of ulcer, based in part on histories of persistent pain, with definite relation to meals. Each of these patients was referred back by the surgeons, labeled, "nothing found." It is true that patients of this class are very liable to exaggerate a distress into a pain, and the physician must be on his guard always. If pain, having some definite relation to meals, is persistent in spite of long continued therapeutic tests, it is more apt to tell of an organic change than a neurosis, but not invariably so. The sensory neuroses are frequently more difficult to reach than are those of the secretory kind.

A burning sensation (pyrosis or heartburn) referred to the epigastrium, coming on from one half to three hours after meals, relieved by food or alkalies.	32%
A dull boring pain, referred to the epigastrium, coming on from one to three hours after meals, relieved by food or alkalies	8%
A crampy pain, referred to the umbilical region, or the epigastrium, coming on from one half hour to three hours after meals, relieved by food or alkalies.	6%
A gnawing sensation referred to the epigastrium, felt only when the stomach is empty.	10%
An exaggerated sense of hunger, described as an empty feeling, felt when the stomach is empty.	11%
A full feeling, or pressure, referred to the epigastrium, coming on from one half to three hours after meals	38%
Pressure or distention of the abdomen.	8%
Globus hystericus, occurring at irregular times.	6%
Nausea, experienced when the stomach is empty.	5%
Vomiting, periodic (described as bilious attacks)	6%
Sour eructations, from half an hour to three hours after meals	12%
Belching at irregular times	9%

A good appetite was admitted by nearly all the patients, only six per cent. complaining of lack of appetite. The bowels were constipated in eighty-one per cent. of the cases; in nineteen per cent. of these cases, the constipation had preceded the onset of the gastric symptoms. Mucus in the stools had been observed by four per cent. of the patients. Vertigo was complained of in sixteen per cent. Headaches, more or less constant, were mentioned by fourteen per cent. General nervousness was complained of by forty-two per cent. In seven per cent., no subjective symptoms were complained of, the high acid having been discovered in routine examination.

The symptoms most often associated were pyrosis appearing from half an hour to three hours after eating, relieved by food or alkalies; pressure in the epigastrium or abdomen generally, from one half to three hours after meals; an unusually good appetite; obstinate constipation; headaches and vertigo.

It is useless to enumerate the many and various symptoms of neurasthenia upon which the majority of the patients dwelt. For the purposes of this paper it is sufficient to state that forty-five per cent. were neurasthenic. The physical examination showed forty-seven per cent. to be enteroptotic, twenty-nine per cent. of normal habitus, and in twenty-four per cent. the habitus was not determined. There was a slight tenderness, or pressure in the epigastrium or the umbilical region in twenty-one per cent. The abdomen generally was sensitive to pressure in six per cent. The gastric analyses were interesting and varied considerably in the different cases and usually in the same patient on different occasions.

In this series the Ewald test breakfast was used as a basis for the acid calculations. In a small percentage of the cases, the Regel dinner was employed as a check, but the acidities reported are in terms of the Ewald breakfast.

Total acid averaged	81
Free hydrochloric acid averaged.....	44.6
Combined hydrochloric acid averaged.....	18
Organic acids and acid salts averaged.....	7.5
The quantity recovered without aspiration, one hour after an Ewald meal, averaged.....	89.1 c. c.
The total contents, including residue and extracted contents, estimated by the Mathieu-Reymond method, averaged	112.2 c. c.

An acidity of over sixty-five has arbitrarily been declared as essential to a diagnosis of hyperchlorhydria, and yet, the writer finds in nine per cent. of cases which present all the other signs and symptoms of the neurosis and in which relief has followed the employment of the routine treatment, that the acid one hour after an Ewald meal, is below this figure. Fifty-two is the lowest acidity recorded in this series. It is not unusual to meet with acidities of ninety and over in patients who complain of no symptoms, which would direct the attention to the stomach; 104 was the highest acid found in the series. These irregularities are most interesting. Many of them are due to sensory differences; not a few are to be explained as errors in technic; for instance, the writer found, that when he introduced the tube into the fasting stomach, in order to extract possible contents, in motility tests, and then ordered an Ewald meal to be eaten at once, the acid one hour after a meal given under these conditions was from five to ten points lower than when the same patient ate his Ewald meal at his own breakfast table, without first being subjected to the ordeal of swallowing the tube. A dry roll and two glasses of water is not a usual meal and, lacking appetite stimulating qualities, is likely to cause little response in a stomach which is accustomed to rich stimulating food. It is true that the test is relative and that the same conditions hold for all patients. We are dealing with nervous, sensitive patients, however, who no doubt differ greatly in their response to appetite stimulants. The writer has demonstrated to his own satisfaction, that when the Regel test dinner is used as a control, hyperchlorhydria with "low acid" is but rarely possible. When it is, a hypersensitive membrane explains the apparent paradox, rather than the elaborate theory of "larval hyperacidity," suggested by Strauss.

It is the irregularity in the laboratory findings

that is characteristic of the gastric neuroses rather than organic disease. The normal individual, under the same conditions, very rarely has any marked change in the percentage of acid, and where a high acid is a reflex from an organic lesion, a certain consistency in this respect is observed, which is lacking in simple hyperchlorhydria. This is a valuable point in differential diagnosis, but to be of use requires considerable time for observation. Secondary hyperchlorhydria is very often accompanied by hypersecretion. An accompanying hypersecretion automatically takes a hyperchlorhydria out of the neurosis class.

It is useless to deny that gastric analysis during the past decade has lost somewhat in popularity. There is, among the internists, a school which disregards entirely this method in diagnosis. These conservative gentlemen should not be criticised too severely for their skeptical attitude, for slipshod methods and hasty conclusions have confused and made possible ridiculous errors in this field, just as the same things have impaired the usefulness of the x ray as a diagnostic aid. In a gastric clinic, where the examinations can be made systematically, a series of chemical analyses is an invaluable help, and by its use many obscure organic lesions are brought to light as well as the neuroses. In private practice, unless this same systematic course can be followed, and a proper balance maintained between the examining room and the laboratory, the therapeutic test, based on a carefully taken anamnesis, a thorough physical examination, and a generous use of common sense, will in the long run prove the more satisfactory.

TREATMENT.

The writer has had unusual opportunities at the Cornell Clinic for testing out all methods of treatment. He has, however, in the interests of economy of time, refrained from using any treatment that has been condemned by a majority of the reliable authorities. This has narrowed him down to a system very classical and simple; and the results have been interesting and, on the whole, satisfactory. Not all the patients have been cured; some perhaps never will be. The majority have been benefited, and so long as they observe the hygienic and dietetic rules, remain free from trouble. A few seem to have been cured.

The patients differ so in physique, temperament, environment, and education that a standard treatment would be out of the question. Where the high acid causes distress or pain, this must be neutralized and kept so. For this purpose, equal parts of magnesium carbonate and sodium bicarbonate, given in teaspoonful doses of the combined powder, one hour and three hours after each meal, has proved the most satisfactory form of alkali. The quantity and interval of taking must be regulated to suit the case and depends on the completeness of relief from distress and the effect on the bowels. In cases in which the bowels do not respond to six teaspoonful doses a day, a teaspoonful or so of Carlsbad salts (or German cathartic salts), in a glassful of hot water should be ordered taken each morning. In the few cases that are not constipated, the proportion of magnesia should be reduced or cut out altogether. Three to five drops of tincture

of belladonna or a tablet of 1/150 of a grain of atropine sulphate is given three times a day, before eating. Olive oil as an acid binder is given before, during, or after meals, in doses from a teaspoonful to a tablespoonful. Russian mineral oil (liquid paraffin), may be used in the same way, but this oil does not bind the acid. It does, however, lubricate the irritable membrane, relieving in many cases the distress. It is decidedly more laxative than olive oil. Five grains of sodium bromide in one dram of the elixir of zinc valerianate, given between meals, will relieve a large percentage of patients. These measures are used symptomatically, either singly or combined, in any manner to suit the individual case. If carefully used, they will, in the majority of cases, give relief. In order permanently to relieve the neurosis, it is necessary to go deeper. An excellent tonic for the anemic or asthenic patient is elixir of iron, quinine, and strychnine phosphate, given in doses of two drams each, well diluted, after meals. The diet must be arranged and the habits of life changed, if irregularities are discovered. The patient who has worked for years without sufficient holiday, must be sent away, if that is possible. A motorman on a street car was apparently cured when his position was changed to that of timekeeper in the office; a factory girl was also apparently cured when she got a position as child's nurse. Among the private patients, a traveling salesman who was working on a commission basis, and whose business had been injured by the general depression a year ago, has not had any stomach trouble since he secured a government position with regular hours, regular food, and a regular salary. For those who are overworked, rest is indicated; those who have not sufficient to do to save them from ennui and its resulting neurasthenia, should be put to work. The gourmand should be dieted and the anemic fed.

There are a number of diet systems in vogue and all have some points to recommend them. The avoidance of meats and the heavy protein foods is theoretically rational. Meats and the meat extractives are powerful acid excitants, and it is possible to reduce the output of acid by a diet which does not include these articles. Practically, the writer has not had the success with this kind of diet that the experimental findings would warrant us to hope for. In several cases where this system has been used, the acid was reduced considerably, but as soon as it was given up, even for a short time, there was a quick return to the old conditions. A generous mixed diet, with beef, lamb, veal, chicken, or fish, allowed once a day, with generous quantities of milk, cream, butter, cream cheese, eggs, wheaten cereals, wheat bread, creamed or boiled vegetables, stewed fruits, arranged in three "square" meals a day, has given the best results. An extra glass of milk, with or without crackers, is recommended to be taken between meals and at bed time. The following articles should be forbidden: Meat broths, chowders, complicated and richly made dishes, coarse foods, fried foods, potted, preserved, corned, or smoked meats or fish, highly seasoned foods, iced drinks, and alcoholic drinks. A diet list is, for these patients, to be condemned.

A large percentage of these patients are enteropathic. It is, therefore, essential that the structural

deficiencies be corrected by appropriate physical training. Home calisthenics, if persistently carried out and well directed, will do much to broaden the costal arch, thus raising the diaphragm and giving the abdominal viscera more room. Beside the regular army setting up exercises, that performance is an excellent one, in which the patient, sitting on a backless stool, with his feet stuck in a pair of slippers that have been screwed down, leans back until his head touches the floor, and then, by the use principally of the abdominal muscles, brings himself up to the sitting position again; or, the patient, lying flat on the floor, with the feet placed beneath some piece of furniture and with the hands, the fingers intertwined, placed back of the head, brings himself up into a sitting position.

The writer has not had any personal experience in the spa treatment of hyperchlorhydria. He has observed the methods of treatment, however, at a number of the European resorts, and was struck by the good results obtained. The change of scene and rest from work are more often responsible for these cures than any specific action of the waters. In Europe, Carlsbad, Vichy, and Marienbad are the best suited for the treatment of this disorder, while in this country, Buffalo Lithia Springs, W. Va., or Crab Orchard, Ky., is suitable.

In cases where the muscular tone is deficient, massage is indicated, also tonic baths. The Scotch douche seems to benefit many patients. In the routine treatment of the disorder where there is no special indication for them, these "fancy" therapeutic measures had better not be employed, lest the "treatment habit" be added to the patient's other troubles.

The plan of treatment which seems to be productive of the most good is carried out along the following lines: As soon as the diagnosis is made, remedies which act symptomatically are pushed, and are continued as long as there is the slightest indication for their use. The diet for the first week is modified considerably. When all symptoms have disappeared and the patient is impressed by the fact that his trouble has been correctly diagnosed and that he is getting the treatment best suited to his case, he is instructed in the necessary hygiene, and the indicated corrective treatment is instituted and continued indefinitely. The diet is then expanded at once along the lines already mentioned.

134 WEST EIGHTY-FIRST STREET.

Nævi.—Frank M. Coppock, Jr., in the *Lancet-Clinic* for October 24, 1914, cites the case of a girl who had two birth marks on her right knee which the patient stated had grown for the last three years following a bump against a chair. They were dark brown in color, with irregular rounded borders, rough and granular surfaces, being deeply fissured. They bled easily on irritation, but there was no inflammatory base about them. A foul yellowish discharge was given off by the larger of the two. There was no glandular enlargement. At operation an attempt was made to remove each growth separately, but there was not sufficient tissue between the growths. They were dissected together, the tissue down to the muscle being excised. The recovery was uneventful.

A NEW METHOD OF HASTENING REPAIR AFTER FRACTURE.

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This paper is an advance notice of the use of homogeneously granulated bone incorporated with petrolatum, injected into and between the fractured



FIG. 1.—Photomicrograph of fractured bone into which powdered bone has been injected. At end of seven days. A, Islands of powdered bone around which new bone is forming.

ends of bone, to encourage repair in fractures, especially in cases of delayed union.

A piece of bone (a fresh specimen obtained from the morgue) is dried and ground up to a powder, mixed with petrolatum to a consistence of bismuth paste, sterilized by placing in a large bottle, which is placed up to the neck in water and boiled for two hours. Keep in a cool place. When required, it should be warmed and well mixed by shaking, taken up into a four or eight c. c. syringe, using a long needle, with a bore about gauge 20.

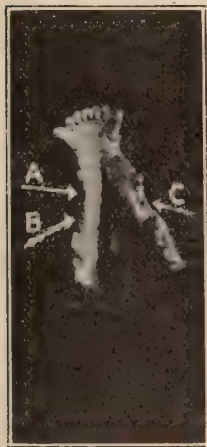


FIG. 2. — A, left side; teeth sockets partly filled with new bone; B, drill hole where powdered bone was used; repair apparently completed; C, right side, drill hole showing empty space; very little appreciable repair at end of 28 days. No powdered bone used on this side.

After the fracture has been extended and approximated, it is located by digital examination and x ray; the needle is introduced through the skin and fascia to the seat of fracture, the rough edges of which are readily appreciated. The needle is then passed as deep as possible between the fractured ends. The contents of the syringe are injected as the needle is slowly withdrawn to the surface of the bone, when injecting must stop, and the needle be removed. This procedure may be repeated into the fracture at several angles, if necessary, thus in-

filtrating the entire mass between the fractured ends with petrolatum and bone cells, which act as a focus for osteogenesis, as is seen in accompanying Fig. 1.

In a second experiment (Fig. 2), a hole was drilled on right and left side of a dog's mandible, close to the molar teeth. On the right side, the mucosa was sutured, healing in five days. On the left side petrolatum and bone powder were used on drill, and the hole filled with the petrolatum and powdered bone, the mucosa sutured, healing in five days. Two bicuspid teeth were extracted on this, the left side. The animal was sacrificed on the twenty-eighth day. On the right side there was no repair. On the left side, where powdered bone was used, the hole has entirely filled with new bone, so that one cannot see where it was made. The tooth sockets have partly filled up, showing that the powdered bone induced a more rapid growth of new bone than the natural filling in the tooth sockets. The advantage is that bone grafts are thus introduced without converting the fracture into a compound one.

The powdered bone and petrolatum are also recommended wherever bone is required. The powdered bone invites calcareous deposits and encourages a metaplasia of the adjacent tissue cells.

112 WEST SEVENTY-SECOND STREET.

NEED OF MORE STATE HOSPITALS FOR THE INSANE.

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Critical periods in the care of the insane in Pennsylvania are not uncommon in history. The old adage, history repeats itself, is shown in the study of the subject. Problems of overcrowding are as serious today, as was the inhuman treatment of the insane before the days of Dorothy Dix. Brutality, lack of food and clothing, are not tolerated in Pennsylvania; overcrowding and lack of accommodations, however, have become within recent years, subjects of great gravity, most marked in the southeastern and southwestern hospital districts.

A study of conditions in the southeastern district, shows that the State Hospital at Norristown and the Philadelphia Hospital for the Insane care for the insane of five counties; moreover, these institutions, although originally designed to house 3,900 inmates, now house 4,900. The annual increase in those institutions averages 300 patients and the annual admissions exceed 1,700 patients. This necessitates that fifty per cent. of these admissions must be actually under treatment in already overcrowded institutions. As the result of the increase in admissions during the year 1913, conditions became so alarming in one of these institutions, that for the safety of the inmates already confined, its doors were closed. The fact that the Philadelphia Hospital for the Insane is not fire-proof; that hallways are used for bedrooms and dining rooms; that there is marked congestion in the refractory and unclean sections, with small

ground for recreation, shows conclusively that the closing of its door was the only course to pursue. Norristown State Hospital showed conditions equally grave, and the action of the board of trustees in refusing patients from Philadelphia county, was sustained by the court.

Existing conditions certainly hamper the proper treatment of acute cases. Those who are well versed in the scientific treatment of mental disease realize the folly of attempting the best method of treatment for the acute mentally ill patient, when necessity places the acute cases side by side with those of the chronic type. It is impossible for these institutions to set aside an entire section for the classification and treatment of the acutely ill patient. The recognized treatment for this group of cases can best be given in a psychopathic hospital. Yet there is not one in Pennsylvania today. Where can an indigent man, woman, or child in this State recover from an acute mental breakdown, without carrying with him the stigma of having been committed to a hospital for the insane? When we think of the hundreds of such cases occurring annually, there can be no more crying need than for State psychopathic hospitals.

Passing from the acute cases, let us glance at those of the dotage type. Many of our wards contain patients of this particular group; they are not suitable for almshouses, in fact they can be treated nowhere, except in hospitals for the insane. Their cost of maintenance per capita will equal or be slightly less than of those provided for at Wernersville. Studying closely our almshouse population, we find there many cases of this type, which should be sent to institutions set aside for this class; yet there is no such institution in the State of Pennsylvania.

The treatment of the mild, chronic insane by the colony plan, opens up one of the most interesting fields in the entire subject of psychiatry; such a plan embraces an economical method of giving the patient exercise, freedom, and good physical health. At the same time it makes him partially self supporting and is the most humane form of treatment. Yet Pennsylvania has not taken advantage of this method.

This plan of care may be instituted by the State on a large scale, as now exists at Gardner, Mass., or on the smaller scale in operation at the Byberry City Farms, Philadelphia. The most satisfactory, most efficient, as well as the most economical plan would be the establishing of colonies or villages near to and under the supervision of each State hospital. Twenty per cent. of the patients in our hospitals at the present day can be cared for by this plan of treatment. The purchase of land and the erection of buildings will not far exceed \$500 for each bed. This is a tremendous saving in comparison with our present day methods of construction of buildings for the custodial care of the same patients at \$1,000 for each bed. The executive management under the supervision of State hospitals would not exceed the cost of executive management for the same number of patients, if these patients were confined in the regular State hospitals.

Our hope of restoring a mentally deranged man

depends upon giving him exercise, employment, recreation, and freedom of movement. To a certain degree the words of Patrick Henry, "Give me liberty, or give me death," are applicable in this particular form of insanity. A total restriction of liberty is followed by a rapid mental deterioration, which with all its refractoriness, uncleanness, and physical disease, is worse than death.

The day is not far distant, in fact we can now see the halo of its sunrise upon this most important era of progress in the treatment of the mildly chronic insane. Instead of lingering in the shadows of the dark walls of institutions, we shall see these patients at liberty at the first blush of morning, following their various pursuits. May God endow us with health, strength, vim, and vigor, that we may be able to erase from the canvas the horrible picture of an insane asylum so common to the layman's mind and to replace it with one showing this homelike method of treatment, where the unfortunate is content to dwell, and his family, knowing that the State is his guardian, may with a fair degree of peace of mind, chase their favorite phantoms.

Urgent relief is needed for the overcrowded conditions of our refractory sections, as well as the unclean groups. Do not infer for one moment that we insist that the State erect separate hospitals for every class of the insane, but, on the other hand, we do insist that the State of Pennsylvania give breathing space for each particular group of patients. Despite the contention that proper food, the proper number of nurses, and proper ward capacity, would restore entirely these two great groups of insane, many of both classes are here and will remain as such until they have passed into the great beyond. Isolated cases, here and there, or those of a certain type respond to treatment, but they are the exception and not the rule. Our hopes for preventing such a class of patients rests in the early and successful treatment of incipient cases in psychopathic hospitals.

One could continue this argument further, by saying that there should be a sufficient number of State hospitals for the insane, in order that the patients in every county institution be placed under the immediate supervision of the State. Come, take a trip with me through the county hospitals for the insane in Pennsylvania. With the exception of two, or possibly three, how many do we find with laymen as superintendents? How many do we find with only one physician and no one to relieve him in his hours off duty? How many of these physicians are paid between \$1,200 and \$1,800 a year? How few of these have consulting alienists and neurologists, or regular licensed pharmacists! How many have well equipped hydrotherapeutic plants, x rays and pathological laboratories? How many of these have arts and crafts shops, or think of using such scientific treatment as reeducation, aftercare, etc.? How many more questions could I ask concerning things which they do not have, that will be found in every properly equipped hospital for the insane, not only in Pennsylvania, but in every State in the Union. Yet the majority of those confined in county institutions are citizens, *bona fide* residents of the State

of Pennsylvania, and as such should receive the same treatment as *bona fide* residents of the other districts of Pennsylvania.

To overcome conditions in Pennsylvania, the State should assume entire charge of its insane. There should be a general revision of our present system of State appropriations. The scope of the work of the committee on lunacy should be broadened, and the committee be vested with more authority. Plans for the construction of new hospitals should be standard and uniform. A program for State care of the insane must include the erection of an additional hospital in each of the southeastern and southwestern districts; psychopathic hospitals, with outpatient departments, laboratories, and farm colonies available for chronic cases. A general plan of supervision for the aftercare of the insane through social service should be installed. To accomplish this will require time, money, and efficient planning by skilled physicians. It seems needless to add that this plan should not include any further provision for State aid to the respective counties, as the situation is far beyond the scope of county control. The time required for the completion of such a plan will extend over a period of years. Why not let the first step be the erection of State hospitals in the southeastern and southwestern districts, with the enlargement of Fairview, Wernersville, Rittersville, and the establishment of farm colonies as successive units? If this seems too great a task, the State could take over these county hospitals, when requested to do so by the authorities of said counties. The State cannot assume charge of all its insane at once, but only step by step can we ever reach our goal.

THIRTY-FOURTH AND PINE STREETS.

ROLE OF THE CECUM IN CHRONIC DISORDERS IN THE RIGHT LOWER ABDOMEN.

Its Connection with Certain Poor Results After Appendicectomy.

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Before taking up the cecum in connection with chronic disorders in the right iliac fossa, it will be profitable to review certain aspects of so called chronic appendicitis. It must be a matter of reluctance for anybody to write further concerning appendicitis at the present day, but a review of past clinical experience has shown that, in the present writer's hands at least, the operative treatment of conditions supposed to be due to chronic appendicitis leaves very much to be desired. It is doubtful if my own experience is anything unusual. Probably most clinicians who see many cases of abdominal trouble, will recall a considerable number who have had their appendix removed, but who have not been relieved in any essential way, many who have not been relieved at all, and some who have been made worse. When we find a surgeon who considers that all the cases in which he has removed an appendix, have since remained cured, it is probably because

this surgeon has not devoted much attention to tracing his cases afterward. One who undertakes to review one's operative cases for the first time is likely to meet with many surprises.

From my personal series of operations for chronic appendicitis, I have been able to learn the subsequent histories in 147 cases. Of these, 114 patients have been free from symptoms in any way referable to the right iliac fossa and have considered themselves entirely relieved by operation. Thirty-four, or twenty-three per cent., have still continued to complain. In some the continuing symptoms, while distinct, have not been very important. Others have suffered just as much since operation as before, and a few have stated that they were definitely worse since operation.

It should be noted that in my own classification of cases, patients who are operated on in the interval are classed as chronic, no matter how many or how severe acute attacks they may previously have had. Nearly all these cases are cured entirely. If it were feasible to separate the class of cases in which operation has been performed for conditions resembling the chronic grumbling appendix, and to eliminate those which had definite acute attacks, the percentage of failures to relieve by operation would be even higher than twenty-three.

Of the thirty-four cases which have continued to present symptoms after operation, ten have had second operations. The conditions found at the second operations were as follows:

One case was of dilated and movable cecum and prolapse of both ovaries. These conditions were remedied and patient has since been free from symptoms.

The second case showed a dilated and movable cecum only on second operation. Suture of cecum was followed by complete relief.

The third case was operated in five months later for gallstones with relief.

Fourth case, an ovarian cyst about the size of a base ball was removed two years later.

Fifth case, a second operation was done elsewhere and its details were unknown except that it was not followed by relief.

Sixth case, operated in elsewhere later for gastropnoia. Result unknown.

Seventh case, adhesions around cecum separated with relief.

Eighth case, two years later, ovarian cyst removed. No relief. Six years later, adhesions around cecum separated. Last operation followed by complete relief.

Ninth case, two operations later by another surgeon. Details not known, except that the patient was not helped by any of her three operations.

Tenth case, second operation showed numerous adhesions around cecum. These were separated with complete relief.

Abstracts of all cases not cured by appendicectomy are given briefly, as it is felt that their perusal will be instructive.

CASE I. E. G., seen two years after appendicectomy. Had had continuous pain since operation. At this time cecum sutured and prolapsed ovaries fixed in place with complete relief.

CASE II. S. B., seen three months after appendicectomy. Pain returned in right lower abdomen and incapacitated her for work. Two months after second operation, felt perfectly well and was doing all her own housework for husband and five children, three of whom were ill.

CASE III. I. B., after appendicectomy continued to have attacks of pain in right abdomen, keeping him in bed. Five months later, operation for gallstones with relief.

CASE IV. E. B., after appendicectomy symptoms continued as before for two years. At this time a right ovarian cyst was removed with complete relief.

CASE V. S. C., seen eight months after appendicectomy. No better since operation. Pain continued more or less constantly.

CASE VI. R. C., seen one year after appendicectomy. Pain in right abdomen continued, but not so severe.

CASE VII. P. D., seen eighteen months after appendicectomy. Was about the same as before. A second operation done elsewhere, nature unknown, but no relief.

CASE VIII. M. D., seen three years later. Ever since appendicectomy, had deep pain in right lower abdomen at times.

CASE IX. J. D., by letter, two years after appendicectomy, still had pain in abdomen, which at times kept him from work.

CASE X. H. D., seen six months after appendicectomy, no better since operation; if anything pain was worse.

CASE XI. M. D., seen one year after appendicectomy. Had been laid up in bed, with attacks similar to old ones three times. Family physician kindly told him that these were due to nervousness.

CASE XII. J. D., seen eight years later, still had pain in right lower abdomen more or less every day. No better since operation and at times had to stop work.

CASE XIII. N. E., seen six months after appendicectomy; pain just the same as before.

CASE XIV. M. E., seen three years after appendicectomy; never been well since. Continued pain in right lower abdomen. Had seen four different physicians.

CASE XV. E. E., seen eighteen months after appendicectomy; still had pain in right lower abdomen and at times had to stop work.

CASE XVI. A. G., seen seven months after appendicectomy, well for two months and then the symptoms returned as before.

CASE XVII. S. G., seen eleven months after appendicectomy; considerable pain in right lower abdomen ever since. Once was confined to bed for two days.

CASE XVIII. A. G., seen two years after appendicectomy, still had pain in right lower abdomen. No better since operation.

CASE XIX. J. G., seen two years after appendicectomy, still had considerable pain in right lower abdomen.

CASE XX. M. H., one year after appendicectomy, still had pain in right lower abdomen and indigestion. Operated on later by another surgeon for gastroptosis. Result not known.

CASE XXI. J. G., eight months after appendicectomy, was about the same as before operation. Right kidney was now palpable and slightly movable.

CASE XXII. G. J., by letter five years after appendicectomy, had been no better since operation and had continual pain in right lower abdomen.

CASE XXIII. H. L., two years after appendicectomy, had had more or less continuous pain since. Second operation at this time. Adhesions around old wound separated and had since been perfectly well.

CASE XXIV. C. M., six months after appendicectomy, still had severe pain in right lower abdomen.

CASE XXV. M. M., six months after appendicectomy, still had pain in right lower abdomen about same as before operation.

CASE XXVI. J. M., ten months after appendicectomy, had been no better and still had pain in right lower abdomen.

CASE XXVII. W. C., ten months after appendicectomy, still had about as much pain as before and at times had to stop work.

CASE XXVIII. R. R., ten months after appendicectomy, still had about as much pain as before and lost time from work.

CASE XXIX. A. S., eleven months after appendicectomy, had always had more or less pain in right abdomen. Now right kidney was slightly movable and there was tenderness and gurgling over cecum.

CASE XXX. E. J., six years after appendicectomy, had continued to have pain in right lower abdomen about the same as before. Two years later right ovarian cyst removed with no relief. Six years later adhesions around cecum separated, with complete relief.

CASE XXXI. R. W., ten months after appendicectomy; pain in abdomen had continued about the same as before.

CASE XXXII. J. W., five years after appendicectomy, had been no better and had constant pain in right abdomen. Had had two operations by another surgeon, with no relief.

CASE XXXIII. Z. W., nine months after appendicectomy, still had pain in right lower abdomen and was slowly getting worse.

CASE XXXIV. T. McC., seven months after appendicectomy, had continued to have severe pain in right lower abdomen. At this time numerous adhesions around cecum were separated, with complete relief.

The criticism will at once be made that excepting in cases where secondary operation showed post-operative adhesions, appendicectomy was done under incorrect diagnosis. This criticism will be freely accepted, with the sole reservation that when these patients presented themselves, they gave the history and physical signs that we have all for a long time been accepting as indications of chronic appendicitis. In any event, they serve to show us that any general plan of action which still leaves twenty-three per cent. of cases unrelieved, should be subjected to rigid scrutiny with the idea of increasing the percentage of complete cures after operative interference.

Improvement may come from two general sources. The first is more accurate diagnosis. With this we will not concern ourselves at present. The second general source is the consideration of other lesions in the right iliac fossa which may accompany a chronic appendicitis and which will still continue to give symptoms if not also attended to; or of conditions which may be present and cause all the symptoms, the appendix being wholly innocent. It is often quite impossible, from a history or physical examination, to differentiate between chronic appendicitis and other lesions in the right lower abdomen, and often it can be done only by thorough examination of the whole right abdomen and pelvis during operation. Operations confined to a supposed appendicitis alone, will often be followed by many failures to give complete relief. In my own service we are less and less frequently using the term "chronic appendicitis" in discussing the diagnosis prior to operation, and are substituting more or less jokingly, but with marked benefit in subsequent results, the term "dextritis," by which we mean that the patient under consideration has some difficulty in the right abdomen, making operation advisable, and at the time of operation all the organs in the vicinity as well as the appendix are to be examined and attended to, if abnormal. The examination of other neighboring viscera is especially imperative in cases where the appendix does not show absolutely definite signs of disease.

It is not necessary to enumerate the bands, kinks, and membranes which may affect the alimentary canal, or the numerous conditions which may affect other nearby organs. At the present time, we will confine ourselves entirely to the part played by an enlarged and movable cecum in disorders of the right lower abdomen. Dr. Joseph A. Blake, of New York, was the first to bring this prominently to the attention of American surgeons in articles appearing in the *Annals of Surgery* for May, 1912, and the *Medical Record* for April 4, 1914. Doctor Blake reports a number of operations for this condition, of which fourteen have been seen at different times after the operation, all but two of which are either cured or much improved. According to Doctor Blake, the symptoms are pain, constipation, gas and intestinal distention, gastric symptoms, and intestinal auto-intoxication. In our experience the

pain comes on in ill defined attacks, lasting a few hours or sometimes two or three days, and rarely has the severity of that of real appendicitis. Some patients complain of more or less constant pain with exacerbations. According to Doctor Blake, examination may show evidence of distention of the cecum, marked tympany and splashing, and usually a balloonlike cecum may be felt or even seen. Our own experiences have coincided with this in a number of cases, though at times the physical examination has been practically negative. We have sometimes been able to feel a more or less pronounced gurgling on manipulation with the fingers over the cecum, and at times there is a vague sense of tumor. In some cases the diagnosis cannot be made before operation; the best we can do is to convince ourselves that the patient has some condition in the right lower abdomen which causes sufficient disturbance to make an operation advisable.

The operation itself is quite simple and adds nothing to the dangers of an ordinary appendicectomy. The work on the cecum can easily be done through an intermuscular incision, especially if complete relaxation is obtained by infiltration with a local anesthetic. The appendix should be removed whether it presents distinct evidence of disease or not. No special method of removal is necessary. The enlarged cecum is then reefed in by a continuous linen or silk stitch passing through the anterior and external muscle bands, for as long a distance as is feasible; this will generally be three or four inches. Doctor Blake considers that a suture of the cecum in this way is all that is necessary. In a few of our cases we have thought that we were able to leave the cecum in a more satisfactory condition by passing two or three silk or linen stitches through the suture line joining the muscle bands, and then fixing these sutures to the parietal peritoneum in an appropriate position in the right iliac fossa. This procedure, we believe, will serve to keep a reefed in cecum from again falling into the pelvis, while the degree of fixation is not sufficient to hamper the normal peristaltic movements. A number of more radical methods have been advised for fixing a movable cecum, the most recent having been published by Duval.¹ This author advises a radical method by which the peritoneum is stripped from the posterior surface of the cecum and the posterior wall of the iliac fossa. The cecum is then sutured to the tendon of the *psoas parvus*, or in the absence of this muscle, to the internal edge of the *psoas magnus*. We have yet to be convinced of the necessity of this more radical procedure.

Within the last two or three years, we have reefed in the cecum in twenty-six cases. Sometimes the removal of the appendix and the suture of the cecum has been the only operation, in other cases movable kidney, diseased ovaries, etc., have been attended to. It is interesting to note that out of twenty-six cases, six have had previous operations, at our own hands or others, without relief. In five of these, the previous operation was an appendicectomy, and in the other it was the suture of a movable kidney. Two of the appendix cases have been seen later and were completely relieved of all symptoms. The patient with movable kidney, two months after the cecum operation, felt perfectly

well. In all, we have been able to examine personally nineteen of our cecum cases after periods varying from two months to two years. It has been our good fortune to find that all our patients whom we were able to trace have been apparently entirely relieved; none complained of pain after operation, all had returned to their usual occupations after an ordinary period of convalescence. Several of the patients had been practically entirely incapacitated for work for several months before being operated on. One patient gained twenty-five pounds in weight, eight months after the operation, another five pounds in seven months, another twenty-three pounds in one year, and a fourth thirty-five pounds in fourteen months.

Of the patients we have been able to review, thirteen complained of constipation, this being described as marked in three cases. All of our cases were relieved completely of constipation except one. This was in a woman, twenty-seven years old, who had gained five pounds since her operation and felt well in every other way. The constipation itself had been better since the operation. One woman had not had a bowel movement for years, except after cathartics. Since the operation, her bowels have been moving regularly with no aid. Indeed, the relief from constipation has been one of the most marked features of our cases. Certainly some of our patients have shown as much relief from constipation by this simple cecum suture, as has been alleged for removal of the entire colon. We believe that it is fair to consider that all of the nineteen cases that we have seen after the operation were entirely cured. No patient complained of discomfort in the right abdomen. All seemed personally absolutely satisfied, and most were so much improved in general health, strength, and well being, as to be unusually grateful. They certainly presented a far different picture from any consecutive series of nineteen patients with chronic appendicitis that we have had. It is true that in some cases other conditions were also remedied, but there were enough in which the cecum was the sole organ operated on, to convince us that the value of the operation itself is definitely proved.

In conclusion, I would emphasize our belief that it is rarely, if ever, justifiable to limit any operative interference to simple removal of a supposed chronic appendix, unless the other organs in the right abdomen are carefully examined and found to be normal, or unless the appendix itself shows unmistakable gross signs of disease. It is certain that such incomplete intraabdominal operations will lead to many failures to give relief. We also believe that, when feasible, the cecum should be examined during any operation for chronic abdominal disease, especially if constipation has been a marked feature. We believe that attention to the cecum at the time of these operations, is quite as important as attention to the appendix. It will avail little to remove a normal appendix on such occasions "on general principles," if a dilated and movable cecum is left behind.²

²Since I completed this communication, a patient who first had an operation on the appendix and later one on the cecum, has written that she still has abdominal symptoms. In the absence of a personal examination, the cause for this cannot be suggested. This would make nineteen cases personally examined and found free from symptoms, with one patient reporting by letter that complete relief has not been given.

¹Duval: *Revue de chirurgie*, May, 1914.

TUBERCULOSIS OF THE KIDNEY.

By JAMES A. GARDNER, M.D.,
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With the improvements in instruments and the accuracy of functional tests, progress has been rapid in the early recognition and diagnosis of urinary tuberculosis; it has been shown that tuberculosis of the genitourinary tract occurs with greater frequency than has been realized in the past. Israel states that one third of all cases having pus in the urine are tuberculous. Kapsammer (1), quoted by Bryan, states that the records of the Vienna General Hospital show that of 191 cases, which on autopsy were found to be tuberculosis of the kidneys, only two were correctly diagnosed and four partially so. Overwhelming statistical evidence goes to prove the unilateral onset of the disease. With the additions to our armamentarium our best efforts should be made toward the recognition and treatment of such cases while the disease is in its early stage. This subject has been of so much interest to me that I may be pardoned if I rehearse familiar facts.

What constitutes early diagnosis? If we accept the answer to be the finding of tubercle bacilli, many cases will be overlooked until they are well advanced. The first symptoms of which the patient complains may be pain, which is so slight that it is only an irritation or a burning sensation, pus in the urine which may be overlooked and mistaken for the albumin of nephritis, and blood, which may be found at times. P. Bazy (2) believes that nocturnal frequency, occasional blood in the urine, and urine that has lost its brilliancy, are the signs of impending tuberculosis of the genitourinary tract.

Albuminuria is an early symptom and is often treated by the physician as a nephritis with restricted diet, which, of course, lowers the resistance of a tuberculous patient. The albuminuria may be slight. Rovsing (3) says albuminuria "may be intermittent and in others it seems to be entirely absent." To differentiate between an albuminuria of nephritis and one of tuberculosis, microscopical examination for tubercle bacilli is necessary, as well as for other bacteria. The following cases may serve as examples:

CASE I. A woman who had undergone a ventral suspension for the relief of bladder symptoms which the surgeon felt must have been caused by pressure from the uterus, the urine showing only a slight trace of albumin, was seen in consultation, and her ureters were catheterized. Urine from the right kidney was found to have albumin and by the phenolsulphonaphthalein test but six per cent. functional activity. We were unable to demonstrate tubercle bacilli in the urine. However, a tentative diagnosis of tuberculosis was made which was proved by operation.

CASE II. A young man, aged twenty-six years, who gave negative history, had been declined by an insurance company because of trace of albumin. Subsequently for nine months he was treated by his family physician for Bright's disease with apparent improvement, but the albumin would return. Ureter catheterization showed pus in the urine from the right side and tubercle bacilli were demonstrated. Functional test of this side showed fifteen per cent. compared with twenty per cent. on the other. Nephrectomy was performed and a small focus, the size of a hazel nut, of tuberculous infection was found.

"Bacteria free" pus in the urine is regarded as due probably to tuberculosis. The finding of tubercle bacilli by the microscope is largely a matter

of technic. The salting out method, described by Davis (4), apparently is the most accurate. He reports ninety-nine per cent. accuracy in sputum examination. The so called antiformin method has been shown by Davis to be very unreliable, unless the operator keeps exact chemical control of the antiformin solution, its accuracy falling as low as 29.5 per cent. in his examination, while under the most favorable circumstances it showed ninety-four per cent.

When unable to demonstrate the tubercle bacilli by a microscope, animal inoculation should be resorted to, even if diagnosis must be postponed for a few weeks. While awaiting the result from inoculation, repeated examinations of the urine should be made, for often the tubercle bacilli will be found. The inoculated animal may prove negative because of the temporary plugging of the ureter on the affected side, so that it is wise to inoculate more than one animal and at different times.

Palpation may show an enlarged kidney, but this is not diagnostic, because as a rule tuberculous kidneys are not enlarged. The other kidney may have undergone compensating hypertrophy so that it is the larger, or if the diseased one is enlarged, they may be of equal size.

Pain cannot always be relied upon as a diagnostic symptom of tuberculous kidney. It may come from an inflammatory infiltration of the capsule, which would be misleading. In the later stages no pain whatever may exist on the diseased side, the other kidney being the sensitive one. A case seen by the writer, in which pain was on the right side and right tuberculous epididymitis, had been treated during two years for ulcer of the bladder. How this diagnosis could have been made without the cystoscope is difficult to understand. Cystoscopy showed pus from the left ureter loaded with tubercle bacilli; the functional test gave no return of phenolsulphonaphthalein from the left side. This case is an excellent example of those in which, without the aid of the cystoscope, the wrong kidney might be removed.

Pain, which is usually the first symptom to attract the patient's attention, may only be an irritation of the bladder. Later, if the infection attacks the bladder, pain may become most marked and be accompanied by severe tenesmus. At first there may be only polyuria or pain with polyuria. Pain is at times entirely absent. Later pus is present. Pus is regularly found in tuberculosis of the kidney, but may be absent at times because of the inflammatory closure of the ureter. Pus in the urine is a frequent cause of overlooking or mistaking the renal condition for cystitis. Enlarged prostate, gonorrhea with its complications of stricture, vesiculitis, and prostatitis, should be carefully ruled out when there is an acid urine. This is illustrated by the following case:

CASE III. A young man, aged thirty-one years, gave a history of five or six attacks of gonorrhea since he was nineteen years old. He stated he never passed blood, except after sounds had been used; that he had not been free from more or less smarting or burning sensation since last attack of gonorrhea eighteen months ago; urine dirty; had had irrigations of the bladder by different physicians but had not improved. Cystoscope showed ulcerations around left ureter opening. Phenolsulphonaphthalein test showed ten per cent. function on the left side, and tubercle

bacilli were found in the urine. Upon operation, the greater part of left kidney was found to be destroyed.

Walker reports that tuberculous infection of the kidney occurs most frequently between the ages of twenty and thirty years. Blood in the urine may be the first symptom that brings the patient to the surgeon. Hemorrhage is one of the symptoms in the early stage, but rarely occurs in the later. Genito-urinary surgeons have been most industrious in educating the profession to the importance of ascertaining the source of any blood in the urine. "Essential hematuria" has been shown in many cases, when sufficiently painstaking pathological search of the specimen was made, to be a symptom of tuberculous kidney. A number of authors have reported cases where only a few tubercles could be found.

The methods of locating the site of tuberculous lesions have improved rapidly in recent years. With the improvements of the instrument maker, cystoscopy has been much simplified. The functional tests, of which phenolsulphonephthalein is probably the most simple and accurate, enable us to judge of the anatomical condition on either side or estimate the condition of the patient as a surgical risk. In the past, before the cystoscope was recognized for its diagnostic value, some men prominent in surgery belittled its importance and stated that a suspected tuberculous case should not be cystoscoped nor a double catheterization of the ureters made, for fear of infection. The attitude of these men was most unfortunate because, for a time at least, others may have been deterred from using this most valuable method of diagnosis. By the cystoscope in the bladder the inflamed, ulcerated, or retracted ureteral mouth may be seen and the cue given as to which side is infected. This in itself is not infallible, because in a small proportion of cases the healthy kidney may have the ureteral mouth inflamed. Buerger (5) states that by means of his operative cystoscope and forceps, in a case that did not show tubercle bacilli in the urine, he has demonstrated that a kidney was tuberculous, by biting a piece from the mouth of the ureter and finding the bacilli in the tissue. Double catheterization of the ureters will demonstrate whether the infection is unilateral or bilateral and also whether we are dealing with one kidney, which is most important. Double catheterization with a separate examination of the urine obviates the old method of opening up each kidney to make a diagnosis. There may be a purulent or clear urine from one side, yet the functional test may show that the kidney has little or no value. Some cases are exceedingly difficult, almost impossible to cystoscope, because of the contracted bladder which may be very rebellious to instrumentation, and because of cystitis which makes it impossible to recognize the ureteral mouths. If local anesthesia is not effective, these rebellious cases are often easily cystoscoped with the aid of spinal anesthesia. The progressive surgeon today believes that the earlier a diagnosis can be made, the greater chance there is of finding a unilateral lesion. Therefore the ureter should be catheterized and a functional test made. Diagnosis made without these accurate methods is more uncertain than the treatment of fractures without the aid of the x ray, and since the courts have held that one is guilty of mal-

practice when the best recognized methods of diagnosis and treatment are not used, the obsolete method of operating for tuberculous kidney because of tubercle bacilli in the urine and pain complained of on one side, without first attempting to find which kidney is diseased or if both kidneys are involved, we trust is a matter of history.

The treatment of tuberculous kidney is essentially surgical. The earlier it is attacked, the less the chance of infection spreading to the bladder or to the other kidney. Nephrotomy, which has been advised by some surgeons, has not proved successful. Statistics show that the mortality is three or four times as high as after nephrectomy, and in more than one half a secondary nephrectomy is necessary. If a secondary operation must be performed, aside from the increased technical difficulties, the patient's resistance is not so great. Rovsing (3) states: "We can save seventy-five per cent. of operated patients by nephrectomy." Some writers have reported cures by palliative methods—open air and vaccines—but these cures, when followed up, are shown to be but temporary improvements and the process breaks forth later with renewed energy. The few cases reported to have been cured by palliative methods cannot weigh against the preponderance of evidence, that when possible the tuberculous focus should be removed. The results published by Israel and others bear out this statement. Rovsing (3) says there exists no convincing case of tuberculosis of the kidney cured by conservative treatment.

The aftercare is a great problem. Since following out the suggestion of the Mayos, that eight or ten ounces of salt solution be left in the cavity and the wound closed, there have been fewer sinuses. When these do occur, they are difficult to heal. Beck's paste has given the best results in our hands, although in some cases it has not been effective. These persistent sinuses are due, I think, to the fact that the ureter, not being removed upon operation, acts as a focus. Although at operation the ureter is thoroughly cauterized by carbolic acid, apparently this is not sufficient to sterilize it. The safest method is to remove as much of the ureter as possible; this requires but little more time.

The bladder symptoms are most difficult to relieve. In many instances the patient presents himself with a contracted bladder with urination every fifteen minutes. Following operation, we have used in irrigation, bichloride one to 40,000, increasing the strength until there was some reaction, and then decreasing just enough to avoid the reaction; also iodoform emulsion and glycerin, ten per cent., instilling an ounce in the bladder once a day, instructing the patient to pass but a portion of his urine with the hope of retaining the medication in apposition to the mucous membrane for a greater length of time. I have also used the six per cent. carbolic acid wash for the bladder, which with most patients is very painful, but in some very successful. This local treatment decreases the amount of pus, improves the cystitis, and usually relieves the pain. When tenesmus is present, it may often be relieved temporarily by an instillation of an ounce of aqueous solution of orthoform one to fifty. This is of aid at night with wakeful patients. As

the urine clears up, the patient begins to inquire when he will be able to hold his urine as he formerly did. This is the great problem. Forced distention is very painful, and while there is an inflammation in the bladder, is contraindicated. One patient who was taught to wash her own bladder and who has followed instructions faithfully for two years, has not been able to gain half an ounce, while another who has followed instructions just as faithfully for over eighteen months, finds he can gain three or four ounces in two months, only to have a recurrence of his cystitis and lose all he has gained. The patient who has been unfortunate in having a severe infection of the bladder with ulceration before operation, rarely, in my experience, regains very much in capacity after operation. Two patients, one three years and the other four years after operation, have markedly improved in their capacity, averaging four to five hours between urinations. At first they were unable to retain their urine longer than fifteen to twenty minutes. In these cases I give credit to vaccine, because no improvement was made under local treatment and hygiene, and as a last resort vaccine was tried. For four years previous to 1913, I had used vaccine almost without exception, mainly with the idea that if it could afford any assistance, we needed it. The frequent visits also kept the patients under supervision. With the exception of the two patients mentioned, I have seen no improvement in bladder cases following operation which could be accredited to the vaccine *per se*. During the past year, patients have done as well without vaccine as did former patients with it.

Vaccine may be of aid in some of the postoperative cases, but its use in a patient having an early unilateral tuberculous infection is most ill advised and valuable time is lost. Men who have reported cures, have later reported that they were mistaken and that the disease had made steady advance.

In two cases of bilateral tuberculosis of the kidney seen during the past year, each patient had been advised at an early stage of the disease that operation was necessary, but both delayed too long. I saw one of them in December, 1911, and made a diagnosis of right side infection, but could not persuade him to undergo operation; he had had vaccine and other palliative treatments in the interval. When his bladder symptoms became so pronounced that he could not obtain any rest, he presented himself for operation. I then found both kidneys infected and so far advanced that operation was not advisable.

In the second case a diagnosis of right side tuberculous infection was made in May, 1911, by a competent surgeon in Detroit, and operation advised. The patient was passing more or less blood at that time. He then consulted another physician who gave him medicine which stopped the bleeding, and vaccine was administered for seven months. His bladder symptoms caused him to consult me. At that time he had urine loaded with pus, contracted bladder, and after considerable difficulty ureteral catheterization showed infection of both sides as well as infection of the prostate.

The most important phase of aftercare, which O'Neil (6) has emphasized, is "that it has become

increasingly evident that as the usefulness of the home sanitarium movement for pulmonary tuberculosis was becoming less and less, in surgical tuberculosis it is and will continue a factor for good." Three good meals a day and proper home surroundings are essential if these patients are to be given a chance. The Buffalo General Hospital, through the efforts of Dr. Charles G. Stockton, has instituted a department of social welfare, but this department is young and there is more work than can be done. Thus the home hygiene and aftercare is left in the hands of the physician, who has not the time even if he possessed the inclination for it.

CONCLUSIONS.

1. Early diagnosis is the chief essential in the treatment of renal tuberculosis. A physician who permits a tuberculous infection to proceed until it has attacked both kidneys is as culpable as he who delays in the use of antitoxin in diphtheria.
2. Ureteral catheterization and careful examination of the urine for tubercle bacilli is the only method of diagnosing a unilateral infection.
3. Early operation offers the best chance of cure.
4. The removal of a tuberculous kidney does not constitute a cure. Hygienic aftercare is an essential to that cure.
5. The few cases that have been reported as cured by palliative methods, cannot weigh against the preponderance of evidence that when possible the tuberculous focus should be removed.

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504 ELECTRIC BUILDING.

EARLY PULMONARY TUBERCULOSIS.*

Symptomatology and Diagnosis.

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In an age of specialism we are too prone to place the onus of the early recognition of so insidious and long existing a disease as chronic tuberculosis, upon those whose field of endeavor is confined to tuberculosis work; but I hold that the early diagnosis of pulmonary tuberculosis is not for the specialist alone—the treatment, once the condition is definitely ascertained, is certainly for those whose special knowledge and equipment offer most hope of arrest of the trouble—but the diagnosis is well within the range of each and every one of us, and will be the reward of ever alert suspicion and constant search. Rarely, diagnostic genius may outdo us, but the absence of this genius is not the cause of our deficiencies.

Upon whom must we place the blame for the vast number of derelicts and poor hopeless sufferers who come to us in the mountains or go west only to be told "too late"? Must we wait for those frank signs of consolidation or excavation with characteristic sputum findings which tell every third year medical student with assurance the diagnosis; or is

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there not some way by which all can discover evidences of pulmonary tuberculosis when there is still reasonable chance of restoration to working efficiency if not to complete health? I say there is, and that the means and methods are within the power of all. No special equipment is absolutely essential, save the will to seek and to search, to be suspicious and unsatisfied with generalizations, and the exercise of the greatest care in our powers of observation. There must be no indefinite diagnoses of "indigestion," "grippe," "malaria," unaccompanied by definite microscopical or therapeutic corroboration, "anemia," "neurasthenia," and the dozen other pseudonyms for our unwillingness to make an accurate diagnosis. If we are to do our highest duty by such patients as present themselves with a history of indefinite but suspicious nature, we cannot be satisfied with cursoriness, to be later turned to chagrin and regret when the development of tuberculosis; we have not done our full share if we allow even a small indication of tuberculosis to go unchallenged and unexplored. If, as has been well said, the solution of the problem of tuberculosis is the proper care and isolation of the man in the last stages, then the suppression of this dread disease is, indeed, the question of preventing the development of this last stage; and that can be only with early recognition, before the man becomes the potential spreader to hundreds of others. The question is, How? I hope to indicate the answer.

Of prime importance is the *history*. None of us is there but who has the skill and can find the time for a proper history. Beginning with the story of heredity, our chief endeavor is to discover the source of possible definite exposure and contact. We know now that tuberculosis is almost always a childhood infection, the development of which into the disease tuberculosis is a later matter, discussion of which space forbids. We should find out, if possible, whether the patient has lived, especially in childhood, or lives with any one having tuberculosis, and should continue our inquiry into his business and occupational surroundings and fellow workers. I recall a case of mine last year, that of a young bank clerk of our neighboring city, Tuscaloosa, the proved victim of the careless habits of spitting of one of the bank's clients.

We should always be suspicious of a patient who gives a history of grippe, of long continued and recurring colds or catarrhs of the head, of a fistula that never healed or did so with difficulty. We must note well the sequelæ of an alleged attack of pneumonia, and should we be told of an attack of pleurisy, we should bear in mind that over ninety per cent. of all pleurisies with effusion are tuberculous in origin. Let us note well the incidence of measles and whooping cough, such frequent forerunners of tuberculosis. Glandular enlargement, especially in children (with the exclusion of specific infection), almost invariably points to tuberculosis. Sinuses, nontraumatic scars, running ears, and joint conditions all point to suspicion. Nor must we overlook the patient's habits with regard to food, sleep, tobacco, alcohol, and the *vita sexualis*. He has a right to be put on probation and we should treat each suspect as though he was

tuberculous until we have proved the contrary. The old saw of the ounce of prevention was never truer than in its application to tuberculosis.

So much for the preliminary history. It is understood that the omission of other essential features of the preliminary history does not signify their lack of importance; I merely wish to lay stress on the important features as I see them. In the course of chronic pulmonary tuberculosis, which is practically the only curable form (though rarely acute cases become chronic and then curable), agreement between physical findings and clinical manifestations is both impossible and undesirable; and what I wish to call to attention are the early manifestations which present such hopefulness from a therapeutic standpoint if recognized at once. The first things that the patient notices probably are undue weariness and languor, with possibly some clearing of the throat, especially in the morning. He has lost his vim and snap; business is a bore; and life itself is not half so interesting as formerly; with this is a failing appetite, probably some indefinite signs of dyspepsia or some heaviness after eating. Maybe he comes to the table hungry and a half dozen bites satisfy him. He does not sleep so well and awakes in the morning more tired than when he went to bed, or not refreshed as he should be. He may or may not cough; if cough is present, as is usually the case, it is easily excited by irritants, dust, smoke, variations in the temperature of the air, by such bodily exertions as laughing, by change of position, etc. The cough is usually productive, unless due to pressure of bronchial glands on the recurrent laryngeal nerve.

The cough of tuberculosis is not typical, a point of great importance, and is usually more urgent in the morning than at any other time, for at night the reflexes which cause it are not at work. The sputum, at first mucoid, becomes thick and takes on a purulent aspect. There is more or less chilliness at various times of the day, notably after meals, but rarely actual chills. A careful record reveals slight elevation of temperature in the evening, or a subnormal morning temperature, or both. I would lay stress on the diagnostic value of a morning temperature below 97.8° F.; which, to be of value, must be taken before the patient gets out of bed, as it is lost almost immediately after rising. There is a gradual loss of weight and strength, though frequently patients present themselves with well defined tuberculosis with neither weight nor strength markedly impaired. Though Schaffer attributes much diagnostic significance to hoarseness, I am inclined to believe that weakness of the voice and hoarseness have only a relative value and are perhaps but one manifestation of the general bodily weakness and loss of tone. Blood spitting (or free hemorrhage) may or may not occur early; frequently a mouthful of bright red blood is the patient's first warning that something is wrong, and happy should be the man who gets this early warning and loses no time in seeking medical advice and relief. We must consider *every case of hemoptysis as proof of pulmonary tuberculosis* until most rigid and careful examination and observation disprove

it. There may be a history of indefinite chest pains; the pain of an acute pleurisy is most definite and rarely leaves us long in doubt.

Since so many patients come to us with the history of catching cold, grippe, malaria, etc., I make it an invariable rule to ask the patient categorically *when he last felt entirely well*. The resulting information is astonishing and illuminating, so frequently does this time antedate our patient's narration of the beginning of actual symptoms. The loss of appetite may be more a fastidiousness or finickiness than actual anorexia, and frequently the patient puts the whole emphasis and insistence on his digestive symptoms, with his story of heaviness after eating, bad digestion, constipation, bad taste in the mouth, lost weight and strength. Let us not be deceived by this, but probe deeper. In young girls and women we find almost always early menstrual irregularities; frequently a degree of anemia necessitating differentiation from chlorosis. Dyspnea is usually a later development unless there are cardiac, renal, or chlorotic complications. There may be local sweating, but the typical night sweats are a late manifestation, though at times occurring early.

A word more as to temperature. I am never satisfied, in suspicious or slight cases, with less than two hourly observations, beginning at 7.30 a. m.—*say before rising*—and continued till 8 or 9 p. m., due regard being given to the effects of digestion, exercise, emotion, worry, and temperament, all of which easily accentuate the temperature instability of the tuberculous. Unless we have these frequent observations, we may well miss the high point as well as overlook the morning subnormal point, equally important. In fact, an excursion greater than from 97.8° F. in the morning to 99.2° F. in the evening (usually after meals or with exercise), I regard as most suspicious. Some patients experience slight mental exhilaration in the evening, doubtless the result of a slight rise of temperature, which is not recognized as such, or of a mild tuberculous toxemia, in contrast with their lethargic morning feeling. *A pulse above 100 with subnormal temperature is most suspicious.*

PHYSICAL EXAMINATION.

Since our hope of the early recognition of tuberculosis depends so largely upon the carefulness of our physical examination of the patient, this examination should always, if possible, be made at the physician's office where complete quiet may be had, and a good light which the patient faces. *He must absolutely be stripped to the waist*; observations made through even the thinnest clothing are worthless in the majority of cases. The patient, before undressing, should be weighed, his net height taken, and his present weight compared with his average for the past few years, his maximum, and his insurance normal.

Inspection. We make a special note of the patient's general appearance and build, which is in early tuberculosis not markedly abnormal. If there is a shoulder droop (not occupational or resulting from scoliosis of mild degree); if there is limitation or retardation of motion of the chest in deep inspiration of one side compared with the other, or if it is found on both sides; if there is flattening or

hollowing of the supraclavicular fossa (less often, of the infraclavicular); if there is undue prominence of one clavicle; if flattening of the shoulder group of muscles on one side occurs; at once our suspicions are aroused in regard to the apex of the side where these things are found. The angle of Louis is usually found later. We know now that *there is no typical tuberculous chest*, though a perimetric measurement of less than half the height is suspicious, if taken carefully at the level of the sternal end of the fourth rib. Authorities differ so as to what is the true chest index, that I do not place much importance upon its determination. Grouping mensuration with inspection, I may here urge the measurement of the expansion of each side of the chest individually, which, at the level before suggested, is most informing, though more so later in the disease; whereas total expansion, as so frequently practised, is almost valueless. In a right handed man, for instance, a lesser degree of expansion on this side means much, for a left handed man the reverse. Cyrtometer measurements and lead tape tracings by comparison are valuable, though more so later, especially in a prognostic sense as the patient improves and expands under rest and treatment. There may be dilatation of the pupil of one eye from sympathetic irritation, though this is not of great value diagnostically.

Inspection is never complete without examination of the mouth, nose, and throat. There should also be a search for enlarged glands, especially the cervical chains, using palpation here as well. The red line of the gums at the site of the incisors I do not find to be an early characteristic as stated by some observers. Nor does the tongue present anything diagnostically significant; prognostically it does, being usually somewhat furred from impaired digestion. There may be transverse lines on the teeth from loss of calcium salts, but this is not notable. The pharynx presents the very frequent type of chronic inflammation so common in Americans; I think it has no connection with tuberculosis. In the tuberculous, we frequently find nasal obstructions of various sorts and considerable increase in the adenoid tissues in the pharynx and nasopharynx. The skin and mucous membranes show only moderate anemia. The early changes in the larynx are usually in the posterior commissure (1), which presents a grayish wrinkling or tablelike elevation, or there may be involvement of the posterior insertions of the true cords and the processus vocalis, or of the false cords and the arytenoids. Rarely the epiglottis shows the first tuberculous involvement. The use of the laryngeal mirror is so easy that there is no excuse for not becoming capable of appreciating the first changes from normal in any patient's throat.

It is important to locate the cardiac apex beat by actual measurement, so frequently is the heart drawn to the affected side in tuberculosis. Nor can I leave the subject of measurement without a final word of emphasis upon the value of careful measurement of the individual sides of the chest. Though not always in early cases do we find shrinking or limitation of the affected side, this by no means vitiates its great diagnostic value.

Palpation. Palpation, which we have all been taught is one of the four cardinal measures of physical diagnosis, is in early tuberculosis of least value of the four, save in locating the apex beat of the heart, in assisting the determination of limitation or retardation of chest motion, in discovering the presence of enlarged glands or friction rubs, or in determining increased fremitus, usually at the left apex, if found early. I have not been able to determine Pottenger's sign of increased rigidity of the intercostal muscles or spasm or tenderness of the same over the affected area (2).

Percussion. One of the most delicate and important measures of physical diagnosis, as ordinarily practised, percussion does not reveal half the information it should. I always practise direct percussion with a light, firm wrist stroke. It is well, at the beginning of percussion, to determine by actual measurements the excursion of the bases of the lungs anteriorly and posteriorly, at rest and in full inspiration, which accord, by the way, remarkably well with the fluoroscopic findings. There is almost always some limitation on the affected side. There may be definite tuberculosis without percussion findings, but usually we find first a slightly higher pitched note, a relative shortness or impairment, rather than actual dullness, a note shortened in duration with diminished loudness. Not infrequently we find impaired resonance with tympanitic overnote, the result of relaxation of the air cells. First taught by Ziemssen (3), the study of the outline of the apices was emphasized by Krönig (4), in Europe, and Minor (5) in this country. It is a method of ascertaining valuable information with a little careful observation. A comparison of the apical outlines, marked out on the patient with a colored pencil, will frequently reveal a lowering or shrinking of the inner border, less often the outer border of the apex of the affected side. It is understood that what we mark out is not the real apical outline, but the area of apical resonance. Since, however, this resonance is caused by the underlying pulmonary tissue, it is well to speak of it thus. Dullness, when present, is generally first manifested in the sternoclavicular angle, though some observers believe it is first heard posteriorly just above the spine of the scapula. Since often, even in the hands of the most skillful, percussion is barren of results, it is well to bear in mind the dictum of Cornet (6), "Absence of dullness does not mean absence of disease."

Auscultation. In auscultation we have the examiner's *vade mecum* for the recognition of early pulmonary tuberculosis. It is well in connection herewith to remark that for successful auscultation we must very often teach the patient to breathe correctly during the examination, so that he does not make noises in his nose, against the lips or teeth, or in his throat, but breathes quietly from the diaphragm, possibly with the mouth open. Grancher (7) was the great apostle of *single phase auscultation*, and physical diagnosis is the richer and surer for the application of this method. By it, before listening for adventitious sounds, as we are all so prone to do, we determine the quality of the breath sounds in inspiration and expiration separately. I would urge everyone to use this and the comparative meth-

od, like area to like area on respective sides. The first changes from the vesicular murmur are always heard in *inspiration*, and we should determine this quality first. Of prime importance is the recognition of the fact that the phenomena we hear do not necessarily mean tuberculosis alone, but reveal changes in the pulmonary tissue. It is their *persistence, site, and association with other symptoms* that give them so great a diagnostic significance.

First suggested by Woillez, the term "granular breathing," introduced into this country and emphasized by Minor (8), represents, perhaps, the first definite evidence of parenchymatous trouble. Because of its importance, I shall give a description by several men. Minor says of granular breathing (9): "The respiratory murmur is rough and low pitched and is made up of a succession of very short sounds as though soft granules of wet sago were being rolled over each other." Grancher (10) says: "The ear gets the impression of a column of air which glides with rubbing over an irregular and narrowed surface." De Renzi, quoted by Minor, describes it as "an abnormal respiration, consisting of successive small irregular impulses, and corresponding to the tactile impression one gets when one rubs the beads of a rosary together with the fingers," which I would amend by saying, corresponding to the tactile sensation one gets by rubbing coarse, dry hair between the fingers and not hearing the sound thereof. Cassaet says: "The air seems to be constantly passing over slightly elevated obstacles by which it is constantly broken, and this sensation of obstructed progress gives the idea of a rough, unpolished surface." It is the *respiration rude et grave* of the French and the *rauheres Atmen* of Turban and Dettweiler. As these roughened irregular sounds become stronger, larger, more distinct, and separate, we get interrupted breathing and fine moist rales. Granular breathing is heard most frequently in the following regions, in order: (a) supraspinous regions, (b) sternoclavicular angle, with sufficient frequency for one almost to doubt its diagnostic significance, and (c) supraclavicular fossæ. Other early breath changes are feeble and distant breathing and prolonged expiration, with which all are familiar. Then comes the typical cog wheel or interrupted breathing which is wavy or jerking, and must be differentiated from cardiac cog wheel breathing and the interrupted breathing of very nervous patients. Harsh breathing comes later than the foregoing, but if heard during expiration and on quiet breathing is quite diagnostic. Later still comes bronchovesicular breathing followed by bronchial, by which time we have well defined and advanced tuberculosis. Vocal resonance is sometimes increased, but is not an especially reliable sign, being normal in considerably more than fifty per cent. of incipient cases (11). By some, transmission of the heart sounds to the right apex is considered of much significance, speaking for right apical consolidation; though the subclavian murmur first mentioned by Stokes has not the importance formerly attached to it, being due usually to kinking of the artery from pressure of glands.

Rales. Fraenkel (12) states that if rales are heard, the trouble is no longer incipient. Unfortunately we rarely have patients seek our advice

before rales develop. They are then generally heard only on deep inspiration, or with expiration a short cough and then inspiration. At first there are a few fine crepitant and medium moist rales more or less limited to one spot, and persistent. Occasionally a few sonorous rhonchi only will be heard. With the development of the larger moist rales, usually matters have progressed beyond the early stages. Dry crackles, the *craquements secs* of the French (7), are heard early and are sharp, loud, minute, isolated, dry crackles, very few in number, rarely more than three or four, and almost exclusively confined to inspiration, whereas crepitant rales occur usually in numbers or showers. Friction rubs, in contradistinction to pleural crepitations which may be very deceptive, are so characteristic as to be rarely confusing. Vocal resonance has the same relative value as fremitus, which is small; though the whispered voice may yield information by accentuation and heightened pitch. It is especially valuable in children.

It is well to keep in mind the areas most usually the seat of the first involvement, to wit, the right supraclavicular fossa, the suprascapular region, the subclavicular region, the interscapular region about the level of the fourth dorsal vertebra, the area internal to the angle of the scapula, and, in children, the fifth and sixth spaces just outside the nipple line.

The position and size of the heart should be accurately determined, as it is so frequently smaller in tuberculosis than normal, whether cause or effect we do not know, though we do know that some animals which have a relatively large heart compared with their body weight, present almost practical immunity to tuberculosis. Blood pressure is so often found to be low, that a relatively high pressure, unless just preceding a hemorrhage, would be a point against the diagnosis of tuberculosis.

Pulse. The pulse is somewhat accelerated, weak, soft, and compressible.

Urine. The urea is usually diminished, but the presence of the diazo reaction of Ehrlich has not the diagnostic significance originally attributed to it. There may be some phosphaturia, but ordinarily speaking the urine is normal.

X ray. Here we have a most excellent way of checking our clinical findings, but the proper interpretation of radiographic findings being very difficult, must be left to the expert. In incipient cases we see by the fluoroscope only slight shadings, which require careful study for proper explanation. The fluoroscope, however, usually confirms the limitation of the expansion of the bases found on percussion, and will also reveal any displacement of the heart toward the affected side. Of the value of the stereoscope in early diagnosis, Dunn (13) says that the stereoscopic radiograph gives evidence of tuberculosis before any other x ray procedure will reveal it, and that in incipient cases its chief value is to confirm suspicious breath changes, which may be our only clinical findings, by showing to the initiated very delicate evidences of peribronchial infiltrations. It is also invaluable in checking our findings by physical examination. It is distinctly a procedure for the expert; in other hands it will

rarely be found of value till definite evidences of tuberculosis are present on examination.

Spirometry has so many more dangers in the hands of the general practitioner than advantages, that I dismiss it with this mention.

Sputum. We are all so prone to wait for definite diagnosis for the appearance of bacilli in the sputum, that I wish to emphasize the danger of this. It is proved that in only thirty-five per cent. of incipient cases are they found; hence our unwillingness to make a diagnosis without them inflicts a terrible injury upon patients who are losing their best chances of recovery before undertaking proper treatment. Should bacilli not be found, a little search may reveal elastic fibres, which mean tissue destruction, which in turn means tuberculosis. Lately we have been examining the sputum for its albumin content, and I am inclined to believe that albumin will almost always be found present in tuberculosis, though whether its presence in the sputum in other conditions is sufficiently frequent to cause doubt as to its diagnostic significance, I am not yet prepared to say.

Tuberculin tests. Failing these methods of diagnosis, we still have left tuberculin tests, which should be undertaken with great care. It should be well remembered that the von Pirquet test is practically worthless in children over seven years of age; though von Pirquet himself asserts no great usefulness for it in those over two years old unless it is negative, when it becomes most important. Nor must we overlook the fact that sometimes it may be found to be negative in exceptional cases, in children with acute manifestations of a chronic tuberculosis. The subcutaneous test should be guardedly used by one not familiar with the technic and phenomena.

Time forbids a study of the differential diagnosis from other conditions, but in conclusion I wish to lay stress on a few points:

1. The diagnosis of early pulmonary tuberculosis can and should be made by every one, not left to the specialist who may well undertake the best treatment.
2. A careful history is almost as essential as a careful examination.
3. It is absolutely essential for adequate examination that the patient be stripped to the waist.
4. Shrinking of an apex, or limitation of motion of one side of the chest, or of expansion of one base on deep breathing speaks for the diagnosis of tuberculosis.
5. Impairment of note on percussion, or dullness plus granular breathing with associated suspicious symptoms, and a few *persistent* rales, possibly found only after forced inspiration following a cough, indicate tuberculosis.
6. Absence of physical findings no more precludes the possibility of tuberculosis, than failure to find bacilli in the sputum.
7. In no other disease is the most careful search with eternal suspicion more rewarded from the patient's standpoint than in tuberculosis. The chances of recovery are usually in direct ratio to the earliness with which the condition is recognized and treated.

8. Observation and study of suspicious cases should extend over at least a month, with several thorough examinations and careful, frequent pulse and temperature records, before we are willing to relinquish the diagnosis of tuberculosis.

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tive children, the feeble, aged, intoxicated, nervous, or those who cannot read. There is only one means which will serve as a universal warning to all, regardless of circumstances and impulses, and that is odor in either bottle or cork. It is the answer to a problem which scientists have endeavored to solve for years, and as such it will aid the law in convicting murderers using poison as their tool, when they usually plead that a "mistake" had been made, and thus escape conviction.

2102 DALY AVENUE.

Abstracts and Reviews.

CERTAIN ASPECTS OF VITAL OXIDATION.*

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University of Wisconsin.

One of the most fascinating themes in the whole realm of chemistry is that of oxidation, but it is not within the scope of this lecture to discuss more than a few of the many aspects of the problem as it bears upon vital processes. Vital oxidation may be considered under the following divisions: 1. The mechanism of oxidative processes in the living tissues. 2. The nature of the substances oxidized by living organisms. 3. The relation between oxidation in the body and the energy requirements of the organism. 4. The relation between the oxidative and other chemical processes. 5. The effect of various substances and conditions on vital oxidation. 6. The relation between vital oxidation and functional activity. The main substance of this lecture will deal with the last two of these phases of the subject, and the others will be touched upon only as they bear upon these.

Since the recognition by Lavoisier that oxidation was constantly occurring in the body this has been regarded as the source of heat, mechanical work, and all of the manifestations of life. It was formerly believed that vital oxidation was quite similar to combustion outside the body, but it is evident that the processes differ widely in many respects. For example, the oxidation of carbohydrates and proteins takes place in the organism at a temperature of 37°C. while outside the body a far higher temperature is required. The discovery of the group of oxidases resulted from the attempts to explain these differences, and we have since learned that many substances which are readily oxidized without the body do not undergo oxidation at all when introduced into it. We have further come to learn that slight chemical modifications in the composition of many substances may convert them from readily oxidizable to practically nonoxidizable in the tissues. Kastle and I found that certain of the organic peroxides gave practically all of the reactions of certain of the animal oxidases, and on the basis of this observation and the presumption that oxidases played a role in both pathological and physiological processes, I undertook the study of the pharmacological action and therapeutic uses of

*Summary of a lecture delivered before the Harvey Society at the Academy of Medicine, New York, November 7, 1914.

A NEW POISON CONTAINING BOTTLE.

Giving Warning of Poison by a Strong Odor.

By ROLPH J. LACKNER,
New York.

Odor of a penetrating kind speaks every language, hence its value as a warning and means of detection if used in connection with poison containing bottles. Upon the cork being removed from such a bottle, the odor will escape and warn, not only the person opening it, but also all those in the immediate vicinity, in or out of doors.

Thousands of lives are yearly sacrificed in the mistaking of the fatal

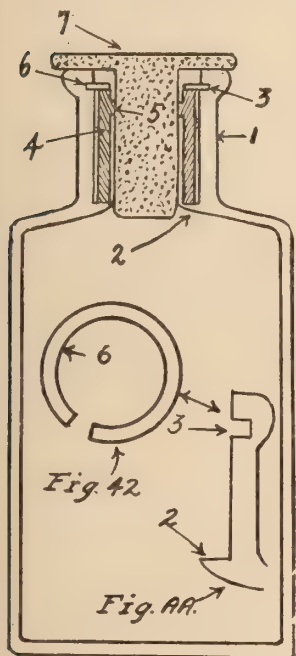


FIG. 1.—1 is the bottle, 2 its inner notch, 3 a ring groove, 4 the inserted odor sack in metal case, 5 is the odor escape, 6 the snap ring (which is also featured in Fig. 2), 7 is the cork which seals the contents of bottle. The odors escape at the same time. (Fig. AA shows notch and groove.)

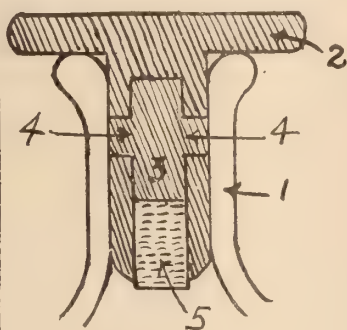


FIG. 2.—(Cork applied) 1 is bottle, 2 cork having an odor cavity, 3, and odor escape, 4, 4, and cavity is sealed by plug, 5, thus as soon as cork is pulled the odor escapes instantly and continues to do so until bottle is again sealed, making mistakes a human impossibility, as the odor serves as a warning.

bottle, and thousands more keep our hospitals busy. Many, whose lives are spared, remain crippled for life or possibly disfigured.

As long as poisons or poisonous drugs are sold, none of us will be exempt from making at least one mistake. The simple word, POISON, written on the label of the bottle does not serve as a warning. Again, written words do not warn inquisi-

benzoyl peroxide. This substance was found to be markedly antiseptic and very useful in the treatment of local infections. The beneficial effect was so marked that it could obviously not be attributed solely to the antiseptic action, and it was surmised that the active oxygen contained exerted some peculiar effect on the local immunity reactions. Similar substances were sought which would be more soluble in water, and the sodium salts of iodosobenzoic and iodoxybenzoic acids were prepared and subjected to further pharmacological study. The former of these substances contains 6.06 per cent. and the latter 11.43 per cent. of active oxygen, that is, of oxygen which is chemically active outside the body. The active oxygen in these compounds is that which is bound to the iodine.

Grove and I then conducted experiments to determine whether the oxygen in these compounds was physiologically available for purposes of oxidation within the body, and we found that sodium iodosobenzoate was capable of furnishing the oxygen for at least one peroxidase reaction, that of converting phenolphthalin into phenolphthalein in the presence of blood. This and other facts showed that the oxygen in these substances was physiologically active. They were also found to be very powerfully bactericidal toward the typhoid bacillus, their great activity being referable to their oxidizing action. Intravenous injection of these substances was found markedly to depress the respiratory centre, and the time at which this effect appeared after injection was so short as to preclude the possibility of the action being due to an accumulation of carbon dioxide or of acid products, and proved that the response was due to a decrease in their own oxidative processes directly. The vasomotor centre showed a similar depression of activity, from the same cause. Later, also, the cardioinhibitory centre showed a similar effect. Further to prove that this effect was due to an alteration in the oxidative processes within the cells of the centres, we tested the effect of intravenous injections of sodium cyanide, which is known to decrease oxidation. This compound produced a stimulation of just those centres which were depressed by our oxidizing substances. It was further observed that the simultaneous injection of sodium cyanide and sodium iodosobenzoate served to counteract each other in their effects on these centres. By perfusion of the isolated heart with solutions containing sodium iodosobenzoate or iodoxybenzoate, it was found that the oxygen was removed from these substances. The former was more active on the heart and showed a greater loss of oxygen than the latter, which proved that it was the active oxygen which produced the effects. This difference also shows the impossibility of predicting the effects of any given substance on one tissue from its study on other tissues.

As an interesting side problem we turned away from our original intention and took up the study of the relation between the rate of oxidative processes and physiological activity. In asphyxia there is both a lack of oxygen and an excess of carbon dioxide, but the relative roles played by these two factors is still a subject of much discussion. New experiments were undertaken with the knowledge

now at our command, and it was found that a depression in the rate of oxidative process in the cells of the medullary centres led primarily to stimulation of the activity of these cells. Conversely, an increase in the rate of oxidation in these cells resulted in a decreased activity or depression. The functional activity, therefore, may be stated as varying inversely with the rate of oxidative processes in the cells of these tissues. Seeking an explanation of these relations, we came to look upon the processes in the cells as of two kinds. There was the phase of fixation of oxygen within the cell, which was the beginning of a series of oxidations. This group of processes may be designated the R processes, suggesting rest and recuperation. The essential feature of these processes is that they need oxygen from without the cell. The second group of oxidative processes may be designated the A processes, suggesting activity. These are chemical reactions occurring within the cell and are manifested by an expression of physiological activity. Neither of these processes is ever in complete abeyance during life, but their relative intensity determines the relative degree of activity of the cell. From our work with the drugs already discussed, we conceive that the oxidizing substances stimulate the R processes, leading to an oxygen fixation and a retardation of the A processes with a physiological depression. On the other hand sodium cyanide depresses the R processes, the cell then deriving its activity from the A processes with an increased functional activity. Increase in the A processes leads to an increase in the R, but the latter processes outlast the former. Under anesthesia both these processes are depressed and recuperation does not occur. Further, when the R processes fall below a certain level, all functional activity ends. We regard the stimulating action of carbon dioxide to be due to a depression of the R processes analogous to that produced by sodium cyanide. The functional activity of the respiratory centre seems, then, to be dependent upon the carbon dioxide tension rather than the oxygen tension.

In addition to the important functions of the respiratory centre, the bone marrow provides one of the essential factors of tissue oxidation. It has been observed that at great altitudes there is a rise in both the hemoglobin and the number of red cells in the blood, and experiments on animals in our laboratory have confirmed this. It is evident, therefore, that both the bone marrow and the cells of the respiratory centre behave similarly with regard to alterations in their own oxidative processes. This observation also throws interesting light on the mechanism of the production of polycythemia in chronic respiratory and circulatory diseases.

As further indicating the differences between the processes of vital oxidation and combustion outside the body, we have tested the concentration of oxygen required to support the flame of combustion of a number of gases and other substances. No combustible substance burns when the oxygen concentration falls below 6.6 per cent. In contrast to this we found that it was necessary to reduce the oxygen concentration to three or 3.5 per cent. before alarming symptoms were produced in rabbits. A reduction of the atmospheric oxygen concentra-

tion to half its present figure would not interfere with animal life, but gas would not burn, steam engines could not be run, and many explosive substances would become noninflammable.

Professor Hektoen, at my request, found that sodium iodosobenzoate and iodoxybenzoate were capable of greatly increasing the formation of hemolysin for goat's blood when injected intravenously into dogs. It has not yet been determined whether physiologically active oxygen is capable of stimulating the production of other immune bodies. Doctor Amberg has shown that intravenous or intraperitoneal injections of these benzoates markedly inhibit the inflammation caused by mustard oil or bacterial toxins.

It is to be hoped that in the future we may find important therapeutic applications of the results of our increasing knowledge of the processes of vital oxidation.

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLII.—How do you treat bedsores? (Closed.)

CLIII.—What has been your experience with condensed milk as a substitute for the mother's milk? (Answers due not later than December 31st.)

CLIV.—How do you treat prostatitis? (Answers due not later than January 15, 1915.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

Therapeutic Notes.

Salvarsan in the Treatment of Noma.—H. Eschbach, in *Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, May 1, 1914, reports a case of buccal noma in a child of two in which life was undoubtedly saved by local applications of neosalvarsan and salvarsan. The child had measles, and three days later grayish spots were observed on the lips, which soon after became greatly thickened and showed a diffuse, gray, adherent false membrane. The gums and mucous membrane of the cheeks likewise were covered; the tongue was of twice the normal size and showed grayish spots. The general condition became worse, indicating grave intoxication. A one in 15 solution of neosalvarsan in a mixture of equal parts of water and glycerin was at once applied to the entire area of false membranes, and irrigations of the mouth with dilute hydrogen dioxide solution and the application of hot compresses to the neck ordered. In twelve hours the thick membranes loosened, and the swelling of the cheek diminished.

Continued application of neosalvarsan solution four times daily was ordered, and in a few days the general condition was greatly improved. A whitish band of false membrane persisted, however, on the lips, and the concentration of neosalvarsan and salvarsan solutions used was increased to one in 10 and one in 5. After a slight attack of basal lung congestion, the last evidences of noma disappeared, ten days after the beginning of the neosalvarsan treatment, and complete recovery followed.

Treatment of Dry Gangrene of the Toes and Feet.—Quénu, *Progrès médical*, April 11, 1914, discusses the indications for secondary complete removal of the gangrenous parts. Should one amputate high up, at the thigh, or should one amputate below the knee and, if the arteries are not found patent at this level, then proceed to amputate at the thigh? Quénu is not of the opinion that either of these rules should be followed, for the absence of arterial spurting of blood does not necessarily imply that the flaps will slough. In one of Quénu's cases this fact was clearly apparent. He is therefore an advocate of conservative surgical treatment: In gangrene of the tips of the toes, he advises amputation at the instep, and if the process is more extensive, at the heel or lower third of the leg. It is essential in such conservative treatment, however, that the gangrenous process be sharply marked off and that there is no inflammation of the adjoining tissues. Quénu does not perform the classic types of operation of these cases but amputates at any level indicated, without regard to bone.

Mineral Oil Treatment of Chronic Gastrointestinal Ulcers.—A. L. Benedict, in the *American Journal of Gastroenterology* for April, 1914, states that for some years he has been using a practically pure paraffin oil in the treatment of chronic gastric and intestinal ulcers of various types. Acute cases were excluded for precautionary reasons, although Benedict considers it doubtful whether any contraindication to the oil exists which does not apply equally to other medicaments and even foods. The dose of the oil usually given was one half ounce (15 c. c.), administered three hours after meals and late in the evening, to avoid conflict with the food during the periods of active digestion. Bismuth in some form was generally emulsified with the paraffin oil. Various substances, such as camphor, phenyl salicylate, menthol, etc., can be mixed with or dissolved in the menstruum, as indicated. The method does not exclude other treatment, and is all the more efficient if functional rest of the stomach can be secured. The mineral oil probably acts as a protective, lubricant, and base for facilitating distribution of bismuth over the lesions; it seems, in addition, to be at least negatively antiseptic. In several cases of malignant or supposedly malignant disease of the esophagus, stomach, large intestine generally, or rectum in which mineral oil was freely applied, the duration of the case was much longer than had been expected, or the diagnosis of cancer which appeared warranted clinically was set aside or held in abeyance for a long period. These experiences suggested that possibly the mineral oil may have some inhibiting action on malignant growths with which it comes in contact.

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PROGRESS UNDER DIFFICULTIES.

It is a source of great gratification to the publishers and editors to be able to announce that, in spite of the European War and the almost universal business depression which has accompanied it, the circulation of the NEW YORK MEDICAL JOURNAL has steadily increased during the past three months as well as during the previous year. Declining to take advantage of what might be considered a justifiable opportunity to retrench at the expense of our readers, we have kept up the JOURNAL to full size; this issue, for example, contains fifty-two pages. Of the original communications with which we have been favored during the past three years, we need not speak; the improvement in quality is obvious and has attracted favorable written comment. The Prize Essays continue to bring to light therapeutic measures of an original kind which would not otherwise be likely to see the light. The discussion of new discoveries, of real or merely alleged importance, has been an interesting feature of late; and discussion is as valuable in a medical journal as it is in a society meeting. With the cooperation of a strong and experienced editorial force we expect to go forward to new triumphs, and not only to keep up with the progress of our profession, but to do so in an interesting and striking way.

CONSUMPTIVE OFFICE WORKERS.

As is frequently the case in the practice of medicine, the very rich and the very poor command without difficulty the utmost resources of the specialist, while the consumptive man of moderate means who is dependent upon his daily work for his income, is deprived, by lack of money on the one hand and by pride on the other, of travel to some land where constant outdoor life is possible or of resort to one of the great free sanatoriums. As far as we are aware, there is no provision in this country for the unfortunate tuberculous office worker. In Great Britain, however, there are special private homes or boarding houses for these people, where for rates from ten dollars weekly upward they secure excellent table board with the usual extras required by the consumptive, comfortable rooms, and the supervision of one or two resident physicians. They go to their daily work like their fortunate fellow employees, but once that is over, they are able to retire to the amiable discipline and special comforts of a private sanatorium, where they pass probably some twelve or fourteen hours of the day. As far as we can judge from the announcements of these institutions, they are self supporting.

If no conflict is thereby established with any local law or ordinance, it seems to us that private enterprise or scientific philanthropy or both might find an excellent field for investment in the endowment of such homes. Whether or not their exact nature should be known to outsiders raises perhaps a delicate question, but we have no doubt that if the project is feasible, means will be found to settle all minor difficulties.

SIR BENJAMIN BRODIE AND THE ROYAL COLLEGE OF SURGEONS.

Recent discussions of the standardization of surgery, together with recommendations made at the meeting of the newly organized American College of Surgeons recently held in Washington, concerning the proper preliminary education of the surgeon, the details of the curriculum, his subsequent hospital training, the nature of the licensing examination, etc., remind one strikingly of the recorded efforts of Sir Benjamin Brodie in his work of reform in the Royal College of Surgeons. This college was constituted by act of Parliament in 1800, but it retained some of the characters of a city company until 1821, when it received a supplemental charter from George IV. Some time after this we find Brodie saying that the utmost that can be expected of a young physician or surgeon is that he should show that he has laid such a foundation

as will enable him to profit by the opportunities of experience which may be presented to him afterward. He perceived how much strength the college of surgeons might acquire from the institution of a higher standard of examination, and for this purpose he devised the order of Fellows. The object of this was, in the words of its founder, "to insure the introduction into the profession of a certain number of young men who may be qualified to maintain its scientific character and will be fully equal to its higher duties as hospital surgeons, teachers, and improvers of physiological, pathological, and surgical science afterward." The creation of this new order of members necessitated a new charter from the Crown, which was obtained, mainly through the exertions of Brodie, in 1843. This reform, it has been well said, has raised the college from a status little higher than that of a city company to something more fitting its rank as one of the chief institutions of a great profession and the exemplar of surgical education to the whole kingdom. The examination for the Fellowship which Brodie introduced is now regarded as the most honorable surgical examination in Great Britain, and perhaps in the world.

Brodie was something more than simply a great surgeon; it was his work which first put the treatment of joint disease on the only sure footing—that of pathological fact; and Brodie was a master in pathology, as well as in physiology, chemistry, and various other scientific branches. It is remarkable to find that he was the author of a work on psychology, the object of which was to stimulate his students to a study much neglected at the time.

THE PUBLIC HEALTH OFFICER.

In this period of rapid communication between cities, towns, and States, the preservation of the public health is no longer a simple matter. When the population was less and the units were more widely scattered, one town was not much concerned as to what was happening somewhere else fifty or a hundred miles away. Today, however, we are confronted by larger and more complex problems. An article by Ravenel (*Journal A. M. A.*, November 7, 1914) calls attention to some interesting matters. As he points out, the larger cities were the first to appoint health officers, and the selection naturally fell upon a physician, not always the one most fitted, but nevertheless a man with a medical training. Many such men did splendid work, and under their regime much good was accomplished. Their chief concern being with contagious diseases, they were content if these could be kept from extending from the original focus.

Gradually, however, the scope of the work has broadened until today the care of the public health has to be regarded as a specialty and one to which the incumbent in office must devote his entire time. This brings up the question of the qualifications of such a man. Ravenel believes that most of the schools which give a degree of Doctor in Public Health have put the requirements too high. According to his point of view, what are needed are practical health officers more than research men or professors. The number of subjects that should be in the course of study makes a formidable list. Nevertheless, as the health officer will be called upon to settle matters ranging from the diagnosis of contagious diseases to the proper methods of plumbing, heating, and lighting, his training must be wide.

The one best equipped is probably a physician who has acquired the foregoing training, but the difficulty of finding employment then arises. In the larger cities, where the salary is commensurate with the work, the position is frequently a political one and the tenure of office uncertain. The smaller cities and towns defeat their desires by not paying enough to permit the individual to devote his entire time to the work. Even if the advance seems slow, however, the demand by the individual that his environment be healthy is becoming more marked, and the position of the public health officer will doubtless become more and more important in the eyes of the community.

HOOKWORM AND THE OIL OF CHENOPODIUM.

As the war in Europe has practically stopped the importation of thymol, search for an efficient substitute has found in American wormseed oil (*Oleum chenopodii* of the Pharmacopœia) a remedy for hookworm surpassing, in the opinion of Schüffner and Vervoort at least, eucalyptus, naphthol, and even thymol itself. Murray Galt Motter, of the Hygienic Laboratory of the Public Health Service, who discusses wormseed oil (Reprint No. 224 of the *Reports*, October 2, 1914), notes that it is a paralyzant rather than a parasiticide, narcotizing the parasite, which must then be got rid of by purgation. Contrary to good practice with thymol or aspidium, chenopodium is best given with castor oil. The dose has varied in the hands of different experimenters, from eight drops given once, to sixteen drops given three times with two hour intervals, followed in another two hours by a tablespoonful of castor oil and a teaspoonful of chloroform. Untoward symptoms, especially drowsiness or depression, are a signal to withdraw

the oil, induce active purgation, and administer strong coffee by mouth or rectum.

Physicians having hookworm cases under their care should give this remedy a thorough trial and report promptly their results in the medical journals. Case notes should be accompanied by information as to the sources of the oil used and, if possible, as to the method of its distillation; it has been alleged that as chenopodium grows in different localities, oils distilled by different processes have shown varying degrees of efficacy. For use in the South, where the plant grows as a weed, the possible efficacy of a decoction, made by boiling one ounce of the fresh plant in a pint of milk or water, administered in wineglassful doses, should be remembered and tried under careful supervision. Data of this kind should aid in rehabilitating a truly American remedy, said to have been used by the Indians as a vermifuge before the landing of Columbus.

THE SELF PURIFICATION OF WATER SUPPLIES.

There is probably no question that has been more discussed or has given more trouble than the obtaining of pure water. As the chief sources are the rivers and lakes, we are directly concerned in such measures as will tend to purify contaminated waters. That water, under certain conditions, will undergo some self purification is generally known, but how or why it occurs is not so well understood. Sedimentation plays a part, but Phelps, in *Public Health Reports* No. 33, discusses the process that is a more important factor. It is essentially that of oxidation and destruction by the soil, such as occurs in organic matter. The reactions involved are biochemical in their nature and for their production it is necessary to bring together oxidizable organic matter, oxygen, and oxidizing bacteria. The first and last are necessarily present in polluted water, so that questions of stream purification and prevention of nuisance are reduced to those of oxygen supply.

As oxidation takes place, the content of oxygen is lowered, and reaeration must make up the deficiency by absorbing oxygen from the atmosphere. The most important factor in this is the degree of agitation of the stream. If the water is uniformly mixed and quiescent, absorption at the surface leads to a downward diffusion, which in time establishes a gradient from essential saturation in the upper film to the minimum concentration at some point below. As conditions change more and more from that of complete quiescence, the rate of reaeration is increased accordingly and oxidation continues. In the deep and relatively quiescent waters of New York

harbor, for instance, reaeration was found to be almost a negligible factor. The capacity of such a body of water to oxidize pollution is limited practically by the amount of available oxygen brought in from the ocean with each tide. On the other hand, the initial volume of available oxygen in rivers is small compared with the total capacity of the stream to oxidize pollution, the chief factor being reaeration. It is therefore evident that the value of a water supply is affected largely by the degree of agitation which it undergoes.

EXCESS OF ENTHUSIASM.

Dr. James Ewing, in a recent address before the New York Academy of Medicine on advertised remedies for cancer, astonished his hearers by devoting most of his time to condemnation of the over-exploited methods of treatment followed by leading medical men. He condemned, of course, those purely commercial frauds which have flourished in the field of cancer treatment, but said that he found it necessary also to sound a note of warning against the exploitation of various wholly legitimate methods of treatment on the ground that assertions, made in good faith no doubt, gave the public a false feeling of security; the allegations made for the x ray, for example, were open to grave question. Radium in its different applications was one of the most widely exploited of these questionable remedies; surgery was the most advertised of all remedies. The medical profession had almost unanimously agreed on the efficacy of surgery, but Doctor Ewing thought it was questionable whether the attitude taken was not erroneous. It was true that where the operator succeeded in removing all of a malignant growth, he frequently effected a cure, but statistics indicated that there was an increasing frequency of relapse after operation. In view of this fact and of the steady increase in cancer morbidity, Doctor Ewing urged the members of the medical profession to be extremely cautious in announcing the results of treatment. Complete professional secrecy should be practised in regard to any treatment showing apparently favorable results, until such results had been confirmed in the most positive manner by careful scientific investigation.

FOOT AND MOUTH DISEASE.

Foot and mouth disease is properly a disease of the lower animals, but recent outbreaks in cattle make it desirable that the medical profession should assess with some rough approach to accuracy the number of individual cases in human beings. The matter is not without practical importance. Among instances reported, we have examined the case of a soldier described by Whitty (*British Medical Journal*, II, 11, 1914). We are unable to pronounce the vesicles on the external skin of this patient genuine or spurious, and the evidence of contagion is little more than fortuitous. We, of course, believe that the disease cannot be limited to the lower animals; we believe that it must arise from the same cause

in man, but the cause of its special signs, the aphthæ or vesicles of the superficial epithelium of the mucous membrane of the mouth and rete Malpighii, is not easy to determine. There are two main currents of speculation. Without entering upon the older studies of Loeffler and Frosch, it is sufficient to observe that the virus or agent of infection is found in the yellowish fluid of the vesicles, that it is killed by a temperature of 85° C., and that, if filtered through a Berkefeld filter, the filtrate is still infectious. Böhm and Zschokke have found the virus in the horny tissue of animals, in the vesicles on the hoofs, and we are told that inspectors of slaughter houses have acquired the disease from this source (*Zeitschrift für Fleisch- und Milchhygiene*, XXIII, 3, 1913). Milk is reckoned by Ostertag as one of the most dangerous vehicles of infection. There are still a few other possible origins which have not been carefully investigated. On the other hand, the bacillus or microorganism has been the subject of deep study. Von Betegh found a minute coccus very refractive, in the fluid of the vesicles, hardly visible in dark field illumination (*Zentralblatt für Bakteriologie*, LX, 86, 1911). It has been found in the epithelial cells by Hantemüller (*Ibidem*, LXI, 375, 1912), but Kallert, in a later study, believes that these small, refractive bodies are common to numerous animal fluids and to vaccine virus (*Arbeiten aus dem kaiserlichem Gesundheitsamte*, LXVII, 4, 591, 1914).

NEW FIELDS FOR IONIZATION.

G. S. Thompson, of Kimberley, South Africa, communicates to the *British Medical Journal* for October 31, 1914, his views concerning the possibilities of ionization in bilharziosis and ringworm. As the condition of vesical and rectal bilharziosis is so intractable, anything promising relief from this troublesome condition, says Thompson, is to be welcomed. Owing to the imbedded situation of the parasite, and consequent difficulty of penetration of efficacious therapeutic agents that will not, by reason of their potency, at the same time prove harmful to the mucous membranes, it is not surprising that here, as in the somewhat analogous case of ringworm, the results of ordinary treatment are so hopelessly disappointing. By causing chemical penetration through the agency of the constant current, a valuable and satisfactory means for dealing with bilharzial infections may be found by means of ionization. The ionizing fluid having been introduced into the bladder or rectum and a suitably insulated electrode inserted, the ordinary technic is employed. The results of ionization for ringworm are also likely to improve so much with the advance of technic as to cause this method ultimately to supplant all others.

THE X RAY IN THE FIELD.

In our issue for November 14th, we noted the construction by an Australian physician of an x ray outfit suitable for use in war. In the *Archives of the Röntgen Ray* for November, another Australian physician, Ferguson Lemon, gives a fully illustrated description of a similar outfit of his own

design, the essential points of which are its mobility, its rapidity in getting into use, its self contained electrical plant, the two practical dark tents attached to the automobile for screening or photographic purposes, the dark room, and the facilities for carrying all necessary sundries. As the doctor worked in conjunction with a motor expert, a body building expert, and an architect, he is satisfied that for one thousand guineas, about the selling price of the chassis, he has produced an invaluable medical war adjunct. A personnel of twelve men rides in and upon the outfit, two x ray surgeons, two assistants—preferably medical students, one mechanical engineer who also drives, one electrical engineer, and four ambulance men.

News Items.

Changes of Address.—Dr. Frank Stockman, to 15 West 115th Street, New York.

Dr. Walter Baer Weidler, to 131 East Sixtieth Street, New York.

Dr. M. J. Ballin, to 53 East Fifty-eighth Street, New York.

Dr. Fenwick Beekman and Dr. L. A. Wing, to 16 East Sixty-fifth Street, New York.

Dr. Charles F. Bolduan, to 251 West Ninety-third Street, New York.

West Philadelphia Medical Association.—This association will celebrate its tenth anniversary with a banquet at the Rittenhouse, Philadelphia, on Tuesday evening, November 24th.

Harvey Society Lectures.—The fourth lecture in the course will be delivered on Saturday evening, November 28th, at the New York Academy of Medicine, by Professor Lafayette B. Mendel, of Yale University, on Nutrition and Growth.

Southern Surgical and Gynecological Association.—The twenty-seventh annual meeting of this society will be held in Asheville, N. C., on Tuesday, Wednesday, and Thursday, December 15th, 16th, and 17th, under the presidency of Dr. John Wesley Long, of Greensboro, N. C.

Theatres and the Common Drinking Cup.—An inspection has just been made of the theatres in New York with particular regard to the use of common drinking cups. The results were extremely gratifying, only sixteen violations being discovered in 429 theatres visited. In the sixteen cases not complying with the law, the violation was abated by the personal effort of the inspector.

Association of Southern Medical Women.—At the second annual meeting of this organization, held on Tuesday, November 10th, in Richmond, Va., the following officers were elected: President, Dr. Mary Latham, of Highlands, N. C.; vice-president, Dr. Mary Parsons, of Washington, D. C.; secretary, Dr. L. Rosa Gantt, of Spartanburg, S. C. Reports submitted at the meeting indicate that the work of the organization is progressing satisfactorily, and that its membership is increasing rapidly.

Army Medical Reserve Corps, New York Division.—At the annual meeting of the New York Division of the Medical Reserve Corps of the United States Army, held on Saturday, November 14th, the following officers were elected: President, Dr. Reynold Webb Wilcox; vice-president, Dr. Howard Fox; secretary, Dr. Harold Hays; treasurer, Dr. H. Sheridan Baketel; councillors, Dr. Henry C. Coe, Dr. Herbert Lawson, Dr. Walter M. Brickner, Dr. S. Meredith Strong, Dr. Thomas Darlington, and Dr. Frederick N. Wilson.

The Mütter Lecture.—Under the auspices of the Rush Society, the College of Physicians of Philadelphia, the University of Pennsylvania, the Pathological Society of Philadelphia, the Mütter Museum, and the Philadelphia Pediatric Society, the Mütter lecture will be given on Friday evening, December 4th, in the College of Physicians by Dr. Fred H. Albee, of the New York Post-Graduate Medical School, his subject being the Fundamental Principles Involved in the Use of the Bone Graft in Surgery.

Army Medical Corps Examinations.—The Surgeon General of the Army announces that preliminary examinations for appointment of first lieutenants in the army medical corps will be held on January 11, 1915, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the Surgeon General, United States Army, Washington, D. C.

Chicago Civil Service Examinations.—Among the positions for which examinations will be held shortly by the Chicago Civil Service Commission are the following in the Chicago Municipal Tuberculosis Sanatorium: Associate medical director, \$3,500, with maintenance, December 1, 1914; two senior physicians, \$2,700, with maintenance, December 3, 1914; laboratory director, \$3,000, with maintenance, December 8, 1914; superintendent of nurses, \$1,920-\$2,520, with maintenance, December 7, 1914.

A Surgeon Aviator Killed.—Dr. Emile Reymond, major in the medical corps of the French Army, died recently at the age of forty-nine years of wounds received while making a reconnaissance in his flying machine over the German lines. He had won distinction in his studies in surgery of the heart and pericardium and was surgeon to the departmental hospital at Nanterre. He also served as deputy and later as senator from the Department of the Loire. He was an enthusiastic and skillful aviator.

The Week's Mortality in New York.—The mortality during the past week was much the same as for the corresponding week of 1913. The number of deaths reported from organic heart disease and Bright's disease was somewhat in excess of that of last year; the deaths from violence were a trifle fewer. The death rate from all causes was 11.92 per 1,000 of the population against a rate of 12.14 during the corresponding week in 1913, a decrease of 0.22 point, which is equivalent to a relative decrease of 24 deaths.

Southern Medical Association.—The eighth annual meeting of this association was held in Richmond, Va., during the week of November 9th, under the presidency of Dr. Stuart McGuire. Dr. Oscar Dowling, of Shreveport, La., president of the Louisiana State Board of Health, was elected president; Dr. R. C. Dorr, of Batesville, Ark., was elected first vice-president; Dr. McGuire Newton, of Richmond, Va., second vice-president; and Dr. Seale Harris, of Mobile, Ala., was reelected secretary. Next year's meeting will be held in Dallas, Texas.

Philadelphia Neurological Society Anniversary Dinner.—The thirtieth anniversary of the founding of the Philadelphia Neurological Society will be celebrated with a banquet at the Art Club, Philadelphia, on Saturday evening, November 28th. Dr. N. S. Yawger, 2005 Chestnut Street, treasurer, will be glad to furnish information regarding the dinner. Among the speakers will be Dr. Morton J. Prince, of Boston; Dr. George W. Jacoby, of New York; Dr. Henry B. Thomas, of Chicago; and Dr. Henry M. Thomas, of Baltimore.

Southern Association of Railway Surgeons.—This association, which is an auxiliary of the Southern Medical Association, met in annual session in Richmond, Va., on Monday, November 9th; Dr. Duncan Eve, of Nashville, Tenn., presided. One hundred and twenty-five surgeons, representing nearly every railroad in the South, attended, many taking part in the discussions, and the meeting was in all respects the most successful ever held by the organization. The following officers were elected: President, Dr. Thomas H. Hancock, of Atlanta, Ga.; vice-president, Dr. Southgate Leigh, of Norfolk; secretary, Dr. Clarence H. Vaught, of Richmond, Ky.

American College of Surgeons.—More than two thousand delegates from all parts of the United States and Canada attended the third annual meeting of the American College of Surgeons, which was opened in Washington, D. C., on Monday, November 16th, under the presidency of Dr. J. M. T. Finney, of Baltimore. Six hundred new members were admitted to the college, among them being Surgeon General W. C. Gorgas, United States Army; Dr. Dudley P. Allen, of Cleveland; Dr. Lewis Pilcher, of Brooklyn, New York; Dr. J. W. White, of Philadelphia, and Sir Thomas Roddick, of Montreal. Clinics were held in the principal hospitals of Baltimore, Philadelphia, and New York.

Aid Association of the Philadelphia County Medical Society.—At the annual meeting of this association, held on the evening of November 9th, the following officers were elected: President, Dr. Jacob R. Shellenberger; vice-president, Dr. James C. Wilson; secretary, Dr. Lewis H. Adler, Jr.; treasurer, Dr. John B. Turner; solicitor, Francis C. Adler, Esq.; directors for three years, Dr. Isador P. Strittmatter, Dr. William S. Wray, and Dr. William T. Hamilton; for two years, Dr. James M. Anders, Dr. J. Solis Cohen, and Dr. William M. Welch; for one year, Dr. Samuel D. Risley, Dr. Samuel W. Morton, and Dr. Charles A. E. Codman.

Epidemiologist, United States Public Health Service.—The United States Civil Service Commission announces an open competitive examination for the position of epidemiologist in the United States Public Health Service, which is open to men only. The salary is \$4,000.

The duties of this position will be to make laboratory and field investigations of the diseases of men in relation to prevalence, causation, and methods of control, and to conduct field studies of public health matters. For further information regarding the scope of the examination and for the necessary application blanks, address the United States Civil Service Commission, Washington, D. C. Applications must be filed on or before December 15th.

Rabies in New York.—The death from rabies of a thirteen year old school girl in Brooklyn last week makes a total of three deaths from the disease in New York this year. In addition over two hundred cases of rabies were discovered in dogs and cats sent to the laboratory of the Department of Health for examination. During the month of September there were 474 complaints of dog bite and in October 317. The Department of Health is determined to eradicate rabies from the city, and this can be done by destroying stray dogs and cats and rigidly enforcing the recently enacted muzzling ordinance. Offenders violating this ordinance are being prosecuted by the health department, 835 summonses having been served during the month of October, and fines imposed amounting to \$735.

More Whooping Cough Clinics Needed.—A survey of the dispensary and hospital facilities at present available in New York for the treatment and care of patients with whooping cough, emphasizes the urgent need of greater provision. The Department of Health has for some time been conducting a special whooping cough clinic at the foot of East Sixteenth Street under the immediate auspices of the research laboratory and in cooperation with the Bureau of Infectious Diseases and the Bureau of Hospitals. This clinic is open from 1:30 to 3:30 p. m. daily. Formerly whooping cough patients were generally treated in the children's department of many clinics, but they are now refused admission. It is conceded that this exclusion is in the interest of other patients and, therefore, fully justified as a measure of public health. It seems only fair, however, to whooping cough patients, that further pressure be brought to bear upon private institutions to establish a sufficient number of special clinics, or else that the Department of Health establish an additional number of clinics.

A New Translation of Dr. S. A. Knopf's Essay.—The seventh American edition of Dr. S. A. Knopf's prize essay, *Tuberculosis as a Disease of the Masses and How to Combat It*, has been translated into Bohemian by Dr. S. Breitenfeld, of New York. This translation appeared first in serial form in the Bohemian Daily *New Yorske Listy*, and has now been printed in book form by the publishers of this paper, Second Avenue between Seventy-first and Seventy Second Streets, New York. The book is especially intended for the many Bohemian colonies throughout the United States.

The same latest American edition is now being translated into Spanish by Dr. Jesus E. Monjaras, of Mexico City, which makes the third edition in Spanish, two having appeared in previous years.

Dr. A. Lankester, Government appointee of the Indian Research Fund Association (Special Tuberculosis Enquiry), Cranleigh, Simla, is now translating the essay into a second East India dialect—one Hindi edition having appeared last year. This makes the thirtieth translation of the essay since its original appearance in German some ten years ago.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, November 23d, North Branch of the County Society, Section in General Medicine of the College of Physicians; Tuesday, November 24th, West Philadelphia Medical Association (banquet); Wednesday, November 25th, County Medical Society; Thursday, November 26th, Pathological Society Germantown Branch of the County Medical Society; Friday, November 27th, Neurological Society, Northern Medical Association, South Branch of the County Medical Society, Medical Club (directors).

Personal.—Dr. Walter G. Baetz, having completed his term of service in the Ancon Hospital, Canal Zone, has opened an office at 1245 Cedar Avenue, Richmond Hill, New York City.

Dr. Angenette Parry, attending obstetrician to the New York Infirmary for Women and Children, has just returned from a three months' trip to Europe. She was accompanied by her sister, Dr. Eleanor Parry, who is gastroenterologist to the same institution.

Dr. Edward Tullidge, of Philadelphia, has received a call to go to Austria as a Red Cross physician. He will sail from New York next week, accompanied by four other physicians and twelve Red Cross nurses.

American Red Cross Relief Work in Europe.—Contributions to the European War Fund received by the New York State Board of the American Red Cross Society amount to nearly \$400,000, and the Belgian Relief Fund now amounts to nearly half a million dollars. Contributions to both funds are being received daily, as well as to the numerous other funds which are being collected for the relief of suffering in the war zone of Europe. Tons of hospital supplies, such as gauze, bandages, absorbent cotton, and hospital garments, have been forwarded to the Red Cross societies of the warring nations, as well as cases of assorted drugs and other medical supplies. The British War Relief Association, with headquarters at the British Imperial Club, New York, has issued a special appeal for funds for anesthetics. The University of Pennsylvania has given to the American Red Cross Society three hundred wire splints for use on wounded soldiers. For the maintenance of the American Hospital in Paris the contributions now amount to over \$155,000.

News of the Medical Schools.—The following changes have been made in the personnel of the faculty of the College of Medicine and Surgery, University of the Philippines, Manila:

Professor Fernando Calderon, chief of the department of obstetrics, has been appointed vice-dean of the faculty of the college.

Associate Professor George G. Davis, department of surgery, has resigned and has accepted a temporary position with a hospital in Canton where he will remain for a number of months and then return to the University of Chicago, promoted to the position of assistant professor.

Dr. P. G. Haughwout, of Columbia University, has been made special lecturer in the Graduate School of Tropical Medicine and Public Health of the College of Medicine and Surgery, to give a three months' course in advanced protozoology.

Dr. E. L. Walker, Chief, biological laboratory, Bureau of Science, and professor of medical zoology in the College of Medicine and Surgery, is on leave in the United States and has resigned. This leaves the position of chief of the department of medical zoology vacant in the school of medicine and in the Graduate School of Tropical Medicine and Public Health.

Dr. Edward F. Ruth, of the Rockefeller Institute for Medical Research, has been appointed professor of anatomy and is due to arrive in Manila about the middle of November.

Associate Professor Roy W. Hammack, department of anatomy, has been forced to resign on account of ill health and is now on his way to Fort Bayard, New Mexico.

Recently there has been an extensive reorganization of the Philippine General Hospital and Dr. W. E. Musgrave was appointed director of the hospital in addition to being dean of the College of Medicine. This action makes the relationship between the college and the hospital a very close one and conforms with the highest requirements of the Association of American Medical Colleges.

Dr. Antonio D. Vazquez, instructor in surgery, has been appointed executive officer of the hospital.

Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

September 17, 1914.

Treatment of Bladder Tumors.—Renner dwells upon the difficulty and value of endourethral removal by means of the snare or the cautery. All methods hitherto have given poor results, even in cases of benign growths. With malignant tumors, methods in vogue may accomplish removal of the greater portion of the growth, but they lead to considerable deformity of the bladder and recurrence is the usual history. This is true of the suprapubic open operations and the endourethral removal of the tumors; the first method tends to widespread diffusion of the tumor. Total extirpation of the bladder and insertion of ureters into the rectum is possible, but it is fraught with very grave immediate and remote dangers and is an operation of great technical difficulty. The technical difficulties associated with removal of tumors through the urethra by the cold or hot snare are also very considerable. On the strength of these shortcomings of our usual methods, the need for an improvement in the treatment of bladder neoplasms is obvious. Renner believes that the high frequency current provides us with means for a great advance over all previous forms of treatment. He suggests that where it is possible, the projecting portions of papillomatous and pedunculated tumors should first be removed via the urethra. The base, or the entire growth when not of one of these forms, should then be treated by coagulation or diathermia by means of a specially devised electrode which can be passed through a urethroscope. The exposure should be thorough and should be repeated sufficiently often to insure the total destruction of all neoplastic tissue. No ill effects of the method have been observed, and its application is relatively simple.

September 21, 1914.

Arteriomesenteric Duodenal Stricture.—Eduard Melchior cites Codman and Rokitsky that obstruction of the third portion of the duodenum may result from constriction and compression by the mesentery of the small intestine against the spinal column. To this view Melchior is opposed. In the first place the typical clinical picture as given by various authors displays the condition as occurring most frequently after operations, usually on the abdominal viscera; during the time that the patient is still confined to bed, and especially in cases in which there has been great loss of strength on the part of the patient. The suspended small intestine, which is supposed in this theory to drag on the mesentery to produce the compression, weighs at most only 0.5 kgm.; not all of this weight bears on the duodenum, only a small quotient actually coming into play. Experiments on the cadaver prove that far more weight than this is actually required to compress the duodenum when suspended on the mesentery; not only is more weight required, but it is necessary artificially to produce a marked spinal lordosis to complete the compression; and lastly it has been proved that the intestines do not hang in the abdomen by their mesenteric attachments but

float or rest upon the structures below them, which, in turn, are supported by the pelvic floor. In addition to these facts, which disprove the theory of arteriomesenteric duodenal compression, there is the pathological finding in cases supposed to be due to this cause. In none of these cases was there any evidence post mortem to show that there had been any stricture of the duodenum, there being no sign of inflammatory reaction either within or without the gut at the point of supposed compression.

CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE

September 12, 1914.

Sterilizing with Formaldehyde without Special Apparatus.—A. Hauswirth mixes potassium chlorate and metallic iron with calcium carbonate in an amount determined by the size of the room to be disinfected, and then adds to the mixture formaldehyde in the proportion of twenty c. c. to the cubic metre of space. He then mixes ninety-eight per cent. sulphuric acid with infusorial earth and dilutes it with twenty c. c. of water to the cubic metre of space. These two mixtures when poured together vaporize in clouds of steam and formaldehyde fumes so rapidly that the vessel into which they are poured soon becomes dry. The steam generated furnishes the moisture needed, and as the chemical process is very rapid, it is not necessary to seal the room hermetically in order to obtain the effect desired. The vessel used should not have too thick walls lest it absorb too much heat, which accompanies the rapid chemical change, though it is asserted that there is no danger of fire. A number of chemical reactions take place; it seems to us likely that a deflagration would occur. If so, it would be the part of safety to arrange some mechanical appliance by means of which the two mixtures could be poured together while the operator remained at a little distance.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

October 6, 1914.

Etiology and Prophylaxis of Tetanus.—C. Walther observed nineteen cases of tetanus among 270 wounded German soldiers treated in the Val-de-Grâce Hospital, Paris. All these cases were in soldiers wounded by bursting shells, none in men suffering from bullet wounds. Nearly all had large, gangrenous, deeply infected wounds, which in each case had been sustained on soil well known to harbor tetanus infection. The period of incubation ranged from six to sixteen days, and the period from the beginning of symptoms to death—in fifteen cases—was twelve hours to eight days. Four men were apparently recovering at the time of writing. The treatment consisted in the administration of twelve grams of chloral hydrate daily, introduction of two to three litres of boiled water into the rectum daily, subcutaneous injections of antipyrin, chloroform inhalations during the clonic paroxysms, and subcutaneous or intravenous injections of ten to sixty c. c. of antitetanic serum. At the suggestion of A. Jousset, the author had deep injections of serum given around the pharynx, and in the submaxillary region, and these seemed to cause a marked decrease in dysphagia and trismus. Each of the four soldiers apparently recovering had

received twenty to sixty c. c. of serum in the submaxillary region. Preventive injections of serum proved of distinct value, even though given only five to eight days after the wound had been sustained. The conclusion was reached that such injections should be administered regularly as a first aid measure in cases of shell wound, or where this is not practicable, in the *ambulances* of the second line or hospitals.

Untoward Results of Excessive Reduction of Weight in the Obese.—C. Fiessinger discusses morbid phenomena that he has observed in stout patients as a sequel to active treatment, chiefly dietetic, to reduce weight. These symptoms include nervous exhaustion, mental depression or unnatural anxiety, lack of will power, nervous dyspepsia, vertigo, and insomnia; in other cases there were chronic rheumatism, sciatica, gout, eczema, cholelithiasis, interstitial nephritis, or pulmonary tuberculosis. Illustrative cases are presented by the author, who urges that where adipose tissue has manifestly overburdened the heart, the treatment be discontinued as soon as dyspnea and the rapid pulse with extrasystoles or attacks of false angina, are relieved. The degree to which fat reduction can be safely pushed varies considerably in different individuals. Among 145 cases of heart weakness in which reduction cures were carried out, fifteen showed the untoward phenomena already specified. These symptoms uniformly disappeared when the patients were allowed to regain five or six kilograms of fat. It seems to the author that adipose tissue is capable of absorbing and rendering harmless certain toxic substances produced in the body; excessive reduction in fat therefore may result in liberation of these substances in the general system, with the production of the morbid phenomena referred to.

Bullet Wounds of the Thorax.—Capitan summarizes his observations on the effects of the German pointed rifle projectile in chest wounds. If the bullet strikes perpendicularly and at a relatively short range, and fails to injure any large vessel, rapid recovery follows; where it strikes obliquely, on the other hand, and at a less speed, the wound is much more serious, and recovery is slow.

PRESSE MÉDICALE.

August 26, 1914.

Systematic Massage in the Treatment of Injuries Due to External Violence.—P. Kouindjy discusses first the technic of massage in contusions. Superficial effleurage, practised rapidly with the fingers or palm and always directed from the centre of the contusion to its periphery, will afford distinct relief in ten minutes. It should be performed twice daily for the first two or three days, after which superficial and deep pressure for the purpose of reducing infiltration, and later vibration, to increase vitality of the tissues, should be added. In sprains, massage should begin over the tissues above the joint involved, and may include from the first deep effleurage, digital pressure, kneading, and percussion. The parts below the joint are then to be similarly treated, and finally the joint itself, to which, however, only superficial, rapid effleurage is applied, pressure or vibration being added only at subse-

quent sittings. When the tenderness has been almost entirely relieved active and later passive movements should be instituted. After each period of massage a light elastic bandage should be applied over cotton wadding. In fractures, massage should likewise be begun above the fracture, after a preliminary period of complete immobility, then practised below it. At first only effleurage should be employed and the sittings limited to ten or fifteen minutes.

RIFORMA MEDICA.

October 17, 1914.

Leucolytic Substances.—Carlo Martelli considers the action on the blood and blood producing organs, of benzol, sodium arsenite, and of nitrate of uranium. Moderately large doses of benzol show a leucolytic action without weakening the condition of the red cells. In medium or small doses, benzol may cause serious or even fatal consequences, when the liver and especially the kidneys are greatly diseased. Therefore, the soundness of these organs must be ascertained before beginning the benzol treatment. In some cases of experiments on animals, and even in its use in man, there is noted a leucocytosis instead of a leucopenia. In these cases it is useless to persist in the treatment. Thorium x is being used more every day. It is now manufactured absolutely pure, so that it can be used with safety, either by mouth or by intramuscular, hypodermic, or intravenous injection. Small doses have a stimulant action on the leucocytes, especially the polynuclear form; strong doses produce leucopenia. Mesothorium is still in the experimental stage, and apparently has not the powerful action on the spleen, bonemarrow, and blood of benzol, sodium selenite, and sodium tellurite. All these remedies are of value when the heart and kidneys are not too diseased to respond to stimulation. However, so far, the stimulating action of thorium x on the red corpuscles has not been found to be of any avail in the advanced stages of pernicious anemia.

Apparatus for Producing Artificial Pneumothorax.—G. Breccia describes his own apparatus for producing pneumothorax, a device the result of long clinical and experimental study. Its advantages are its convenient size, exact control of pressure, power of reaspirating any desired quantity of gas, and means of starting insufflation with oxygen and then changing to nitrogen.

REVISTA DE MEDICINA Y CIRURGIA PRACTICAS

October 31, 1914.

Therapeutic Use of Sulphate of Duboisine.—Serabia y Pardo says that duboisine is a molecular combination of hyoscyamine and atropine; it is a hypnotic and sedative of great value. It has been employed with excellent effect in various nervous diseases characterized by general excitement, and particularly in hysteria. It was used hypodermically in cases of hysteroepilepsy and later in true epilepsy, with a rapid diminution, followed by a disappearance of the attacks. It has proved of great service in the treatment of acute alcoholism, morphinism, and maniacal dementia.

Stypticin in Metrorrhagias.—Serabia y Pardo writes regarding this remedy. He has used it in

hemorrhage from fibroid tumor, fungous endometritis, in excessive menstruation, in puerperal hemorrhage occurring in nonnursing mothers in whom hemorrhage is a manifestation of muscular atony. The dose employed was 0.025 gram, given four or five times daily and continued for five or six days. In severe cases of hemorrhage the drug was given hypodermically in the gluteal region.

LANCET

October 31, 1914.

Traumatic Tetanus.—M. H. Gordon brings forward an interesting observation on the importance of microorganisms which may contaminate the wound along with the tetanus bacillus. Thus *Bacillus aerogenes capsulatus* of Welch is frequent in the feces of horses and in soil which seems most often to give rise to tetanus. Even ordinary street dirt and dust is very frequently contaminated with this organism. Three of four fatal cases of tetanus recently observed by the author were also infected by this malignant organism. It was present in the pus from the local wound in all three cases, and in two it was isolated from the heart's blood after death. Death in all three cases was probably caused by this organism rather than by tetanus. In the fourth case, *Bacillus welchii* was not found, but again it played an important role in the fatal outcome. In the fourth case the local pus and the heart's blood showed a streptococcus. It has been shown that the virulence of the tetanus bacillus itself for experimental animals can be greatly increased by the presence of other pathogenic bacteria. The author observes that prognosis varies more or less with the duration of incubation, a fact which is in large measure due to the nature of the contaminating organism. Of greatest importance is prompt and thorough surgical treatment of the local wound, to avoid absorption of tetanus toxin, and to prevent or minimize multiplication of other organisms that may be present.

Treatment by Electrolysis of Cystitis.—Charles Russ has the patient void urine, after which a special catheter is passed into the bladder, but without lavage. A few ounces of fluid are introduced. Then a glass tube is attached to the free end of the catheter and supported in an upright position, thus making a fluid system of the catheter, tubing, and bladder. A lint covered metallic band is placed around the body at the hip level and connected to one pole of the battery. The other pole is connected to a platinum wire, which is passed down the catheter, conveying the current through the fluid to the interior of the bladder. Thus an electrochemical action is brought to play upon the bacteria in the bladder and upon the vesical walls. The slight distention of the viscus with the fluid serves to smooth out the folds and permit of better exposure of the organisms. The treatment lasts from an hour to an hour and a half at each application, and the patient is entirely unaware of the passage of the current. The results are excellent, the most striking being prompt relief of the frequency of micturition. In addition there is destruction of bacteria, phagocytosis is promoted, and there is increase of opsonins in the urine. The effects seem to be lasting.

Periosteal Whitlow.—Hughes R. Davies cites the old observation of Allingham that the distal phalanges of the fingers have no true periosteum, and that new bone might be expected to form in the cellular tissues about the cavity after the loss of the distal portion of the phalanx, aided by the remaining epiphysis. In confirmation of this interesting speculation, Davies reports the case of a man who lost the greater part of the distal phalanx of his second finger by necrosis from infection. Expectant treatment, combined with the mechanical removal of a large fragment of necrosed bone led to ultimate recovery from the infection. Two months later "surprising stiffening of the flaccid phalanx was commencing." A radiograph at this time showed the beginning reformation of the phalanx. Three months later a radiograph showed that the phalanx had been almost completely regenerated.

THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

October, 1914.

Myasthenia gravis.—R. Osborn Smyth gives a brief description of this condition and reports three cases which he observed. There is no wasting of the muscles and they show a definite electrical reaction. The disease affects the muscles which are most constantly in use—those of the eyelids, mouth, tongue, and palate. This leads to ptosis, strabismus, diplopia, difficulty in mastication, and whistling and impairment of speech. The neck and trunk can be affected, but it is rare for the disease to start there. In many cases respiration is embarrassed. The most common mode of death is from respiratory failure. Patients having this disease must be guarded very carefully against lung trouble. When it affects the upper extremity the first thing the patient may notice is a change in the handwriting. When the lower extremity is affected the gait becomes waddling and the legs are liable to give way suddenly. The sphincters of the bladder and rectum are never involved. A tetanizing faradic current applied to the muscles produces a brisk contraction at first, which quickly fades and ceases to appear on applying the electrodes again after a rest of a minute or two. This reaction is not constant. There is no pathological change which is present in every case. A finding which is noted in a good many cases is the presence of collections of cells, which are clearly lymphocytes, clustered among the muscle fibres. They do not invade the muscle cells and rarely cause degenerative changes. The term lymphorrhages has been given to them. The disease is probably of toxic origin and the seat is in all likelihood central. Prognosis is bad; treatment unsatisfactory. One case showed temporary improvement under thyroid extract; another was greatly helped by tuberculin.

Pancreatic Disease.—Etienne J. Malherbe states: Etiology of pancreatic diseases is not known with certainty. They are probably caused by bacterial infections. Childbirth and disorders of the biliary system have been put down as causes. The diagnosis is very difficult; certain conditions help. These are a change in the feces, epigastric pain, continuous vomiting, and a tumor in the pancreatic area. The attacks are usually sudden

in onset and are accompanied by extreme pain, vomiting, and collapse. In twenty-four hours a circumscribed epigastric swelling appears and there is a slight elevation of temperature. The pancreatic region is tender and there may be tender spots throughout the abdomen. The attacks usually occur in patients who have been healthy up to that time or who have suffered from occasional attacks of indigestion. The fact that so few cases have been diagnosed before operation is probably because this condition so closely resembles intestinal obstruction, or acute peritonitis following gastric or duodenal perforation. The author reports four cases operated in by Ramsay. In none had a definite diagnosis of pancreatitis been made, exploratory laparotomy being performed in all. Instead of draining the pancreas through the abdomen as heretofore, Ramsay of late has been doing it from an incision in the flank working gradually toward the pancreas behind the peritoneum. It proved successful in a few cases.

GLASGOW MEDICAL JOURNAL.

October, 1914.

Neosalvarsan in Mental Deficiency.—Findlay found that a positive Wassermann was obtained in fifty-eight per cent. of a series of mentally defective children examined by him. He is of the opinion that salvarsan helps these cases as well as cases of syphilis affecting other parts of the organism, and the fear of inducing encephalitis has not prevented him from using this measure in the treatment of these conditions. If left untreated they are hopeless, and even a fair amount of success outweighs an occasional accident. He used it in cases of mental deficiency and felt that if successful the true syphilitic nature of cases of idiocy which give a positive Wassermann but present no specific stigmata would be substantiated. He reports four cases treated with neosalvarsan in the form of intramuscular and intravenous injections. The patients showed improvement in every case, although no cure was effected.

Practical Points in Abdominal Surgery.—D'alziel describes a condition seen early in life which consists in a thickening of the pyloric ring, which may be felt as a tumor. There may be dilatation of the stomach or the organ may be normal. It is accompanied by vomiting, and unless operation is performed, the child dies within seven or eight weeks. The operation consists in making 'a longitudinal incision down to the mucosa and drawing the wound apart so that it is converted into a transverse wound which is then sutured in this way. These cases usually do well for a year or two, but in about half of them the symptoms recur and a gastroenterostomy is usually required. Hourglass stomach is usually an acquired malformation, the result of cicatrization following extensive ulceration. The symptoms are those of chronic ulceration and pyloric obstruction. Congenital dilatation of the stomach occurs; also dilatation from overeating. Dilatation as a result of tetany is quite rare. That form of dilatation which follows operation requires careful attention. It is usually accompanied by vomiting of dark fluid. The treatment for this condition is repeated lavage

of the stomach. In some of these cases tetany is seen. Probably the best operation is posterior gastrojejunostomy. The only complications after this operation which cause anxiety are the occurrence of ulceration at the margin of the opening and bilious regurgitation. It can be cured by permanently occluding the pyloric orifice.

CANADIAN MEDICAL ASSOCIATION JOURNAL

October, 1914.

Vascular Crises and Angiospasm.—Arthur Birt is of the opinion that vascular crises are probably of very frequent occurrence and best explain a great variety of clinical signs and symptoms in so called functional and organic disease. A complex mechanism underlies their production, which study of the vegetative nervous system, and of the inter-actions of the ductless glands, will in due time make more easily understood. They give rise to phenomena which are transient yet tend to recurrence. These may be in the nature of pain, or of disorders of function, motor, sensory, or secretory, single or combined. The newly developed pharmacological and physical tests of the integrity of the vegetative nervous system, and of the use of nitrates, will prove helpful in recognizing these conditions.

Paroxysmal Tachycardia.—W. F. Hamilton reports four cases and gives the following clinical features as diagnostic: 1. Sudden onset; in but a few seconds the rate of the heart beat may be double the normal rate or much higher. 2. Regular rhythm of the pulse. 3. Sudden offset; the pulse rate becoming normal in a few seconds, with equally sudden relief from any discomfort that may have existed, such as a tightness about the chest, slight dyspnea, etc.

Antityphoid Inoculation at the Winnipeg General Hospital.—Sydney J. S. Peirce concludes that formalin killed vaccine is of potency at least equal to that of the heat killed vaccine; that full immunizing doses of antityphoid vaccine are well borne by young women; and that by the systematic application of typhoid inoculation institutional typhoid can be got rid of.

BOSTON MEDICAL AND SURGICAL JOURNAL.

November 5, 1914.

Forlanini's Artificial Pneumothorax.—Gerardo M. Balboni gives the history of this procedure, indications, contraindications, and technic. The un-compressed lung, if healthy, or if it contains a healed or even an arrested process, may be perfectly able to carry on the necessary respiratory exchange, provided the pneumothorax is produced gradually. The same is true sometimes when this lung is extensively diseased, but whether this is possible in any particular case depends largely on the location and nature of the lesions, the activity of the patient, and the manner in which the pneumothorax is established and maintained. As regards the heart, he says that in general, patients bear marked cardiac displacements without ill effects, especially when the pneumothorax is produced gradually and the pressure is not excessive. Doubtless there are patients without cardiac lesions who could not stand the formation of a pneumothorax because of the re-

sulting circulatory disturbances, and the condition of the myocardium in individuals who have suffered long and are in bad condition on account of the autointoxication and fever, may more readily give rise to trouble. The pleura, as time goes on, loses some of its absorbing power because of the structural changes that take place. Its nutrition is interfered with, and, in all cases where the pneumothorax is allowed to become absorbed, the pleural surfaces will adhere wherever they come in contact, and so prevent the reinstitution of a pneumothorax. As the diaphragm is pushed downward during the treatment, temporary gastric disturbances may be caused, but a more important point is that pneumothorax may favor the progress of a dormant intestinal tuberculosis. On the onset of severe intestinal symptoms treatment should be suspended. With regard to its effect on extrathoracic tuberculosis, he says that just as the diminution of toxic absorption creates a condition favorable to cure or symptomatic relief in certain cases of pulmonary tuberculosis, it may also exert a favorable influence upon extrathoracic tuberculosis.

Asthma in Children; Its Relation to Egg Poisoning (Anaphylaxis).—Fritz B. Talbot says with regard to the treatment that when the diagnosis is made, one of two courses may be pursued: Either all egg may be excluded from the diet, thus removing the cause of the asthma, or the patient may be immunized to egg albumin. The latter seems to be the more logical, for it is a hardship to grow up unable to eat eggs, and it is almost impossible for persons of this type absolutely to exclude eggs from their diet when they dine at any other table than their own. Small doses of egg white should be given in capsules, the dose being gradually increased until the patient is immunized. Great care should be taken to start below the limit of tolerance and gradually to work up from this point. Usually it is safe to commence with one mgm. of egg white a day, but occasionally even this dose is too large.

Transfusion in Morbus hæmorrhagicus neonatorum.—Robert M. Green presents the following conclusions: 1. Transfusion is a procedure of definitely established specific curative value in the treatment of hemorrhagic disease of the newborn. 2. By its use the mortality of this disease has already been reduced from fifty to ten per cent. 3. A probable further reduction of mortality may be expected in the future from its prompt and universal application. 4. Successive improvements and simplifications in the technic of transfusion have now made its performance possible by surgeons of average training, experience, and skill. 5. Of all the methods thus far devised, that of Kimpton seems distinctly superior in certainty, speed, and ease of accomplishment. 6. Even with transfusion, the prognosis in the rare cases of hematuria is apparently much worse than in any other form of bleeding. 7. The greatest present need of further investigation in hemorrhage of the newborn is into the knowledge of its probably syphilitic etiology.

Three Methods of Sputum Examination.—Rudolph Ertischek discusses the direct smear, the antiformin digestion, and the salting method of Davis. The latter he considers a valuable addition to the other methods of preparing sputum for the

diagnosis of tuberculosis, but it should not be used to the exclusion of the direct smear and antiformin methods.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

November 7, 1914.

The Education of Health Officers, by M. P. Ravenel.—This paper was abstracted in our issue for June 27, page 1311.

Chronic Focal Inflammation of the Nose, Throat, Mouth, and Ear, by J. C. Beck.—This paper was abstracted in our issue for July 4th, page 53.

The Fauical Tonsils as a Gateway to General Infections, by N. L. Wilson.—This paper was abstracted in our issue for July 4th, page 53.

The Present Teaching of Psychiatry in American Medical Schools, by Ross Moore.—This paper was abstracted in our issue for July 4th, page 51.

The Ideal Course in Psychiatry for Medical Schools, by H. D. Singer.—This paper was abstracted in our issue for July 4th, page 51.

Hospital Ventilation from the Point of View of the Clinician.—J. A. Miller remarks that the attitude of the clinician to artificial ventilation consists in approaching as nearly as possible outdoor conditions, that is, open windows. Yet open air, with its variations, when admitted to the wards, may not always have the desired condition, and its distribution in a ward may be most difficult. In winter a heating system is always necessary, and ventilation is a natural corollary of the heating problem.

Cyst of the Left Cerebral Hemisphere; Preoperative and Subsequent Symptoms.—C. M. Remsen says the interesting points were: 1. The history, which suggested the hemorrhagic destruction of brain tissue with aphasic symptoms, followed by an increase in the symptoms which indicated a progressive, growing lesion. 2. The rapidity with which the motor and sensory disturbances became evident. 3. The drainage of the cyst by a subdural route made necessary, in the operator's desire to avoid external drainage, by the jellylike consistence of the brain tissue, which absolutely precluded the possibility of manipulative procedures in this region. 4. The accumulation of fluid under the dura at about the sixth week, as demonstrated through the trephine holes and the associated psychic and sensory motor disturbances. 5. The absorption of this fluid, with a consequent improvement in the repressive symptoms noted with the previous accumulation. 6. The complete disappearance of the Jacksonian epileptic attacks and of the dragging of the foot, the striking improvement in the motility of the right hand, the marked diminution in the aphasic symptoms, and the betterment, often striking in character, of the sensory, stereognostic, apraxic, ataxic, and position sense disturbances.

Diagnosis of Epilepsy.—L. P. Clark thinks it obvious that in a given case of epilepsy which shows nothing of the epileptic constitution, and no physical nor mental deterioration, one should consider it with the greatest care in the light of our knowledge of affect epilepsy or of psychogenic

convulsions in a neuropath. One also should remember that a few cases of dementia præcox have epileptoid attacks. In brief, it may be stated that psychoneurotic episodes are differentiated from ordinary types of so called genuine epilepsy in that the former are symptomatic expressions of incompletely repressed and painful affections, having greater constancy, are often prevented or repressed purely by suggestion, may be displaced or prevented by psychoanalysis, and are usually unfavorably influenced by sedatives. The amnesic episodes are purely functional, and intelligence tests show no defects.

Tumor of the Crus cerebri.—J. H. W. Rhein describes a case of this rare occurrence and states that its characteristic symptom complex is said to consist in a hemiplegia on the opposite side to the lesion, associated with oculomotor palsy on the same side. But in fourteen of eighteen cases collected from the literature, and including the author's, the hemiplegia was associated with oculomotor palsy on both sides in nine patients, and only in five was this palsy unilateral. The close proximity of the two nuclei of the third nerve explains the frequency of the involvement of the oculomotor nerve on the opposite side. In rare instances the paralysis and oculomotor palsy may be on the same side. The hemiplegia is gradual in onset, and is usually associated with spasticity.

MEDICAL RECORD.

November 7, 1914.

Albumin in Sputum and Its Relation to Pulmonary Disease.—G. R. Callender makes the following statements: 1. Albumin is not present in the sputum in all cases of active pulmonary tuberculosis. A case has been considered active if clinical signs indicated it and if bacilli were found within one month of the examination for albumin. As a corollary to this conclusion it may be said that the proportion of negatives in the active cases is sufficient seriously to affect the value of the reaction from a diagnostic standpoint. 2. An increase in globulin, accompanied by a decrease in albumin is a favorable prognostic sign. 3. Albumin is present in the sputum in cases of pulmonary syphilis, and is therefore not a means of differential diagnosis between that disease and phthisis. 4. As a rule, though there are exceptions, the albumin content corresponds to the amount of activity. 5. Fibrous cases with moisture, but no active tuberculosis in the lungs, do not show appreciable amounts of albumin in the sputum. Thus the determination of albumin may be of aid in the differential diagnosis between moisture due to tuberculous activity and that due to other causes. It seems to the author, from the diverse results met with, that it must be concluded that for diagnosis, direct or differential, albumin in the sputum, either quantitatively or qualitatively determined, while possibly acting to substantiate other methods, is of very little value alone. As in many other reactions, a positive result is of more value than a negative.

A Study of 150 Cases of Twilight Sleep.—J. Heller presents this report, remarking that the technic practised at Freiburg was followed without deviation. In summarizing the results he states that

in 122 cases, or 81.3 per cent., he succeeded in obtaining a complete amnesia and an almost equal degree of analgesia. All that occurred during the time the patient was under the influence of the drugs was wiped out of her memory. In thirteen, or 8.7 per cent., he got analgesia without amnesia; these were started somewhat too late. In his opinion, amnesia, while present in the great majority of cases, is not essential. The analgesia case without amnesia seems to him the more ideal, for not only does that labor appear more natural, but the patient can make good use of her abdominal muscles to shorten its duration. In fifteen cases, or ten per cent., he failed to obtain any marked results. With present experience it is quite possible to reduce the number of failures to a smaller figure, but, since the sensitiveness of the nervous system varies in different individuals, as does the susceptibility to drugs, there will always be some cases which will not be influenced by the drugs unless these are carried beyond the point of safety. There were 152 children (two of the births being twins), and not one was stillborn, that is, failed of respiration. Three, however, died within a short time after birth. One, in the eighth month of gestation, with a spina bifida, died three hours after birth; a second died three days later from melæna neonatorum with a family history of bleeders, and the third one from subdural hemorrhage. No post mortem examination could be obtained, but even if we should credit this death to twilight sleep, the child mortality, 0.6 per cent., would compare more than favorably with the ordinary fetal mortality of 1.5 per cent. The author regards his small series as proving that, judiciously used, the method is capable of relieving pain in ninety per cent. of cases, and that it is free from any danger to life or health of mother or child.

Tonsillar Infection.—Beverley Robinson says we should conclude that in the diseased tonsil is found the direct cause of some acute and chronic affections. To some writers an acute inflammation of the tonsils, as of the appendix at times, indicates clearly, separately or combined, a rheumatic cause. In both diseases salicin, or the salicylates, often have marked efficacy, and, in both, certain hygienic preventive measures can be used effectively. In a measure, both tonsillar disease and appendicitis are prevented by sufficient regular fecal evacuations. The tincture of iodine, pure or diluted, applied to the tonsil at the beginning of an acute attack may be beneficial as a disinfectant and counterirritant, and, applied over the appendicular area when slight local pain exists, is probably useful at the time by reason of its resolute and other effects. Robinson still retains considerable faith in the use of guaiacum in acute tonsillitis, preferably in lozenge form, and locally he places great reliance on tincture of perchloride of iron and glycerin, one dram to the ounce, applied several times a day to the tonsils, pharynx, and uvula. Between the applications he advises the use of Wadsworth's mouth wash, the efficacy of which he attributes largely to its alcohol, and he recommends highly its employment as a gargle as a preventive measure against tonsillitis. When the tonsils are not only chronically enlarged but also diseased, other local measures having proved insufficient, they should be operated

upon; but he is opposed to the radical extirpation of the whole tonsil, and is confident that in many cases the excision of a portion is preferable.

LANCET-CLINIC.

November 7, 1914.

Enlarged Thyroid and Adrenaline.—Harry J. Phillips has used adrenaline in the treatment of enlarged thyroid. The solution used was one in 1,000 and the dose given varied from fifteen to forty drops three times a day. He reports six cases, all of which were improved. He concludes that adrenaline slows the heart and adds strength to its beat; the arterioles of the thyroid are contracted and the amount of blood in the enlarged gland is reduced; the nervous phenomena accompanying enlarged thyroid are removed. Adrenaline probably supplies a secretion which is deficient in the diseased thyroid.

Recovery after Perforation of the Stomach.—J. Henry Schroeder reports the case of a patient who had been treated medically for gastric ulcer for a period of five years with no improvement. Surgical treatment had been refused. A sudden attack of violent pain followed in a short time by collapse showed that perforation had taken place. Surgical treatment was advised, but was declined. The patient was kept quiet, ice applied to the epigastrium, and morphine and strychnine administered hypodermically. No food of any kind was given for a few days. Then water in teaspoonful doses was given for two days, at the end of which times the whites of eggs and whey were given. After ten days peptonized milk was allowed. Vomiting took place, but it was controlled in a short time by the administration of bismuth subnitrate in teaspoonful doses and a return to the smaller articles of food. The subsequent treatment resembled that of a gastric ulcer and the patient recovered and is in good health.

Dermatitis herpetiformis with Pigmentation and Keratosis.—Moses Scholtz gives the history of a patient who complained of generalized burning and itching for a period of nine years, symptoms which began shortly after the removal of tuberculous glands of the neck. The treatment had not been satisfactory, the patient apparently obtaining the best results from the use of Fowler's solution, which he took in doses up to fifteen drops three times a day. The skin showed numerous scratches and inflammation, especially on the back, buttocks, hips, chest, and abdomen. The eruption consisted of papules and vesicles of irregular shape distributed in circular grouped formations. The lesions were surrounded with hypere-mic, inflammatory zones, but there was no tendency to coalescence or spreading by continuity. The mottled skin was due to a general diffuse pigmentation with intervening small white spots. The skin of the hands and feet was dry and thin and showed numerous keratitic warts suggesting atrophic degenerative dermatitis. The diagnosis of dermatitis herpetiformis of a vesicular and bullous type was made and the pigmentation of the skin explained by the administration of arsenic over a long period of time. The arsenic was also responsible for the atrophic and degenerative

changes in the skin of the hands and feet, which were somewhat similar to changes produced by the x ray. The pathogenesis of this disease has not been definitely established, the two most generally accepted theories being that it is either due to an intoxication or that it is the result of vasomotor disturbances. As neither theory has been proved, the treatment is of necessity symptomatic, local and general, and arsenic, strychnine and quinine have been found to give the best results. Treatment along serological lines has been carried out by the Germans, who have obtained improvement in itching dermatoses from intravenous, hypodermic, or rectal injections of modified salt solution or autogenous blood serum.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF
WOMEN AND CHILDREN.

October, 1914.

Anatomical Study of a Very Early Tubal Gestation.—Caturani deals particularly with the question of decidual reaction in ectopic gestation and by means of numerous photomicrographs brings out the mooted points. As a result of his studies he believes that there are enough definite features regarding the formation of the decidua to convince one that there is no reason to hold that this process is any different in the tube from that in the uterus. Allowance must be made for some variation on account of the anatomical peculiarities of each of the two mucous membranes. There is, evidently, a definite attempt to differentiate the decidua into serotina, reflexa, and vera.

Pituitary Extract in Obstetrics.—Druskin calls attention to the fact that during pregnancy the pituitary gland becomes enlarged, reaching at the end of pregnancy almost double its original size. After pregnancy involution takes place, but the gland never again shrinks to its original size. The author reports thirty-four cases, in which he used pituitary extract. The extract, like any other therapeutic agent, must be used with discretion and judgment; its use is safer than any operative procedure in obstetrics, consequently no forceps, no pubiotomy, no Cæsarean section in the lesser degrees of pelvic contractions, no forcible dilatation of the cervix should be tried without previous use of pituitary extract. The third stage of labor is always shortened by this preparation; no Credé nor manual separation of the placenta should be attempted without it. The best method of administration is intramuscular. The injection is not accompanied by pain and the effect is prompt.

Scopolamine-Narcophin Seminarcosis in Labor.—Harrar and McPherson, in earlier attempts, used scopolamine and morphine not only for the initial dose, but for succeeding doses. Bad results were due to excessive doses, to unstable and deteriorated preparations of scopolamine. The authors conclude that this is a valuable method of abolishing recollection of the ordeal of labor in from sixty to seventy per cent. of cases. There are certain limitations. In the ward service of a large hospital it is only in a fraction of the total admissions that scopolamine seminarcosis is feasible. Patients many times come in too far advanced in labor and often

the resident staff is too busy to give the case the prolonged personal attention that is necessary. The method is proper in general practice only in private houses, where the finances of the patient permit the transfer of a complete working force to her room for the entire duration of labor.

The Use of Scopolamine in Obstetrics.—Rongy reports 125 consecutive obstetric cases; the method is one that should be given a fair trial. See JOURNAL for September 26th, p. 619.

AMERICAN JOURNAL OF ORTHOPEDIC SURGERY.

July, 1914.

Structural Scoliosis.—Albert H. Freiberg, David Silver, and Robert B. Osgood, the committee elected to investigate the results of the treatment of structural scoliosis by the newer methods, present their report stating that the various methods differ only in the position in which the trunk is fixed, the method of applying the force, and the degree of force used. They offer the following summary: 1. Overcorrection of the deformity is apparently possible by means of Abbott's method in moderately severe cases and perhaps occasionally in severe cases. 2. If sufficient overcorrection is not secured, or is not maintained long enough, partial or complete relapse usually follows rather rapidly the release from the corrected position. 3. The period of retention in overcorrection necessary for a cure is longer than formerly stated; just how long cannot now be said. 4. Abbott's method has apparently given much better results in his own hands than in others, although his technic appears to have been carefully followed. 5. Forbes's method is apparently successful in overcorrecting rotation in some cases; the effect on the lateral bend has not yet been determined, nor has it been shown that the improvement as regards rotation can be maintained. 6. The method of Lovett and Sever shows no decided gain over older methods. 7. A longer period of study and the inspection of a larger series of cases by the committee is desired in order to determine accurately the value of the newer methods.—Jacques Calvé (of Berke), with the collaboration of Lamy and Galland (of Paris) presented some preliminary observations on scoliosis. They mentioned the movements of rotation of the vertebral column, more particularly of their amplitude according to the location of the vertebra; of the effect they appear to have on the formation of scoliosis and the therapeutic information which can be obtained from them. They stated that rotation of the cervical and upper and middle dorsal region is free and great; of the lower dorsal region, difficult and limited; and of the lumbar region, none at all. They discussed, in particular, Forbes's method of treatment and bring forth a new interpretation of its action.—A. Mackenzie Forbes, of Montreal, contended that a pathological scoliosis, with its organic change in the bones, cartilages, ligaments, and muscles of the trunk, cannot be cured by the production of a reverse physiological scoliosis alone, "but that this must be maintained in order that changes may take place in the individual vertebræ according to the law of Wolf." He further holds that some additional method of treatment will have to be used in

conjunction with the production of the physiological scoliosis to reduce the deformity of the individual vertebræ. He suggested that pressure be used at the angle or posterior to the angles of the ribs at the place of the greatest convexity of the organic curve and counterpressure exerted on the anterior rib protuberance of the opposite side.—Edville G. Abbott, of Portland, Maine, replied to some criticisms made by Adams on the mechanism in the application of a plaster jacket according to the method which bears his name. He showed by means of diagrams and figures how he flexed the spine, how and where he used force to straighten the curve and to procure rotation, and endeavored to prove that Adams's conclusions are incorrect.—Z. B. Adams discussed the frequent occurrence of anomalies of the lumbar and sacral spine in scoliosis. In the x ray examination of fifty-four consecutive cases of scoliosis there were forty-four which showed some bony defect of the lumbosacral region. He dwelt on the mechanics, diagnosis, and treatment of some cases. He advised a careful x ray examination of the spine, including the lumbosacral region of all the cases, and if any anomaly is present, to correct that first, if possible, by operative or other means.—M. S. Henderson pointed out in his paper that bifurcation of the transverse process of the last lumbar vertebra is relatively common but probably rarely causes symptoms. He reported seventeen cases recorded in the Mayo Clinic during the past two years, only three of which gave any symptoms, the remainder being accidentally discovered.—Howard L. Prince, of Rochester, N. Y., stated that by "the Abbott method of treatment mild, moderate, and many severe cases of scoliosis can be untwisted and overcorrected by one who has mastered the art of applying these jackets. The success will vary directly with the degree of such mastery." He remarked that the time of active treatment will vary, and that there will be permanent cures.—C. H. Bucholz and R. B. Osgood presented an apparatus or frame for standardizing photographic records of scoliosis. The frame is simple and easily used. They insist that "in the patient's back or front view the plane of the patient's back or chest bear in successive photographs the same relation to the lens and plate; in the view to show rotation, usually taken in forward bending, the bend must always be exactly the same extent, if we are to obtain photographs of the slightest comparative value." They also advocated the use of the stereoscopic camera.—C. Herman Bucholz, of Boston, stated that the so called sciatic scoliosis is a complex problem and that both the sciatica and scoliosis are merely symptoms. He described a classification from the viewpoint of etiology and deviation present.—S. Kleinberg, of New York, reported a series of sixty cases of rigid scoliosis treated by the Abbott method. Of these patients, eighteen gave up the treatment, eight were not improved, and thirty-four were better in external appearance, with or without a corresponding change in the spine itself. Six of these latter cases relapsed. The writer concludes that the method is applicable to the milder degrees of rigid scoliosis.

ARCHIVES OF THE RONTGEN RAY.

October, 1914.

Cerebral Electrization.—Leduc states that the action of electric currents on the brain is quite free from danger and that the endocranial organs are most accessible to electric currents. The brain reacts differently from the cranial nerves. The reaction may last for several hours, long after the stimulation has stopped. The continuous current is the best and its effects are best known. The active electrode, usually the cathode, should cover the forehead completely. The other electrode is placed on the back. The strength of the current should be increased gradually from 0 to 20 to 30 milliampères, kept at its maximum for about thirty minutes, and then gradually diminished. It has proved useful in inflammation of the brain subsequent to hemorrhage, thrombosis, embolism, and contusion. Striking improvements in psychical and physical defects have been noted. It is also indicated in psychasthenia, mental depression, and cerebral neurasthenia. A warm solution of salicylate of sodium should be used on the forehead as cathode and two or three treatments of half an hour each should be given every week, using a current of 20 milliampères. The results are disappearance of headache; mental work becomes easier, and the power of concentration and the control of thoughts are regained.

Gastric Borborygmi.—Barclay has been able to locate the exact mechanism of the production of the sounds. Normally the movements of the diaphragm are automatically compensated by a contraction of the gastric walls, which causes the organ to become a little wider without, however, shifting its lower border to any appreciable extent. In an atonic condition of the stomach the greater curvature sags down to below the umbilicus and the foodstuff falls into the lower part, the walls of the organ coming in contact a few inches below the level of the cardiac orifice. This collapsed portion separates the air in the fundus from the food stuffs. In atony the entire organ moves with respiration. In inspiration some of the air is cut off by the collapse of the walls in the middle of the stomach. On expiration, this air is again freed from pressure and bubbles over the left kidney between the collapsed and moist walls and gives the characteristic sounds; they can be stopped by pressure on the lower abdomen.

X Rays and Radium in Malignant Growths.—Hernaman-Johnson states that it has been proved by clinical experience that in cancer of the mucous membrane, the insertion of thickly screened radium gives better results than does the application of the x rays. The x rays are not useless in this condition, however, and should be applied from the outside as an adjunct to the radium tube. The x rays help to hold the disease in check in the absence of radium treatment.

INTERSTATE MEDICAL JOURNAL

October, 1914.

The Scaphoid Scapula (Graves) and the Duration of Life.—The following is a summary of the studies of V. Kollert on this subject: 1. The scaphoid form of scapula, characterized by a concave median border and an angulus inferior lying in the

perpendicular below the central point of the spina, is an abnormality originating in intrauterine life. The form of the bone at birth remains, in general, unchanged in afterlife. 2. It is the sign of a congenital inferiority; those having it mostly die in early years. 3. The morbidity from tuberculosis is great in persons with scaphoid scapula, the acute forms of the disease seeming to predominate. 4. Between the normal type and the abnormal form of scapula there are transitions which may be a source of error in classifying a given case.

Nondiabetic Glycosuria.—S. Strouse advises that, from the standpoints of both practical therapeutics and strict science, every patient in whose urine a reducing body is found should be individually studied. Careful analyses of the further chemical reactions of each reducing body will often show that the reducing body is not glucose, and that the condition is a comparatively rare anomaly in clinical chemistry. In addition to urine study, careful clinical observation will often exclude diabetes mellitus.

Open Safety Pin in the Esophagus.—G. W. Mackenzie reports that efforts to remove the pin proved unsuccessful and the patient, an infant of seven months, sank into rapid collapse and died half an hour later. 1. In view of the experience of others in removing foreign bodies from the esophagus weeks, and even months, after their lodgment, there need be no hurry in any case which does not present alarming symptoms. If the esophagus is too small to accommodate both the tube and extractor, and yet permits the eye to see the pin, it would be better to make use of the fluoroscope. In a child so young as to render it quite impossible to grasp and close the pin, it is better to use some suitable forceps, to engage the ring, push the pin into the stomach, invert it, and bring it out with the point directed downward. Ether is quite a safe anesthetic for esophageal operations in children, perhaps the more so if insufflated with the Elsberg apparatus. An eight mm. esophagoscope is too large for a child of seven months. In this instance there was a tear in the esophagus for which the author thinks the eight mm. tube was more responsible than the pin itself. With a sharp tenaculum forceps it is possible, especially when working by the sense of touch alone, to grasp the mucous membrane and be misled into believing that the pin is engaged. A far safer plan is to see what one is doing, and work with a dull pointed instrument. Do not trust to a skiagraph taken several hours before operating, as the pin may have shifted its position.

LONG ISLAND MEDICAL JOURNAL.

October, 1914.

Pernicious Anemia with Gastric Cancer.—Harris A. Houghton and his associates present the case record of a man sixty-six years old, suffering simultaneously from these two conditions. The case affords a rare opportunity for the discussion of the relation of cancer to anemia of the progressive pernicious type. In this instance there was reason to believe that the pernicious anemia antedated the cancer; and doubt is expressed by the authors as to whether uncomplicated cancer of the

stomach is ever capable of initiating a true pernicious anemia. The assumption seems warranted that some factor other than the cancer was the underlying cause of the anemia. Bacteriological examinations of the stools of this patient tended to confirm this view, for the findings were those typical of uncomplicated cases of pernicious anemia, that is, a preponderance of Gram positive organisms. It is remarked that, in the absence of one of the macroendoparasites, such a preponderance is usually present in such cases of anemia. It is possible that the cancer may produce conditions, however, which favor the change in the intestinal flora, and that the floral change is, in itself, the cause of pernicious anemia. The relative ascendancy of *Bacillus aerogenes capsulatus* is of prime importance. This organism is capable of attacking the protein molecule with partial decomposition. The decomposition is then carried further by the colon bacillus, which grows in symbiosis with the former organism, and which liberates toxins, leading to blood destruction. Among these toxins are the aromatic sulphur bodies, and in the case in hand these were found in enormous amount in the urine. Indol is formed under anaerobic conditions by the action of the colon bacillus, and the material upon which it acts is provided by the *bacillus aerogenes*. Oxyphenyl-ethylamin is one of the possible resultant compounds, and this substance has been found experimentally to cause a blood picture typical of pernicious anemia. It has further been found that the serum of patients with pernicious anemia is capable of agglutinating the *bacillus aerogenes*. In addition, in this case the x ray showed scybalous intestinal stasis and intestinal deformity, both of which would aid the absorption of toxic products produced in the intestine. The authors suggest, therefore, that this case affords considerable evidence for the support of the view that pernicious anemia is a disease of enteric origin.

Spastic Spinal Paralysis.—Carroll L. Nichols gives the history of a very severe and progressive case of this affection in which there was no obtainable evidence of acquired syphilis. When treatment was begun the patient was almost absolutely helpless and bedridden, and had been treated by almost every method known, including osteopathy and Christian science. At the time when he was first seen, in July, 1911, he was put on ascending doses of potassium iodide, which were rapidly raised to the overwhelming dose of 1,248 grains in a single day. From this time the drug was continued in amounts of 375 grains three times daily, after which it was gradually reduced as improvement continued. To this treatment there were added massage, passive movements, educational exercises, and forcible breaking of adhesions in the joints. On January 1, 1914, the patient was discharged entirely cured.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL.

October, 1914.

Some Unsolved and Debatable Problems in Tuberculosis.—E. O. Otis refers first to the undue emphasis placed upon detection of physical signs in the early diagnosis propaganda, and asks if the tendency has not been to insist too strongly upon such

signs, often slight and indefinite, to the neglect of careful observation and interpretation of symptoms, thereby, on the one hand, causing unnecessary anxiety and disturbance of social and business relations by instituting uncalled for treatment, and, on the other, neglecting treatment because the physical examination was negative, although symptoms of active tuberculosis were obvious. Under what conditions, if any, shall a man or woman who is tuberculous, or who has had tuberculosis, marry and have children? It seems to him that the repeated assertion, that a tuberculous husband and wife should be taught not to procreate a race predisposed to tuberculosis, is too sweeping. How do we know that the children will be so predisposed? The recently published experiment of Brooks on cattle would appear to offer substantial proof to the contrary, reasoning from analogy. The third problem discussed is the question of rest and exercise, and the fourth is, Have we been overdoing, or applying without proper discrimination, the open air treatment of tuberculosis? We cannot compel isolation, and if it were possible, somebody would, in many cases, have to provide indefinitely for the support of the family. So long as such patients remain in active life they desire to conceal their condition, and hence cannot, or do not take all the necessary precautions to render themselves innocuous to others. This is one of the many problems in the prevention of tuberculosis which we have not yet solved.

Artificial Pneumothorax in the Treatment of Lung Abscess.—I. I. Lemann and U. Maes state: Artificial pneumothorax to compress the lung in cases of abscess or bronchiectasis was suggested several years ago. The method does not seem to have met with the recognition it deserves. They report a case in which it was employed with very favorable results, though the patient is still under treatment, and not yet cured.

Cancer of the Uterus Complicating Pregnancy.—P. Michinard says most writers are of opinion that as cancer frequently extends rapidly during gestation, as abortion is of frequent occurrence during the stage of ulceration, the life of the fetus should be ignored, and only that of the woman considered. At this stage, hysterectomy offers more chances for a long immunity than at a later period of the disease. Hysterectomy is recommended up to four and a half months. After that time gestation should be allowed to continue, the woman being examined at frequent intervals. When gestation has gone beyond the eighth month, with the disease even in the first stage, especially if the sides of the cervix are involved, abdominal section and hysterectomy are called for.

SOUTHERN MEDICAL JOURNAL.

October, 1914.

Medicolegal Relations of Pellagra.—J. W. Babcock, referring to the association of insanity with pellagra, states that the history of pellagra abroad is being repeated in this country; among other pressing questions the medical jurisprudence of the disease is one with which the general practitioner, the neurologist, the alienist, and the jurist will have to reckon. In many cases, pellagra and insanity have

coexisted, and in most insanity appears to have followed pellagra.

Spasm of the Pylorus.—G. J. Greil says that in closely studying the literature for the past five years, he has met with more cases of stenosis than of pylorospasm. He thinks some of these were in reality pylorospasm with inflammation of the pylorus, and not hypertrophy. He sums up what appears to be the best treatment as follows: Rest, diet, rectal irrigations, lavage. The diet should preferably be breast milk; if this does not agree, remove a portion of the fat and add lime water. The stomach should be allowed rest by prolonging the nursing period and finding out the amount of milk that is best retained. The next best food is a modification of cow's milk, to which an alkali should be added; then buttermilk may be tried. Drugs do not seem to be of any assistance.

Cerebellar Dysergia from Malarial Thrombosis.—T. A. Williams states that these depend upon the portion of the central nervous system in which the greatest invasion of parasites occurs. The dysergic intention tremor, slow speech, and exaggerated reflexes suggest multiple sclerosis; but against this are the slight progressiveness of symptoms and absence of nystagmus and plantar extension. The syndrome is best accounted for on the ground of multiple thrombosis of the cerebral vessels which occurs in pernicious malaria, as it is called; the necroses resulting have left impaired efficiency, shown by the patient's cerebellar aberrations. Treatment consists in the energetic administration of quinine, preferably by injection.

Proceedings of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, October 28, 1914, at 8.30 p. m.

The President, Dr. WILLIAM DUFFIELD ROBINSON, in the Chair.

Abdominal Pain; Its Significance and Diagnostic Value.—Dr. JOHN B. DEEVER believed that perhaps no better definition of pain had ever been given than the picturesque statement of Agnew, that pain was the language of a suffering nerve. In order to diagnosticate disease they must be able to read the language. At least ninety per cent. of all diseases began with pain or gave rise to it at some time in their course. Ordinarily pain was the result of undue stimulation of nerve fibres by mechanical, chemical or thermal agents. Such pain was objective. There was a type of pain which had no external physical basis. It was a product of disordered mental action. This was subjective pain illustrated in the phenomena of hysteria. Such pain belonged to the domain of the neurologist. It was a confession of ignorance to give to pain a name which had no pathological significance. All the various "algias" should be replaced by terms conveying an understanding of the underlying processes. The surgeon had found the abdomen to be a veritable Pandora's box of troubles which, however, flew away when the box was opened.

No more stimulating example of the discovery of the hidden cause of pain could be imagined than the recent demonstration of duodenal ulcer as the source of a frequent type of gastric pain. The first great obstacle to the appreciation of the significance of abdominal pain had been the belief that most pains in this region were the result of disordered function. The so called neuroses figured largely in abdominal diagnoses, but the surgical era had driven these into a very small field destined to be further circumscribed. The second great difficulty in abdominal diagnosis was the inability of the nervous system accurately to localize sensations received from visceral areas. For the understanding of peculiar manifestations of faulty pain localization they must be familiar with certain modes of nerve action. It was well to bear in mind that pain in the abdomen was *per se* no evidence that the lesion was in the abdomen. Abdominal pain associated with pleurisy or pneumonia, particularly in children, was probably of a reflex nature. Angina might give rise to intense epigastric pain, simulating acute surgical disease of the upper abdomen. It was necessary to be familiar with the various types and degrees of pain that disease of the organs of the upper abdomen might cause. It was in the milder forms and beginnings of disease that the location of pain was of the greatest value. Of all the organs in the abdomen the stomach presented the greatest variety of symptoms and the most difficult to analyze. If general disease of the stomach was excluded, gastric symptoms should prompt a careful and systematic survey of the abdominal organs. Grossly insignificant chronic disease of the appendix might set up pylorospasm with pain, retention, fermentation, and secondary gastritis. It was of the utmost importance to investigate by history and examination of the right iliac fossa, every case presenting epigastric symptoms commonly referred to the stomach. The diseased gallbladder frequently masqueraded as a gastric affection. To make an impression upon students he often said, "Fair, fat and forty, belching gas—gallstone." While a trifle dogmatic, the diagnosis was remarkably often justified. Adhesions were of two types, congenital and acquired. Omental or other adhesions he did not hesitate to sever when found in unusual positions. More extensive operative work involving an interference with a poorly understood physiology and for other indications than obstructive symptoms, was rash surgery. Nature was the most wonderful artist in the removal of adhesions. Obstructive symptoms in any case following operation, or which was believed to have abdominal adhesions, called for immediate surgical operation. Adhesional pain should never be treated with narcotics. At least a year should elapse before operative relief of post-operative adhesions was advised, except in the case of serious symptoms. There was too much morphine used as a routine measure after abdominal operations. When pain made its appearance on the second or third day or later following operation, the conditions chiefly to be considered were simple distention, peritonitis, and obstruction. The most important single feature in differentiation was the character of the pain, whether wavelike and in-

termittent, or steady and associated with tenderness. The pain of distention and obstruction was, as a rule, colicky and wavelike; that of peritonitis, more steady, diffuse, and unremitting. He realized more and more the difficulty of attempting to classify and systematize abdominal pain in its relation to visceral lesions. There was a rough parallelism sufficient in most cases to warn them of the presence of a pathological process and which often gave them much information as to its nature. Often, however, they were obliged to rely upon experience and their knowledge of the probabilities.

Dr. JOHN B. MCALISTER, of Harrisburg, could perhaps best speak on the subject by citing some cases. Not so long ago he was called to see a lady suffering severe abdominal pain and tried to follow the instructions of his teachers in making a careful and accurate diagnosis by placing his hand upon the various points, asking whether the pain was of such and such character. Finally the patient replied rather testily, that it was not that kind of a pain; it was a damned bad pain. She demanded something to relieve it. While that might appear to be a rare character of pain, one not mentioned in Doctor Tyson's textbook, and probably not mentioned by Doctor Deaver, in public at least, it was not really such a rare pain. When they were called to see a patient between midnight and morning, it was pretty often that kind of a pain they had to deal with. They often went home not able to interpret the language of these pains and felt that the patient had pretty well described the pain in the abdomen. In spite of all their knowledge of anatomy and pathology in the abdomen, notwithstanding all their landmarks, exploratory operations for diagnostic purposes would be made. The speaker knew of no way of recognizing the referred abdominal pain occurring at the beginning of pneumonia except by careful diagnosis. Not long ago he was called to see a lady at a bridge party, taken suddenly with severe pain which he felt sure was caused by kidney stone; the pain was as characteristic of renal colic as he had ever known. Operation revealed a fibroid tumor with considerable colloid degeneration. The woman had been in apparently good health until that attack of pain. He could not account for the severe pain except that there might have been a twisted pedicle. Another pain in the upper abdomen which was of supreme importance was that of acute pancreatitis or hemorrhagic pancreatitis. It had been his sad fate to see four of these cases. In the first and second cases the diagnosis was made upon the autopsy table; in the third and fourth the diagnosis was confirmed upon the autopsy table. All were in adults and without history of previous ill health. Acute sudden pain seemed to him to be one of the greatest tragedies in abdominal conditions. He should be glad if they could be instructed, how we can more definitely, from the character of the pain, distinguish between gastric and duodenal ulcer and pancreatic disease.

Dr. J. LESLIE ELLENBERGER, of Harrisburg, was in accord with Doctor Deaver in regarding pain as a beneficent factor. It would seem to be a divine signal given us by a loving Creator as a warning that something was wrong. They should not expect to get rid of pain without removal of the cause,

and in ascertaining the cause the utmost care was necessary. He had seen a case presenting all the typical symptoms of appendicitis upon admission to the hospital, show signs of pneumonia on the following morning.

Dr. JOSEPH SAILER agreed that the abdomen had almost ceased to be the domain of internal medicine. Pain was a subjective affair, something felt by the patient, which they could not measure; and, while experience might give them a proper estimate of the patient's manifestation of pain, they might be deceived by those who exaggerated or underestimated its degree. He agreed that the use of the various "algias" should be discarded, and that with remarkable frequency, pain in the epigastrium meant disease elsewhere. It was astonishing how often patients with valvular heart disease and with tuberculosis of the lungs, came to the physician complaining of gastric symptoms. Only by the most careful physical examination could they detect the true underlying lesion. Acute endocarditis in the early stages might so simulate abdominal conditions that operation might seem imperative. The amount of literature at the present time upon the subject of intestinal stasis with the extravagant claims made by some surgeons was appalling to the internist. The evidence, however, was purely superficial and upon such evidence surgical treatment was unjustifiable.

Dr. WILMER KRUSEN emphasized the necessity of a bimanual examination in all cases of appendicitis to determine whether the appendicitis was co-existent with pelvic disease or whether all the symptoms were due to salpingitis. The pain of ectopic gestation was of such gravity that physicians should be mindful of its possibility in cases of abdominal pain. Then to be considered were the pains associated with neoplasms. In fibroid tumors there was pain from pressure conditions. In no condition in gynecology would pain be so beneficent as in malignancy. The surgeon would welcome the fact that a woman with beginning cancer had pain.

Dr. A. C. MORGAN considered it very important that they differentiate between acute and chronic pain. In a large percentage of cases acute pain constituted a surgical condition calling for prompt action for the saving of the patient's life. He had come to regard the term, dyspepsia, as a very dangerous one, because in the light of their present knowledge they knew this condition was not present, but that the stomach was giving warning of trouble elsewhere. The man who was content with the routine treatment of dyspepsia with *nux vomica*, etc., was careless or ignorant and no credit to the medical profession in 1914.

Dr. JAMES TYSON had been called to see a case of abdominal pain, paroxysmal in character, and with a history of traumatism. The attacks of pain were of slowly increasing severity, resulting in collapse. The abdomen was swollen, and to his inquiry of the location of pain, the patient replied that it was general. Passing his fingers in the region of the appendix, he found evident tenderness, yet there was nothing that was distinctive any more than in the numerous cases of pain which had been described as suggesting gastric ulcer, pancreatic disease, or duodenal ulcer. He had come wishing to

get some light, which illustrated the propriety of meetings like this. He had not yet made a diagnosis of this case and should be very glad if those who were there would help him out.

Dr. S. SOLIS COHEN reiterated the plea of Doctor Deaver that they do not attempt to hide their ignorance by the use of the various "algias." He would not eliminate functional disturbance of the viscus from among those conditions giving rise to pain in the abdomen. That too often organic disease was overlooked from want of careful examination was true, but when careful study had been made, and the evidence pointed to the so called functional disturbance, then the physician was justified in carrying out medical measures. Several times in his experience he had been unable to exclude appendicitis, gallstones, or gastric ulcer without exploratory operation. A better understanding of the great sympathetic nervous system would give them more light upon such cases. Just as this system gave rise to reflexes, such as the pylorospasm, so it gave rise to pain referred to the same areas to which it would be referred without the viscus disease. The disease, however, was not in the viscus, but in the nervous system supplying it. There was such a thing as hysteria, but ninety-nine cases out of 100 called hysteria were something else. In such cases he would advise exploratory operation. He wanted to thank Doctor Deaver for his reference to the comparative frequency with which acute pancreatitis expressed itself as epigastric pain. He had known cases in which death occurred prematurely because the significance of the pain was not realized. To make a diagnosis, one must not study pain or any other symptom alone, but must study thoroughly his patient.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Balneo-Gymnastic Treatment of Chronic Diseases of the Heart. By Professor THEODOR SCHOTT, M.D., Bad Nauheim, Germany, with a foreword by JAMES M. ANDERS, M.D., LL.D., Professor of Medicine, Medical-Chirurgical College, Philadelphia. With 87 Illustrations, including 41 Gymnastic Poses. Philadelphia: P. Blakiston's Son & Co., 1914. Pp. x-191. (Price \$2.50.)

The beneficial effect of the Nauheim treatment of chronic cardiac disease is well known. The present volume of 191 pages expresses Professor Schott's latest position on the questions arising in connection with these procedures. The book contains an appreciative foreword by Doctor Anders. The first chapter is a cursory statement of the newer discoveries concerning the anatomy and physiology of the cardiac muscle, three pages in length. We then have a chapter devoted to general considerations, which is rather discursive and touches on the value of the electrocardiograph, phonendoscopy, polygraphic tracings, sphygmobolometry, plethysmography, the auscultatory method of blood pressure determinations, orthodiagraphy, etc. This chapter occupies five pages. Chapter III is devoted to prophylaxis. Chapter IV considers medical treatment. In Chapter V the true subject matter of the book begins; the physical treatment of chronic diseases of the heart. Chapter VI describes the methods used at Bad Nauheim. Chapters VII and VIII are devoted to investigations of the blood pressure in healthy persons and in cases of cardiac disease. In these chapters numerous blood pres-

sure and pulse curves are published, each illustrating some particular point. They seem to have been made with considerable care. We then have chapters on the retardation of the pulse, methods of making artificial baths, methods of gymnastic treatment, and clinical results. In the last chapter there are some excellent illustrations accompanied by suitable directions for giving the resistance exercises, which have been developed and promulgated by Professor Schott and his brother. One would expect and does find that the effect of the baths given at Bad-Nauheim is extolled above the effect of those given elsewhere. The author admits, however, that artificial baths can be prepared at any place in the world, although he recommends that salts obtained from Bad-Nauheim be employed rather than the ordinary commercial calcium and sodium chlorides.

A Manual of Diseases of the Nose and Throat. By CORNELIUS G. COAKLEY, A. M., M. D., Professor of Laryngology in the College of Physicians and Surgeons, Columbia University; Consulting Laryngologist to the Sea View Hospital, to the New York Infirmary for Women and Children, and to the New York Board of Health; Consulting Otologist to Minturn Hospital, etc. Fifth Edition, Revised and Enlarged. Illustrated with 139 Engravings and 7 Colored Plates. New York and Philadelphia: Lea & Febiger, 1914. Pp. 615.

The new edition of this valuable little work manifests the same high standard as characterized the four that preceded it. As it is intended as a manual for students and practitioners, it has, of course, its limitations for the specialist, although many helpful points can be gleaned from the text, even by the expert. The entire book has been carefully revised, and such changes and additions have been made as have been found practical by the author throughout his vast and unusual clinical experience. Special attention, however, has been shown the practical sections on examination, diagnosis, and treatment. A chapter on therapeutics has been added, and will undoubtedly be of decided value, since the references to the remedies suggested are indicated by the heavier type in the index under the treatment of each disease. The present edition deserves the continuation of the popularity that was accorded its predecessors.

The Intensive Treatment of Syphilis and Locomotor Ataxia by Aachen Methods. By REGINALD HAYES, M. R. C. S., etc. London: Baillière, Tindall and Cox, 1914. Pp. iv-63. (Price 3/6.)

This little volume is a plea for the employment of mercurial inunctions and sulphur baths as the routine treatment of syphilis. Salvarsan is advised, in connection with excision of the chancre, as an abortive treatment; but its use later in the disease is discouraged. The author states that he is in a position to administer the Aachen treatment in London.

The Layman Revato. A Story of a Restless Mind in Buddhist India at the Time of Greek Influence. By EDWARD P. BUFFET. New York: Douglas C. McMurtrie, 1914. Pp. vi-106. (Price \$2.)

The adventures of Revato deal with high and recondite matters, so modern and yet so ancient as to contrast the philosophies of Buddha and Nietzsche. Revato is a young seeker after truth of the third century before our era, and in the form of fiction his experiences are a monument to the author's deep and sympathetic study of the ancient Greek and Hindu theories concerning man's place in the universe, his duties, and his chances of happiness. That the book is intended for beginners in the study of comparative religion and metaphysics is indicated by the author's expressed fear that some of his readers will resent his attribution to Buddhism of certain ethical principles which they feel certain are the exclusive property of Christianity. With singular insight the author has made his hero an example of the neurotic temperament, a type that is eternally worried about abstract beliefs and their relation to his own miserable soul, instead of working calmly and unselfishly from the broad and easily understood formula of Confucius and Christ, that love for one's neighbor is the essence of true religion. The constant use of Sanskrit words to produce atmosphere is rather forced, for example, *vassa* for rain, *vesiya* a courtesan; English would have served. We cannot understand, either, the choice of the awkward quarto form for the volume, which would

have made a neat octavo of some 350 pages. We can promise the reader, however, a most unusual and entertaining book, one that will reward him for his purchase as well as the painstaking author. The scholar's creed is embodied in the question of Diomedes: "Did you suppose, Revato, that any noble thought could exist unknown to Hellas?"

The Practitioner's Visiting List for 1915. Four styles: weekly, monthly, perpetual, sixty patient. Pocket size; substantially bound in leather with flap, pocket, etc. Philadelphia and New York: Lea & Febiger. \$1.25 net.

This visiting list affords a simple and complete system for keeping the doctor's records. In addition to the ruled pages for daily calls and their notes, general memoranda, addresses, cash account, etc., it contains specially arranged spaces for data for permanent record, births, deaths, etc. The value of such records is best appreciated by the physician who has been suddenly confronted by the necessity of producing them after the lapse of years in the absence of an orderly system for their preservation. The record blanks constitute a complete and thoroughly convenient record of practice and effectual insurance against financial loss or an overburdened memory, while the supplementary text constitutes a reference work of equal value in practice or emergency. Among the useful features are tables of weights and measures; comparative scales; a scheme of dentition; incompatibles; poisons and antidotes; directions for effecting artificial respiration; an extensive table of doses; an alphabetically arranged table of diseases and remedies; table of eruptive fevers; instructions for urinalysis; and directions for ligation of arteries.

Interclinical Notes.

The *Outlook* for November 11th discusses editorially the perennial question of the age of retirement. We all remember how the "chloroform at sixty" formula was falsely attributed to Sir William Osler. The *Outlook* points to the advanced age of the officers in the present war, German, French, English, Russian, Belgian, and Japanese. "Bobs" lasted till he was eighty-two years of age and Great Britain now wishes heartily that she had listened to what were regarded as the mere senile outpourings of that distinguished officer. Laughter at Mr. Hobson seems to have been stilled lately in this country. The country's sick would be in considerable distress if they were to be suddenly deprived of the help of all practising physicians over fifty years old.

* * *

Our reference to a trifling grammatical inconsistency in Horowitz's paper on the Ultrascientific School in the November *Popular Science Monthly*, must not mislead our readers into any undervaluation of the excellent quality of the writer's discussion of one of the basic problems of science, to wit, Is the origin of life likely to be discovered by the chemist? Horowitz places Huxley among the ultrascientists for stating that it would be presumptuous to deny at least the possibility of such discovery. We must say that we do not consider as a strong argument against the possibility, Horowitz's citation of Wordsworth's verses in which the poet confessed that the meanest flower that blows gave rise in him to thoughts too deep for tears.

* * *

Dr. Roger H. Dennett begins a series of articles in the November *Woman's Home Companion* entitled *Baby's Schedule*; it consists of everyday talks to mothers and in this issue is confined to advice on diet and sleep for children up to the age of three years. An amusing story in this magazine is *Before He Went to School*, by Bertha Bellows Streeter, which tells how a preliminary education was "sneaked" on to a small boy. Readers of this article may proceed to argue whether it is the acquisition or the possession of knowledge that is most valuable to a boy. Strange as it may seem, there are many advocates of the former theory.

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A brilliant future seems certain for the *Wide World Magazine*, which tells only true stories, when its contributors get ready to describe happenings in the present war. The November issue is quite stirring in its tales of the piping times of peace. The Phantom Brigands, by Frederic Lees, and the adventures of a Norwegian naturalist, Mr.

Koren, searching in arctic regions for specimens for Yale University, as told by W. E. Priestley, are particularly good in their similarity to highly imaginative fiction.

* * *

War and Socialism, by Allan L. Benson, and The Pigs and the Pork, by Judson C. Welliver, we urge upon our colleagues as good and useful reading in the November *Pearson's*. Sloane Gordon's Pills and Piracy we believe to have been written with conviction and the best motives in the world, but its fallacies are laughable; it will not gratify, in its lack of logic, even the most rabid medical opponent of the modern drugstore. We hope that other socialistic articles in this magazine, which we read with interest, are more soundly based.

* * *

The *Metropolitan* for November has a beautiful cover, depicting a young lady of the stage, known as an actress by those who use words carelessly. There is an exquisite picture of Cartaino Scarpitta's statue, The Last Bond, also a timely reproduction of Koberstein's painting, The Son. There is war stuff by John Reed, James Keeley, and Gerald Morgan, and fiction of the highest modern class by Booth Tarkington, Inez Haynes Gillmore, G. K. Chesterton, and others. There is also Anna Howard Shaw's own story of her life. A beautiful issue of an attractive periodical.

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Arabian and Medieval Surgery is a delightful medico-historical article in the *Popular Science Monthly* for November, by Dr. John Foote, of Washington. Phenomena of Inheritance, by Professor Edwin Grant Conklin, is another paper which will interest our colleagues, while Civilization as a Selective Agency, by Roland Hugins, is also within the doctor's scope. Other papers in this number will entertain the physician as a man of general culture. What a pity, that all science is not popular!

Meetings of Local Medical Societies.

MONDAY, November 23d.—Therapeutic Club, New York; Medical Society of the County of New York (annual).

TUESDAY, November 24th.—New York Dermatological Society; Metropolitan Medical Society of New York City; Buffalo Academy of Medicine (Section in Pathology); New York Medical Union; New York Otolological Society; New York City Riverside Practitioners' Society; Valentine Mott Medical Society, New York; Washington Heights Medical Society, New York.

WEDNESDAY, November 25th.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; New York Society of Internal Medicine; Schenectady Academy of Medicine.

THURSDAY, November 26th.—New York Academy of Medicine (Section in Obstetrics and Gynecology); Ex-Intern Society of Seney Hospital, Brooklyn; Medical Union, Buffalo; Hospital Graduates' Club, New York; New York Physicians' Association.

FRIDAY, November 27th.—Society of New York German Physicians; New York Clinical Society; Manhattan Medical Society; Brooklyn Society of Internal Medicine; Italian Medical Society of New York; Academy of Pathological Science, New York; Hospital Graduates' Club, Brooklyn.

SATURDAY, November 28th.—New York Medical and Surgical Society; West End Medical Society; Harvard Medical Society, New York; Lenox Medical and Surgical Society, New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending November 11, 1914:

Clark, Taliaferro, Surgeon. Directed, on the request of the Governor and the State Board of Health of West Virginia, to make an investigation of sanitary adminis-

tration in that State. **Cofer**, L. E., Assistant Surgeon General. Granted one day's leave of absence, November 9, 1914. **Cumming**, H. S., Surgeon. Granted three days' leave of absence from November 9, 1914. **Grubbs**, S. B., Surgeon. Directed, on the request of the efficiency and economy committee of the State of Illinois, to make an investigation of sanitary administration in that State. **Harrington**, F. E., Epidemiologist. On completion of field studies of rural sanitation in Union County, Miss., directed to proceed to Washington, D. C., for temporary duty under Surgeon L. L. Lumsden, in connection with the preparation of reports of investigations of rural sanitation. **Keating**, T. F., Assistant Surgeon. On completion of field studies of rural sanitation in Lawrence County, Indiana, directed to proceed to the immigration station, Angel Island, Cal., for duty and assignment to quarters. **Kerr**, J. W., Assistant Surgeon General. Directed to stop in Chicago, Ill., en route to Topeka, Kans., for conference with the commissioner of health of that city. **Laughlin**, J. B., Assistant Surgeon. On completion of field studies of rural sanitation in Dorchester County, Md., directed to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for temporary duty. **Molloy**, D. M., Technical Assistant. Granted seven days' leave of absence from November 9, 1914, with permission to attend a meeting of the Southern Medical Association at Richmond, Va. **Scott**, E. W., Assistant Surgeon. Relieved from further duty at Ellis Island, N. Y., and directed to proceed to Wilmington, N. C., and assume temporary charge of the Service at that port. **Smith**, J. Holmes, Jr., Assistant Surgeon. Leave of absence for twenty-one days from November 10, 1914, amended to read "twenty-one days' leave of absence from November 14, 1914." **Sutton**, D. C., Assistant Surgeon. Directed to proceed to Galveston, Tex., and report to the medical officer in charge of the Service at that port for duty; granted five days' leave of absence en route. **Sweeney**, A. R., Assistant Surgeon. Leave of absence for one month from November 10, 1914, amended to read "one month's leave of absence from November 6, 1914." **Thompson**, L. R., Passed Assistant Surgeon. Relieved from duty in connection with investigations of the Ohio River, and directed to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory for temporary duty. **Townsend**, J. G., Assistant Surgeon. Relieved from further duty at the immigration station, Ellis Island, N. Y., and directed to proceed to Louisville, Ky., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters; granted one day's leave of absence en route to Washington. **Wheeler**, G. A., Assistant Surgeon. Relieved from duty in field studies of rural sanitation in Dorchester County, Md., and directed to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory for duty. **White**, J. H., Surgeon. Relieved from duty in charge of the Marine Hospital at New Orleans, La. **Wynne**, R. E., Assistant Surgeon. On completion of field studies of rural sanitation in Lawrence County, Ind., directed to proceed to Chicago, Ill., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. **Yarbrough**, H. C., Assistant Surgeon. On completion of field studies of rural sanitation in Union County, Miss., directed to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory for duty.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending November 14, 1914:

Anderson, Everett A., First Lieutenant, Medical Reserve Corps. Relieved from duty in the Philippines Department on or about March 15, 1915, and will proceed to the United States. **Baylis**, James E., First Lieutenant, Medical Corps. Relieved from duty with Field Hospital, No. 1, Fort D. A. Russell, Wyoming, and will report for duty with the Fifteenth Infantry at Plattsburgh Barracks, New York. **Bowen**, Albert S., Captain, Medical Corps. Granted two months' leave of absence on arrival in the United States. **Cullen**, Charles W., First Lieutenant, Medical Reserve Corps. Relieved from active duty in that corps to take

effect December 5, 1914. **Farrow**, Edgar J., First Lieutenant, Medical Reserve Corps. Relieved from duty in the Southern Department and at Fort Morgan, Alabama, and will take transport at San Francisco for the Philippine Islands, on or about March 5, 1915. **Hess**, Louis T., Major, Medical Corps. Upon completion of duties in the Division of Militia Affairs, will take station at Philadelphia as inspector-instructor of the sanitary troops of the organized militia. **Hutton**, Paul C., Major, Medical Corps. Relieved from duty at Fort Howard, Maryland, and will take transport at San Francisco for the Philippine Islands, on or about March 5, 1915. **Le Hardy**, Julius C., First Lieutenant, Medical Reserve Corps. Relieved from duty at Benicia Arsenal, California, and will take transport at San Francisco, Cal., for the Philippine Islands, on or about March 5, 1915. **Maynard**, Edwin B., First Lieutenant, Medical Reserve Corps. Relieved from duty in the Philippines Department on or about March 15, 1915, and will proceed to the United States. **McAndrew**, Patrick H., Major, Medical Corps. Granted two months' leave of absence. **Page**, Henry, Major, Medical Corps. Upon completion of duties in the Division of Militia Affairs, will take station at Atlanta, Ga., as inspector-instructor of the sanitary troops of the organized militia. **Phalen**, James M., Major, Medical Corps. Upon completion of duties in the Division of Militia Affairs, will take station at Chicago, Ill., as inspector-instructor of the sanitary troops of the organized militia. **Shockley**, M. A. W., Major, Medical Corps. Upon completion of duties in the Division of Militia Affairs, will take station at Columbus, Ohio, as inspector-instructor of the sanitary troops of the organized militia. **Skinner**, George M., Major, Medical Corps. Relieved from duty in the Philippines Department on or about March 15, 1915, and will proceed to the United States. **Stuckey**, Harrison W., First Lieutenant, Medical Reserve Corps. Relieved from duty in the Philippines Department on or about March 15, 1915, and will proceed to the United States. **Walker**, Thomas C., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Rodman, Mass., and will take transport at San Francisco for the Philippine Islands, on or about March 5, 1915. **Waterhouse**, Samuel M., Major, Medical Corps. Relieved from duty at Fort H. G. Wright, New York, and will report for duty with the Fifth Infantry at Plattsburgh Barracks, New York.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending November 14, 1914:

Alfred, A. R., Medical Inspector. Commissioned a medical inspector from November 20, 1913. **Benton**, P. L., Surgeon. Detached from duty with the Marine Detachment at Pensacola, Fla., and ordered to the Naval Station, Key West, Fla. **Curtis**, N. E., Passed Assistant Surgeon. Detached from the Naval Station, Guam, and ordered to duty with the Pacific Reserve Fleet. **Donelson**, Martin, Passed Assistant Surgeon. Ordered to the receiving ship at Norfolk, Va. **Ely**, C. F., Surgeon. Detached from the Naval Station, Guam, and ordered to the *South Dakota*. **Gates**, M. E., Medical Director. Commissioned a medical director in the Medical Reserve Corps from October 27, 1914. **Halton**, E. P., Passed Assistant Surgeon, retired. Detached from the Naval Recruiting Station, Boston, Mass., and placed on the retired list, November 4, 1914. **Johnson**, L. W., Passed Assistant Surgeon. Detached from the bureau of medicine and surgery, Navy Department, Washington, D. C., and ordered to the Naval Station, Guam, via Army transport, December 5, 1914. **Lawrence**, H. F., Passed Assistant Surgeon. Detached from the *Wyoming* and ordered home to await orders. **Lung**, G. A., Medical Inspector. Detached from the naval training station, Newport, R. I., and ordered to the torpedo station, Newport, R. I. **McGuire**, L. W., Passed Assistant Surgeon. Ordered to the *Maine*. **McLean**, N. T., Passed Assistant Surgeon. Ordered to the *Wyoming*. **Farenholt**, Ammen, Surgeon. Detached from the *Missouri* and ordered to the *St. Louis*. **Rennie**, W. H., Surgeon. Commissioned a surgeon in the Medical Corps from October 27, 1913. **Seaman**, William,

Surgeon. Detached from the *Rhode Island* and ordered to temporary duty at the bureau of medicine and surgery, Navy Department, Washington, D. C. **Strite**, C. E., Passed Assistant Surgeon. Detached from the Naval Station, Key West, Fla., and ordered to duty with the Marine Detachment, Pensacola, Fla. **Wilson**, H. D., Surgeon. Ordered to the *Rhode Island*.

Births, Marriages, and Deaths.

Married.

Chittenden—Langley.—In Long Beach, Cal., on Monday, October 19th, Dr. R. H. Chittenden and Dr. Mac O. Langley. **Fox—Carroll.**—In Philadelphia, on Saturday, November 7th, Dr. William Wellington Fox and Miss Muriel Carroll. **George—Garey.**—In Denton, Md., on Saturday, November 7th, Dr. Dawson Orme George and Miss Elizabeth George Garey. **Griffin—Vaughan.**—In Brooklyn, N. Y., on Monday, November 16th, Dr. Walter W. Griffin and Miss Mattie Fox Vaughan. **Henry—Moore.**—In Woburn, Mass., on Wednesday, November 11th, Dr. Thomas F. Henry, of Salem, and Miss Jennie Frances Moore. **Langdon—Inman.**—In Cincinnati, Ohio, on Thursday, November 5th, Dr. Fletcher Langdon and Miss Elizabeth Inman. **Law—Warner.**—In Del Monte, Cal., on Saturday, November 7th, Dr. Hubert Law and Miss Alice Warner. **Mumma—Hall.**—In Philadelphia, on Wednesday, November 4th, Dr. Harry G. Mumma, of Pittsburgh, and Miss Violet Hall. **Smith—Lawless.**—In Fredericksburg, Va., on Tuesday, November 10th, Dr. Charles Mason Smith and Miss Emma Copeland Lawless. **Wallace—James.**—In New Orleans, La., on Monday, November 9th, Dr. Robert Bruce Wallace and Miss Dorothy James.

Died.

Belden.—In New Orleans, on Saturday, November 7th, Dr. James Webster Belden. **Blick.**—In Richmond, Va., on Tuesday, November 3d, Dr. Joseph Arrington Blick, aged seventy-eight years. **Brady.**—In Wagman, La., on Friday, November 6th, Dr. C. Milo Brady. **Brewster.**—In Phillips, Mass., on Saturday, November 7th, Dr. James Bartlett Brewster, aged seventy-three years. **Carpenter.**—In Trumansburg, N. Y., on Sunday, November 8th, Dr. L. W. Carpenter, aged eighty-one years. **Gibb.**—In Overbrook, Pa., on Saturday, November 7th, Dr. Joseph Scribner Gibb, aged fifty-seven years. **Grimes.**—In Baltimore, Md., on Saturday, November 7th, Dr. John A. Grimes. **Grimes.**—In Pacific Grove, Cal., on Wednesday, November 4th, Dr. Warren V. Grimes, aged fifty-four years. **Hart.**—In Elmira, N. Y., on Thursday, October 29th, Dr. Ira F. Hart, aged eighty-five years. **Hoffman.**—In Woodstock, Va., on Sunday, November 1st, Dr. Samuel J. Hoffman, aged sixty-three years. **Hunt.**—In Coatesville, Ind., on Sunday, November 8th, Dr. Stephen Hunt, aged sixty-nine years. **Hutchins.**—In Minneapolis, Minn., on Monday, November 9th, Dr. Eugene A. Hutchins, aged seventy years. **Low.**—In Philadelphia, on Monday, November 9th, Dr. Andrew S. Low, aged seventy-seven years. **Lowe.**—In Putnam, Conn., on Sunday, November 1st, Dr. Henry R. Lowe, aged sixty-five years. **McCutchan.**—In Evansville, Ind., on Saturday, November 7th, Dr. John H. McCutchan, aged forty-five years. **Miller.**—In Wilkinsburg, Pa., on Monday, November 2d, Dr. Henry C. Miller, aged eighty-one years. **Pemberton.**—In Long Branch, N. J., on Wednesday, November 11th, Dr. Harry H. Pemberton, aged sixty-five years. **Priest.**—In Concordia, Kansas, on Monday, November 9th, Dr. William R. Priest, aged fifty-three years. **Shrady.**—In Stamford, Conn., on Wednesday, November 11th, Dr. John Shrady, aged eighty-five years. **Starkloff.**—In St. Louis, Mo., on Saturday, October 31st, Dr. Hugo Maximilian von Starkloff, aged eighty-two years. **Sturdevant.**—In Salem, Ind., on Friday, November 6th, Dr. M. Grant Sturdevant, aged forty-three years. **West.**—In Tampa, Fla., on Thursday, November 5th, Dr. Eugene West, aged forty-five years.

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PHLEGMONS OF THE UPPER RESPIRATORY TRACT.*

By JOHN O. ROE, M. D.,
Rochester, N. Y.

The word *phlegmon* (from the Greek *φλέγειν*, to burn) was originally used to denote a flame, fire, heat, or inflammation. It may be mentioned as a curious fact that it is derived from the same root as *phlegm*, which was regarded by the ancients as one of the four humors which composed the human body. But the word, *phlegmon*, came to be restricted in medical science to denote some form of inflammation, which meaning it has retained until the present day.

Phlegmon, therefore, is simply another name for inflammation, although clinically it is regarded as an extraordinarily intense inflammation and looked upon as being of a more or less malignant character. Thus, we may have an inflammation of this character in any part of the body, the intensity of which is dependent upon the virulence of the infection and the resistance, or lack of resistance, of the patient or of the tissues to such an infection. The use of the term, *phlegmonous* inflammation, therefore, may be regarded as a superlative expression, being used to indicate clinically that the inflammation is of an unusually severe form or grade. Thus, in the case of a tonsillitis if the inflammation is more active and more intense than usual, involving the deeper cellular structures of the neck; if in the pharynx, the inflammation extends to the deeper retropharyngeal spaces, terminating perhaps in a retropharyngeal abscess; if an inflammation involves the nasal passages and accessory sinuses, and rapidly extends to the meninges, and, if instead of an ordinary simple laryngitis, the inflammation extends to the perilaryngeal and tracheal spaces, if suffocation has not already ensued, terminating in mediastinal abscess—in such cases as these, the inflammation is regarded as *phlegmonous*. Inflammations of this severe grade termed *phlegmon*, may therefore involve any or every portion of the upper respiratory tract.

We almost invariably find that persons attacked by *phlegmon* are those whose general condition has become greatly weakened and whose defenses have been broken down by some other diseased condition or dyscrasia, such as diabetes, chronic nephritis, a

prolonged illness, like intermittent or typhoid fever; the debilitating influence of extreme or prolonged fatigue or the autointoxication from the chemotoxins that infect the system and insidiously undermine the systemic forces, rendering the patient vulnerable to all sorts of microbic attacks. As is readily seen, it is out of the question to consider specifically these multifarious conditions, and the only practical addition to our knowledge of them is by reporting cases that come under our observation.

CASE I. *Phlegmon* of the fauces, terminating in a retropharyngeal and a retroesophageal abscess and death: Young man, aged twenty years, student in the university, had been out to a late class supper and eaten very heartily, which was followed almost immediately by the symptoms of a hard cold. The following day he was ill with diarrhea, headache, and severe sore throat. He grew rapidly worse, his neck became much swollen, particularly on the right side. He was hoarse and spat blood from what was thought to be an abscess of the tonsil that had opened spontaneously. I saw him on the fourth day, when I found the whole fauces intensely inflamed and swollen, and the pharynx on the right side bulging forward, presenting to the finger the doughy feel of the retropharyngeal abscess. This I at once opened, giving vent to much bloody and purulent matter. The track of the abscess began quite rapidly to extend downward until it became retroesophageal. The discharge of pus was at times so profuse as nearly to suffocate him, his breath seeming to pass through a quantity of soapuds. Temperature 103° F. and pulse 120. Several physicians saw him with me, but in spite of all that could be done, he continued to grow worse, the bloody and purulent discharge increased, respiration became more difficult, he became rapidly weaker, and died from exhaustion on the third day after I saw him. No post mortem examination, I regret to say, was permitted. The infection was a mixed infection, streptococci predominating.

CASE II. Young woman, aged eighteen years, who had what was thought to be diphtheria. Two days before, she had been taken with a severe chill and at the time I saw her her temperature was 103° F. The fauces were enormously swollen, and there was a profuse thick, tenacious exudate covering the fauces, but not a membranous formation. The bacteriological examination showed it to be a mixed infection, the pneumococcus and streptococcus predominating. The inflammatory action extended downward, involving the laryngeal and pharyngeal tissues. The dyspnea became so urgent that tracheotomy became necessary, but notwithstanding every effort to save her, she sank and died five days after the onset of the disease. Previous to her illness she had become very much run down from overwork at school and preparation for her examinations.

In several cases of faucial *phlegmon* occurring in children from three to twelve years old, the inflammation resulted in posipharyngeal abscess. In all these cases the abscess was opened and the patient made a rapid recovery.

Through the kindness of my friend, Dr. Thomas Hubbard, of Toledo, I am able to report three cases that have come under his observation representing three different types. First, the *phlegmonous* an-

*Read before the American Laryngological Association at the thirty-fifth annual congress, as a part of a symposium on *Phlegmons of the Respiratory Tract*.

gina, followed by retropharyngeal abscess; second, angina with laryngotracheal edema and metastases; third, scarlatinal phlegmonous angina. His report of these cases is as follows:

CASE III. Physician, middle aged, with clean health record, had a severe pharyngitis with fever, chills, etc., and by the third day a very severe phlegmon had developed, involving the hypopharynx, larynx, and probably the esophagus. The swelling quite prevented the swallowing of even liquids for several days. Dyspnea and local pain made sleep impossible. The neck, especially on the right side, was swollen and stiff; in fact, it was an unusually serious type of angina. The temperature was 104° F. maximum; albumin and casts in urine. The treatment was chiefly local—steam inhalation, impregnated with carbolic acid in alkaline solution, was used almost constantly and moist heat externally. The dysphagia made general medication per os impracticable; in fact, this was about all that could be done. The carbolized steam seemed to check the progressive edema and lessen the pain, and in about forty-eight hours the swelling in the hypopharynx subsided and deglutition was resumed. On close inquiry, I verified the statement that the patient was usually in extraordinarily good health; had not a bad habit, and, aside from the fact that his vocation brought him into contact with all classes of acute infections, there were no other predisposing causes. The subsequent history is interesting. The acute cellulitis subsided, and in less than a week he exhibited only a moderate degree of glandular infiltration on the right side. This condition persisted and dysphagia returned. He journeyed forty miles to enter a hospital, when a more thorough study was made. Daily temperature of 101° F., albumin and casts in urine; throat culture early in illness showed streptococci; blood cultures on entering the hospital, negative. The hypopharyngeal swelling became more pronounced, and in about a week it was apparent that pus was forming. An incision was made as low down as possible in the posterior pharyngeal wall, and nearly an ounce of fetid pus was evacuated. This was swabbed out daily with dilute iodine solution and gradually healed. Convalescence was slow, and months afterward the man had not recovered his former standard of health. His splendid constitution had overcome this severe infection, but not without evidence of impairment of vitality.

CASE IV. Man, aged about fifty years, hitherto healthy, had on Friday, January 26, 1912, a sudden onset of throat symptoms, so severe that he was compelled to leave work. He did not seem to have had much fever, but just a gradually progressive edema of the hypopharynx and larynx, and when I saw him, three days later, he had been in a state of extreme dyspnea for several hours. He was hurried to the hospital and tracheotomy under local anesthesia was done. The tracheal mucosa was edematous, but there was comparatively little general cellulitis of the neck tissue. He rallied promptly and seemed perfectly comfortable; no febrile reaction, no systemic disturbance, and as soon as he could swallow he took abundant nourishment. The voice became natural in two days. On the second day, the tracheal wound was much inflamed and infiltrated, and gradually there developed evidence of septic phlebitis spreading downward into the thorax. The tracheal cannula was removed on the third day, and there was no recurrence of edema of larynx or hypopharynx. A metastatic abscess formed in the right leg and on the fifth day this was opened. This pus contained staphylococci only. The patient died of general sepsis on the sixth day. Streptococcal serum was tried in frequent large doses prior to the abscess findings, but without appreciable effect.

CASE V. Young woman contracted scarlet fever from her children and during the second week a very severe phlegmonous angina developed. The tonsils and peritonsillar tissue were much swollen, deglutition was quite impossible, and there was considerable dyspnea. Sepsis was in evidence, rapid pulse, and low temperature, and the throat was covered with a thin, gray membrane. There was a constant discharge of mucopus from the nasopharynx and nose. Systemic condition fairly good, no nausea, and normal urinary secretion. When first seen in consultation, I was suspicious of pus formation in peritonsillar tissue and made free incision well into the supra-tonsillar fossa; no pus came, but there was considerable

relief of tension pains. Carbolyzed steam inhalation was given every hour and serum treatment was begun as soon as fresh serum could be obtained from the husband's blood; that is, in twelve hours. The sepsis increased, manifested by somnolence, delirium, and increase of general cervical swelling, with only a moderate degree of fever, 103° F. The prognosis was very grave—it seemed that natural resistance was totally exhausted. This patient had been "Mayoed" a few years previously for exophthalmic goitre and was a poor subject for such a virulent infection. Cultures showed pure streptococci. She responded to the second injection of husband's serum—that is the faucial swelling began to subside about twelve hours after the second dose, 10 c. c.. In all, 80 c. c. were administered at intervals of six hours, and the convincing feature of the therapeutic value of the serum was the rapid convalescence. I have never seen scarlatinal angina clear up so quickly.

Through the kindness of Dr. Sargent F. Snow, of Syracuse, I am able to report an interesting case that came under his observation last year:

CASE VI. A lady, aged fifty-eight years, began to have a sore throat and to feel bad June 30th. On the following day, Doctor Snow saw her in consultation with the family physician, who had regarded it as a case of quinsy, and found a general firm infiltration of the whole left side of the pharynx, but no particular point of prominence, although the tonsil was covered with a dirty yellowish deposit, not membrane. This was washed off and the tonsils were scarified freely with deep incisions, both anterior and posterior, with the hope of relief from the local depletion, although no pus was found. Hot saline irrigations of the throat were ordered, with free calomel purgation. In spite of all, there was a rapid increase of the infiltration and a general phlegmonous condition, so that on the following day the breathing was difficult. The urine had become loaded with albumin, with evidence of an extreme general mixed infection. Upon consultation it was decided that further operative measures would be useless, and the patient died the following day.

A peculiar circumstance attending this case was that two days before she was taken ill, she was in Doctor Snow's office with her sister, who was under his care. The doctor was much impressed by her general appearance at that time and urged her to see her family physician, for he feared from her color and apparent condition that she was a very sick woman. She laughed at the doctor and said she "never felt better," but within twenty-four hours the conditions developed, as described. "The case on the whole," said Doctor Snow, "was one of the most impressive evidences of the intimate relation between general active autointoxication and acute inflammatory condition that I had ever seen."

Fatal hemorrhages may also result from such phlegmons, as in a case reported by J. D. Rolleston (1), as follows:

CASE VII. Girl, aged six years, was admitted to the hospital on October 22d, certified to be suffering from diphtheria. Excepting an attack of whooping cough at three years, she had until recently been a healthy child, and there was no family history of bleeding. Five weeks before admission she had measles, since which her voice had been husky. On October 20th, she complained of sore throat, and on the 22d she had a croupy cough and the neck glands became swollen. On admission, deposit was found on both tonsils and uvula, slight nasal discharge, voice husky, stridor, croupy cough, and dysphagia. Temperature 100° F.; 16,000 units of antitoxin were given. October 23d, deposit cleared away, leaving marked ulceration of tonsils and uvula; no fetor; no Vincent's organism found in the throat smear; temperature 103° to 100° F. October 25th, at 9 a. m., she suddenly gave a cough, and a huge gush of blood poured out of her mouth. Death, preceded by marked cyanosis, occurred within five minutes. No diphtheria bacilli, but only cocci were found in three successive cultures from the throat and one from the nose.

The necropsy, October 26th, disclosed abscess cavities in both tonsils, ulceration of the uvula, soft palate, epiglottis, frenum epiglottidis, vallecule, and aryepiglottidean folds. Deep ulceration of laryngeal portion of pharynx, exposing muscular tissue. Three small superficial ulcers above right vocal cord. The exact site of the bleeding vessel was not determined, but there was no evidence of erosion of external carotid, internal carotid, or internal jugular, nor of any glandular abscess. There was no history nor evidence of scarlet fever, no fetor nor other evidence of gangrene, no clinical nor bacteriological features of Vincent's angina. It was highly probable, the author thought, that the pharynx and larynx were predisposed to infection by the recent attack of measles, especially as the child's voice was still husky when the fatal illness began. This form of sore throat, the author said, was usually due to streptococci, often accompanied by laryngeal involvement, especially when it was secondary to measles, when it frequently ran a severe course. The author also cited thirty-five cases recently reported by Goodall (2), twenty-five of which ended fatally. In nine of these cases the larynx was involved, although the principal lesions were in the pharynx, and two patients had recently had measles.

In sporadic cases phlegmons nearly always assume a virulent form. The onset of the affection is sudden and its progress very rapid, and in adults the majority of cases prove fatal in from thirty-six to seventy-two hours. Sir Felix Semon described several such cases in a lecture on Acute Septic Inflammation of the Throat and Neck (3), delivered at the Long Island College Hospital, November 3, 1904.

The disease is usually ushered in with a chill and with pharyngeal symptoms, attended with dysphagia. The tissues of the throat are edematous and the glands of the neck usually become swollen—sometimes enormously so. The patient has hoarseness, which quickly becomes complete aphonia, soon followed by dyspnea, often necessitating tracheotomy. In some cases the inflammation is confined to one side of the throat. Semon, in his lecture already referred to, reports a case of inflammation of the larynx which was unilateral. He also classifies all these different septic inflammations of the throat and neck that have been known by different names, because manifesting different symptoms when different parts are involved, under the one comprehensive term of acute septic inflammation of the throat and neck, including even the well known disease called Angina ludovici, named after the good old Doctor Ludwig, of Strassburg, who, in 1830, first described the particular manifestations attending septic inflammation of the submaxillary gland and the surrounding tissues. As several cases of this disease happened to come under his observation, with manifestations entirely different from any he had seen before, he thought he had discovered a new disease.

The bacteriological findings in these cases are usually a mixed infection, although streptococcus predominates. The sepsis is also found to be most virulent in the complications that arise in connection with these phlegmons, such as pericarditis, nephritis, pneumonia, pleurisy, and peritonitis, which therefore supervene because of its virulence, while other general septic conditions may be due to the different strains of the streptococci.

In the epidemic form, which sometimes prevails in different sections, the disease is less fatal than in the sporadic cases. The virulent infection in this

form is evidently fostered by atmospheric conditions, as in epidemics termed grippe, or transported sometimes by water pollution, and sometimes by the milk supply. Several outbreaks of tonsillitis of a peculiar nature, such as the English term, "septic sore throat," have occurred in this country, the source of which in most cases was traceable quite directly to an infected milk supply. Such an outbreak occurred in Boston, Brookline, and Cambridge, and was traced by Winslow (4) to the portion of the milk supply of the Deerfoot farm dairy that came from the Southboro district. He was able to get fairly complete reports of about 1,000 cases which were observed in the vicinity of Boston, and 400 in Hudson, Marlboro, and Southboro, with forty-eight deaths in all, attributed directly to the disease. His description of the disease is as follows:

The throat sometimes showed white patches characteristic of ordinary tonsillitis, and in other cases a membrane was formed like that in diphtheria, while others were marked only by a diffuse redness. The most striking feature, however, was a secondary enlargement of the glands of the neck, which in many cases followed on the first sharp throat attack and which in some instances was followed by a general invasion of the deeper tissues, leading to sepsis, rheumatism, erysipelas, nephritis, and other maladies.

Winslow also says that he was not aware that this form of throat disease had before been noted in this country. A precisely similar outbreak, however, has occurred several times in Great Britain (5), and in each case was traced to milk. A similar outbreak of septic sore throat of a mild character, mainly among children, occurred in the city of Schenectady last year. Sixty-three cases were reported by Van der Bogert (6), of which only six were in patients over fifteen years of age. The majority, twenty-six, were between the ages of one and five years. Thirteen occurred in infants under one year, and thirteen between the ages of ten and fifteen. The majority of the cases are reported as tonsillitis. In twenty-eight the cervical glands were enlarged, in eighteen the submaxillary, in nine the parotid, in eight the anterior cervical, in ten the submastoid, and in four the posterior cervical; the others were the lingual, sublingual, and left cervical. There were pains in the joints and rheumatism in three; four had nephritis; one pneumonia, and four were complicated with bronchitis; two had quinsy; two had earache, and four otitis media. There were no fatalities. The source of the milk supply as the suspected cause of the epidemic was investigated, and it was found that fifty-three of the patients were supplied by thirty-four distributors, and as there were but two cases at the most occurring in one milkman's route, the committee were led to believe that the milk supply should be absolutely disregarded as a positive factor.

During the winter of 1911-1912 epidemics (7) of septic sore throat appeared both in Chicago and in Baltimore (8), traceable directly to an infected milk supply.

The epidemics in Boston and Chicago were largely confined to adults, whereas in Baltimore, as in Schenectady, they prevailed mainly among the children. In studying the bacteriology of these epi-

demics, it was found that they were due almost exclusively to a variety of streptococcus. In Baltimore it was estimated that there were not less than 1,000 persons infected during the outbreak and possibly more, with forty-eight deaths, while in Chicago it was believed that there were not less than 10,000 persons infected. The particulars regarding the death rate in this epidemic are fragmentary and indefinite. There are 622 cases reported as having been investigated, with nineteen fatal.

In the Baltimore epidemic, in addition to the streptococci, Hirshberg (9) found pneumococci in forty-eight cases, while in the Chicago epidemic Davis and Rosenow (10) isolated a peculiar streptococcus, which gave rise to a large number of complications and many deaths. The disease was characterized by a sudden onset, severe prostration, glandular enlargement, and frequently other serious complications. The organism isolated was an encapsulated hemolytic streptococcus of high virulence, which always acidifies and sometimes coagulates milk.

It is interesting to note that in the suspected herds, cases of mastitis were found, and in some instances unsuspected cows were discharging pus with their milk.

In studying the relationship of this peculiar streptococcus, isolated by Davis and Rosenow, Hersberger regards it as related to the streptococcus pyogenes group. These groups Leutscher (11) classifies as follows: 1. The usual streptococcus pyogenes group, which does not clot milk or ferment raffinose. 2. The streptococcus angiosus group, which usually clots milk and often ferments raffinose.

The streptococcus pyogenes group is usually associated with suppurations, erysipelas, and septicemia. The streptococcus angiosus group is especially associated with inflamed throats, scarlatinal and other. It is also found in malignant endocarditis, peritonitis, and otitis.

While in these epidemics, reported as milk borne outbreaks, and attributed to streptococci because of their great predominance, it cannot be said in any case that the disease has been caused by any one organism. So is it also in the sporadic cases, for in none can the phlegmon be attributed to any one particular germ or organism, however largely the streptococcus may predominate. Semon found in all his cases a mixed infection, so that in none of the cases could he attribute the intensity of the phlegmon to any one particular organism. Neither can the source of an organism be determined by an examination or culture of the germ. In studying the streptococcus occurring in milk, and also in the throat, Stowell, Hilliard, and Seglesinger (12) in their conclusions said:

Two hundred and forty pure strains of streptococcus have been compared as to their morphology, Gram stain reaction character, and amount of growth, and their quantitative acid production in seven carbohydrate and related organic substances. We have not found that any of the features, other than the fermentative reactions, are sufficiently correlated with one another or with acid production to assist in fixing the organisms in groups or in distinguishing the source of isolation.

From a study of these phlegmons in their various relations, the conclusion must be reached that the virulence of the disease depends more largely upon the condition of the patient—that is the soil in which the germ becomes implanted—than upon the strain or character of the germ, the activity of the germ depending upon the condition that quickens it into activity, which may be local or general or both. Chronic affection of the throat may provide in many cases the inviting condition for the activities of wandering germs. Farmers and fanciers recognize the importance of introducing new strains in order to increase the vigor and productiveness of their animals; so may it be that the introduction of a new strain of streptococci into the old saprophytes starts a new and prodigious activity. Davis (13), in a bacteriological study of chronically diseased tonsils and their relation to arthritis, nephritis, and endocarditis, almost invariably found in the crypts large quantities of virulent hemolytic streptococci fatal to guineapigs and rabbits, with joint and other manifestations. These germs were ever ready to take on an active form of existence when excited to activity by external influences or given a chance by the weakening of the defenses of their host. While the patient may sometimes state that he is feeling "exceedingly well" or "never felt better in his life," he may be at the same time in a condition to afford a savory morsel to some voracious germ. In a private communication from my friend, Dr. Jonathan Wright, regarding this subject, he says:

We have known for years that streptococci are carried as saprophytes in the normal throat, totally innocuous to the bearer, but sometimes deadly to his neighbor. They must depend for their virulence upon systemic variations of the host. When external conditions have an influence upon the host which induces this specific change in the host's throat tissues, we have a hitherto innocuous inhabitant of the throat become a deadly enemy.

This way of looking upon throat infections, not only of the septic variety, but in tuberculosis and in other infectious diseases, I have long entertained. While milk streptococci may be capable of inducing such epidemics when these unknown external conditions render the throat ripe for it, it behooves us to look for other causes in many cases as the primal cause of these epidemics.

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64 CLINTON AVENUE, SOUTH.

INTESTINAL STASIS,

By BEVERLEY ROBINSON, M. D.,
New York.

This is a very old and well worn subject, under another name, i. e., chronic constipation, but to those who have not read and thought, it is something new and remarkable. Apart from much that is exaggerated and not in any way desirable or true, Sir Arbuthnot Lane's ideas resolve themselves practically into this: To anastomose the small intestine with the large bowel, or in some cases, to resect a portion, smaller or larger, of the colon, or indeed, take out the entire organ. To him, as to his followers, the instances in which either operation is indicated or advised, are those only where judicious medication or other rational treatment has been persisted in without good effects. Of course, there are such, but not many, in my judgment, and as to affirming and believing that ulcer of the duodenum or stomach, gallstones, cancer, and numerous other major ills are caused by chronic constipation and absorbed toxic products, the experience of a lifetime obliges me to say, Not so, it cannot be.

We all know the usual consequences of chronic constipation. Headache, dry skin, pimples, lassitude, inappetence, coated tongue, foul breath, hypochondria, etc., are frequent sequels, and one or other or a few combined are of daily occurrence. As to kinks and false membranes of the intestinal tract as a result of, or concomitant with a falling or displacement of abdominal organs, these also we recognize; so do we admit the neurasthenic condition which precedes or follows chronic insufficiency or infrequency of fecal evacuation.

Again, there is little doubt that occasionally there is a true autointoxication connected with the disordered function, but that this occurs in every case or even in many instances, is highly improbable. I have known quite a number of patients who have had a movement, and then a small one, only every two days, and yet their general health was obviously not at all impaired. I have taken care of any number of patients, who during many years were unable to have a movement of the bowels without help from medicines or enemas. Despite this fact, they enjoyed life and were not notably upset by their condition.

All physicians in general practice meet with such instances. Most of us also have tried, so far as we have been able, to prevent an obstinately constipated habit by judicious advice as to diet and exercise; as to regularity in attending to Nature's calls. On the other hand, we cannot allow ourselves to support opinions which are subversive of and opposed to intelligence.

Unquestionably, after an operation of ileocolostomy, patients may improve and occasionally recover, but that does not gainsay the fact that often only poor results are obtained. To resect or take away the entire colon, is such an extreme measure that no mere functional trouble seems to justify it. When I consider an organic obstruction of the large bowel, malignant or not, it is a different proposition and I could frequently indorse or advise

one or other operation as the best. It has been shown, however, that although a man may do without the colon, he is never so well as he would be were it possible to retain it. In not a few chronic affections, like suppuration of a joint from tuberculous infiltration or osteoarthritis, in which Sir Arbuthnot Lane and others have done an ileocolostomy or colectomy, the results do not appear to me to justify the operation except in a very small proportion of the reported cases.

I grant that with a careful and able surgeon the risk of death is small, yet it is a risk, and besides, the mere statement of a cure is not the same as the fact. Up to date, many cases which did well at first, ultimately did no better than before the operation, and in inexperienced or less able hands, deaths have occurred after several weeks or months, which makes the average intelligent clinician cry a halt.

I still hold that the old methods of treating obstinate constipation are better, and I am not convinced that the use of purified mineral oils by the mouth are any advance over the well known and approved olive oil by enema. Indeed, the purest California olive oil only contains one fifth of one per cent. fatty acids and is shown to be a very poor culture medium.¹ Taken, therefore, by the mouth it is quite as innocuous as the nonabsorbable mineral oil. Moreover, it has a very decided advantage in that it promotes healthy nutrition, as well as being an equally good intestinal lubricant. The former quality the mineral oil does not possess. Further, I do not believe when properly given, i. e., small doses to begin with after meals, that it occasions dyspeptic symptoms of any moment or which cannot be readily neutralized with a little pancreatin as an emulsifier.

Finally, good olive oil promotes intestinal peristalsis and thus prevents bowel stasis with its sequelæ in a notable degree. This action is undoubtedly obtained when olive oil is used both by the mouth and rectum, and usually it may be employed advantageously at the same time, for a while, at both ends of the digestive tube.

Some of the new abdominal supports may hold up relaxed organs without positive injury, but the true way of cure is rather to restore abdominal strength by proper exercises, instructed massage, and open air life, so far as possible, supplemented with medicinal tonics if they are clearly indicated. Some of the really effective ones among these are found in our laxative pills. Such are strychnine, nux vomica, and belladonna. Podophyllin, euonymin, cascara, aloin, ipecac, may, one or more, be added in minute doses and doubtless help either the flow of bile or the contracture of the intestinal muscles. The absence or insufficiency of secretions, such as the gastric, pancreatic, or intestinal juices, may be wisely added to by a few products from honorable manufacturing firms, which are the outcome of scientific researches in a chemical and biological direction.

As to the use of bran, of whole wheat bread, stewed fruit and vegetables, which contain much cellulose and thus increase the bulk of insoluble

¹*Surgery, Gynecology, and Obstetrics*, p. 492, November, 1910.

substances which mechanically aid the muscular contracture of the bowels, I shall not write, because of its being within the common knowledge of our profession. What precedes has been amply corroborated by two cases in which I have been the consultant physician during the past winter. In both an operation was done and in both the ultimate result was no better than if none had been performed. The x ray still showed adhesions and kinks of the intestine, and the local pain, discomfort, and constipation or intestinal stasis, were not diminished. The neurasthenic symptoms remained also, just as they had been present previous to the operations. Indeed they were in reality increased by reason of the failure of the operation to relieve symptoms and the disappointed expectations which had followed. In one of the patients referred to, the x ray pictures made previous to the operation, although by an acknowledged expert, were shown to be faulty, at least in the interpretation of them. In the other patient the picture taken again after the operation demonstrated simply that the operation had been unsuccessful, since new adhesions and kinks were shown.

In these, and also in other cases of various kinds, I have learned to look upon the result of x ray investigations with a doubtful mind; first, because the examination may be faulty; second, because the interpretation may be incorrect.

As to the medical treatment of my two cases, subsequent to the operations, it was just what it had been previously, with, perhaps, more rigid conformity on the part of the patients to the rules enjoined by the physician in charge, whose counsels, if they had been strictly followed when he was first consulted, would probably have made any operative interference uncalled for.

42 WEST THIRTY-SEVENTH STREET.

CONVULSIONS DURING PERTUSSIS.

Treatment by Lumbar Puncture, Later by Intraventricular Aspiration.

BY LOUIS FISCHER, M. D.,
New York.

Convulsions during infancy are very frequent, hence one must consider a fatal outcome unless relief is afforded. The bromides and opiates cannot be given by the mouth during the spasm, nor is it possible to give a satisfactory injection into the colon until the spasm ceases. In many cases spasms follow one another so quickly that general anesthesia with chloroform or ether is indicated. Now and then we meet with a very obstinate case, in which the above mentioned measures do not give satisfaction. It is to discuss the treatment of such obstinate and recurring convulsions that the present paper is written.

I was called to see baby L., eight months old, and received the following history: General development excellent, bottle fed, and normal bowel movements. Had had a cough during the last two weeks, spasmodic in character with nausea and vomiting. My diagnosis was pertussis. There were both tonic and clonic convulsions, which con-

tinued for two days, convulsions recurring at one time every six hours. The convulsions were not relieved by injections of chloral hydrate and potassium bromide in the colon. Neither did chloroform anesthesia afford relief.

When I saw this case in consultation with Doctor Klippert, more chloroform and larger doses of

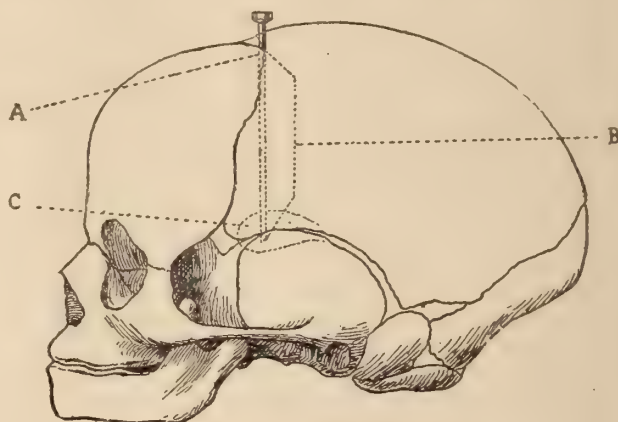


FIG. 1.—a, Lateral angle of anterior fontanelle; b, 4.5 cm. (nearly two inches) of aspirating needle; c, lateral ventricle.

chloral hydrate were tried with no improvement. The only relief possible consisted in relieving the intracranial pressure. This was tried by lumbar puncture, and when this proved unsuccessful, I aspirated the right ventricle by piercing the frontal lobe through the anterior fontanelle from which I withdrew twenty c. c. of an almost clear cerebrospinal fluid. The convulsions ceased after relieving the intracranial pressure and the baby made a perfect recovery. The bacteriological examination of the fluid aspirated showed an absence of the tubercle bacillus and the meningococcus. There was an excess of leucocytes with a slight lymphocytosis.

The value of lumbar puncture for the diagnosis of cerebrospinal affections is well recognized. That lumbar puncture, also the aspirating of the lateral ventricles, may afford excellent therapeutic results, has already been reported by me in a series of papers (*American Medicine*, new series, viii, 6; *International Clinics*, ii, twentieth series).

Lumbar puncture. The subarachnoid space is frequently tapped for diagnostic and therapeutic purposes. Either space between the third and fourth, or the fourth and fifth lumbar vertebrae may be chosen. The child is placed on either side with the spinal curve toward the operator, in this way spreading the vertebrae so that the greater angle is toward the operator. An imaginary line drawn through the crest of the ilium to the spine, is an easy means of locating the site of puncture.

Kind of needle required. In making a lumbar puncture, we should use the needle required in making a puncture aspiration in empyema. The needle should be pushed a little upward and forward until it enters the spinal canal, then the stylet should be withdrawn. If the fluid does not escape through the needle, then withdraw it slightly and reintroduce the stylet to dislodge any obstruction in the lumen of the needle. Make the puncture as simple as possible, rather than lacerate the tissue around

the vertebral column and cause bleeding by lateral movements of the needle.

Amount of fluid to be withdrawn. For diagnostic purposes fifteen to twenty c. c. should be withdrawn, if the fluid is watery and clear. If the spinal fluid is turbid, then the more we can withdraw the better. I have withdrawn as much as fifty to sixty c. c. at one time. The site of puncture should be closed with a strip of adhesive plaster, or with a drop of collodion.

Local anesthesia. Ethyl chloride in the form of a spray is very useful in sensitive children. It is not necessary to have general anesthesia during this procedure. General rules of asepsis must be strictly applied to the child's skin, the operator's hands, and to the needle used.

Dry tap in lumbar puncture. We may have a dry tap: 1. If the calibre of the needle is small, and the spinal fluid is very thick. 2. If adhesions are present at the base of the brain, preventing the passage of fluid from the ventricles to the sub-arachnoid space. 3. If a successful puncture has been made, a dry tap may follow owing to inflammatory adhesion caused by the previous introduction of the needle. 4. The closing of the foramen of Magendie is the most frequent result of the inflammatory process, resulting in dry tap. 5. A fibrin clot, or the presence of the cord in front of the needle, may prevent the outflow of the cerebro-spinal fluid.

To be sure that we are in the spinal canal if a dry tap results, leave the needle *in situ* and introduce a second needle two spaces below. Sterile water, if injected through the upper needle, will flow out of

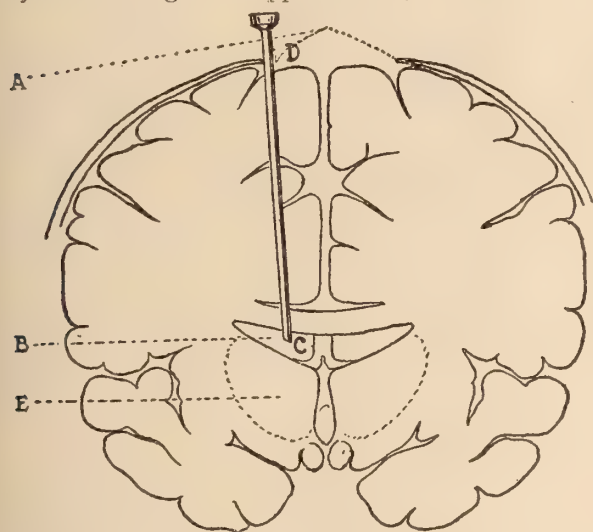


FIG. 2.—Coronal section of brain passing through lateral ventricles, and also through middle of anterior fontanelle: a, lateral angle of fontanelle; b, lateral ventricle, in which is the tip of aspirating needle at c, which is inserted at an angle varying from 20° to 0° —the older the baby the smaller the angle; d, trocar; e, optic thalamus.

the lower needle, proving that we are in the spinal canal.

The spinal cord in infants terminates about the level of the lumbar vertebræ. The introduction of the needle is simplest between the third and fourth, or the fourth and fifth lumbar vertebræ. In these interspaces there is no cord, hence no injury can follow.

Concerning the method of aspirating or injections of the lateral ventricle, we enter at the right angle of the anterior fontanelle, the aspirating needle, about eight cm. (3.2 inches) in length, introduced downward and toward the median line at an angle of about twenty degrees to the depth of about 4.5 cm. (1.8 inch.) The needle enters the lateral frontal convolution. (Figs. 1 and 2.)¹

When a stasis of ventricular fluid exists, as in my case, and if we cannot drain the ventricles by means of a lumbar puncture, then we must resort to tapping the ventricles by means of an aspirating needle. This procedure is indicated before closure of the anterior fontanelle, and seems as though Nature intended this opening as an overflow or outlet when effusion or intense extravasation of intracranial fluids result in intracranial pressure, which, as in the case just cited, may give rise to a continuous series of convulsions, for which medication is useless.

155 WEST EIGHTY-FIFTH STREET.

SCIATIC PAINS.*

Their Cause and Treatment.

By A. MACKENZIE FORBES,
Montreal.

Until recent years sciatica has been considered by many, if not most physicians, an idiopathic or primary affection. What this primary affection was, and what it was due to, was a matter of debate. Many considered that it was a neuralgia, whilst others considered it to be a neuritis. Many considered that sometimes it might be the former and at other times the latter. As high an authority as Sir William Gowers insisted that sciatica is essentially a neuritis, believing that, as a rule, the disease first attacks the muscular and fibrous structures and then spreads to the sciatic. A recent British writer, Dr. William Bruce, in a monograph published not yet a year ago, states that rarely is there any real proof of sciatica being a real neuritis.

As early a writer as Hilton, in his classical work, *Rest and Pain*, said "pain in any part, when not associated with increase of temperature (the local symptom of inflammation), must be looked upon as sympathetic pain caused by an exalted sensitiveness of the nerves of that part, and it is to be regarded as a pain depending upon a cause situated remotely from the place where it is felt."

It has been my rule, in teaching this subject in the clinics with which I am associated, to impress upon the students the fact that, while theoretically sciatica may be an idiopathic affection, *sui generis*, practically sciatic pains are nearly always secondary to some lesion which is not in the sciatic nerve. I have taught them also that it is most important to discover what this lesion is, and that this lesion shall have most careful treatment.

It has always been known that sciatica may be secondary to a great number of conditions outside the sciatic nerve. I have, therefore, appended to

¹These cuts are reprinted from *International Clinics*, ii, 20th series.
*Read at the meeting of the Canadian Medical Society, July, 1914.

this paper a list of the conditions which are ordinarily considered as contributing to it, but my purpose is not to draw attention to what has already been long accepted, but rather to emphasize the fact that, while sciatica may be in rare cases secondary to one of the lesions given, in the large majority of patients presenting themselves for treatment at the orthopedic clinic of the Montreal General Hospital, an associated so called rheumatoid condition of the spinal column, especially the lower vertebræ and sacroiliac joints, has been found clinically, and in many cases these findings have been confirmed by x ray examination.

So often indeed has this associated rheumatoid condition been found, that I have been forced to conclude that the so called rheumatoid diseases, as classified by Doctor Goldthwait, of Boston, are usually the cause of sciatic pains. Further, I have been forced to conclude that in the majority of cases this rheumatoid condition is of the hypertrophic variety, although, of course, in some it is of the so called infectious variety. These conclusions are really in line with the theory of the origin of these pains suggested by Sir William Gowers, many years ago. He is responsible for the statement that various morbid processes within the pelvis may cause sciatica by compressing the sciatic nerves.

The theory that sciatica is usually due to one of the so called rheumatoid diseases is not a new one. Bruce states that sciatica is universally admitted to be related to gout or rheumatism. He says that in its early stages it is labelled sciatica, especially if it is cured; in its later stages it is called rheumatoid arthritis, when the x rays or pelvic deposits make the diagnosis unmistakable.

TREATMENT.

According to the theory which I have enunciated, sciatica is usually a secondary disease, consequently treatment must aim at the relief of the primary condition from which the patient suffers. In the majority of cases this will be found to be one of the so called rheumatoid diseases, and of these most especially the hypertrophic variety will be found to be the cause of the sciatic pains.

The treatment of sciatica, then, in at least ninety per cent. of cases, resolves itself into the treatment of a so called rheumatoid disease of the spinal column and, as this is most frequently the hypertrophic variety, we must, unfortunately, approach treatment from a more or less empirical point of view.

The general treatment will aim at relieving the primary condition from which the patient suffers. If this is of a so called rheumatoid nature, our remedies will be directed against this. Unfortunately our knowledge of rheumatoid disease of the hypertrophic variety is still vague, although I think the majority of persons feel that in many cases it is either secondary to some focus of infection, or that it is due to some intoxication of a chemical nature, or to some malfunction or lack of function of the ductless glands. In endeavoring to treat the rheumatoid condition from which the patient suffers, it will be necessary either to find a source of infection and treat it, or, if this cannot be discovered, treatment must be founded on general

principles, supposing that either an unknown source of infection exists, that there is an autointoxication from the intestinal tract, or a lack of function of certain of the glands, such as the pituitary.

It has often been noticed that patients who suffer from the so called rheumatoid disease, have a coincident enteroptosis. Whether this is, in any way, related to the rheumatoid condition we know not, but we do know that in the majority of cases where sagging viscera are supported, better function follows; consequently, proper supporting apparatus should be prescribed for whom it is indicated.

It has long been known that those who suffer from rheumatoid affections, are usually sufferers also from constipation. Diet and remedies directed against this condition seem to aid those affected with the rheumatoid diseases. We must remember that a celebrated London physician was in the habit of saying that he could cure all cases of sciatica with a purgative.

As to local treatment, rest to the joints affected in osteoarthritis has been in our experience the best form. We know that there are others who do not agree with this, but rest has always proved to be of great value in our clinics. It has not been our rule to give rest to the hip joint, but rather rest to the lumbar region, and especially to the sacroiliac joints. We do this because of the anatomical position of the lumbosacral cord and the sacral plexus in close proximity to these joints. We must remember that rarely are the lumbar vertebræ affected with rheumatoid disease without the sacroiliac joints being affected at the same time. We, therefore, prescribe bandages, belts, or plaster to give rest to these joints.

Static conditions often predispose to the arthritides, consequently we try and improve these in any one who suffers from rheumatoid disease. Beside rest for the relief of congestion and local inflammation, we must not forget the dehydrant salines of our fathers in medicine.

For alterative purposes we have found nothing so good as dry heat pushed to extremes and used often. We have used, though rarely, for the treatment of the so called rheumatoid affections, the method of ionic medication suggested by Leduc, of Nantes. This has seemed to be of benefit, but it is impossible to say whether by the alterative action of the electric current or the local action of the drug employed.

Some conditions often given as contributing to sciatica are: Sacroiliac relaxation, lumbar scoliosis, spondylitis deformans, hypertrophic arthritis (sacroiliac), malignant disease of the sacrum, lumbosacral deformity, including spondylolisthesis, gonorrheal and typhoid spines, tuberculous and syphilitic spines, lumbar ribs, hypertrophic arthritis of hip, flat foot—pyriformis irritation, old fracture of hip, chronic constipation, appendicitis, uterine disturbances, diseases of posterior urethra and annexa, varicose veins, aneurysm, popliteal bursitis, and postnephritic abscess.

Dr. Joel E. Goldthwait, of Boston, has classified the so called rheumatoid diseases as: 1. Hypertrophic; 2, villous; 3, atrophic; 4, infectious, and, 5, gout.

According to neurologists, the differences between a neuritis and a neuralgia may be briefly stated thus: Neuritis is shown by, 1, pathological change, especially an infiltration leading to, 2, change in the conductivity, shown in motor nerves by paralyses, in sensory nerves by changes in sensation, in mixed nerves by, 1, paralyses, and, 2, areas of anesthesia and hyperesthesia. In a neuralgia, on the contrary, there is no pathological change in the nerve structure and no change of the conductivity, thus no real paralysis nor changes in sensation.

In closing these remarks, I would accentuate the following facts:

1. In the majority of patients suffering from sciatic pains examined by me, a primary lesion has been found in the spine or sacroiliac joints.

2. This lesion has usually been of a so called rheumatoid nature.

3. The so called rheumatoid conditions have been amenable to treatment by the methods described.

CHILDREN'S MEMORIAL HOSPITAL.

EPITHELIOMA VARIUM.

BY WILLIAM P. CUNNINGHAM, A. M., M. D.,
New York,

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Clinical Assistant, New York Skin and Cancer Hospital.

Epithelioma is growing apace. Whether this is attributable to the constant influx of foreign born residents or to causes arising in our own communities is a difficult matter to determine. It is certain that the disease is not limited to immigrants. It is prevalent enough in individuals tracing their ancestry through many generations of American forbears. It is also noticeably frequent in sparsely settled districts, indicating that the overcrowding of dense populations is not the determining element. While largely predominating in the so called cancer zone, after the meridian of life is passed, it occurs often enough in advance of that, to demonstrate that other factors beside age are operative. Patients under thirty years of age are no longer pathological curiosities. The wide distribution of epithelioma over the civilized world tends to prove that diet is not the only mischievous influence if it has any direct effect at all on its production. The meat eater, the fish eater, the rice eater, the fruit eater, the man sustained exclusively on vegetables (taken as representatives of their class), none of these has any exclusive tendency to the development of malignant disease. Pronounced or persistent irritation is also offered as a conspicuous and plausible factor in the causation, but here again we are confronted with the curious circumstance that the most aggravated and sustained irritation fails to set up the disease, except in rare and particular instances. Nowhere do we find irritation carried to a more extreme degree than in the stomach of a chronic alcoholic. A low grade inflammation is maintained for years in an organ prone to malignant disease, and yet it is not a matter of record that drunkards are more afflicted with carcinoma ventriculi than more abstemious people. Frankly, I think the preponderance is the other way.

It may be objected that the chronic drunkard kills

himself by his excesses before he reaches the cancer age. But this will not serve because aged drunkards are not at all uncommon; again the continuance of the irritation should precipitate the malignant disease at an *earlier* age in such individuals. So we have to look to something in addition to irritation, and this brings us face to face with that unknown element which we call predisposition. And to talk of predisposition, without being able to determine in what it consists, is a pitiable begging of the whole question. To say that a person has a predisposition to a certain disease without defining the agencies at work is inexact, unscientific, and indeterminate. Arguing in uncertain terms is whistling idly down the wind. It would be fairer and wiser to admit that we do not know why a certain individual responds malignantly to irritations that are innocuous to a thousand others. Whether his susceptibility is in his blood, his cells, his ductless glands, or his nervous system, is a matter at present of the loosest conjecture, and there is little prospect of a satisfactory settlement of the question.

Regarding heredity we are on no firmer grounds. We simply change the terms of the proposition a little, and state that instead of a general predisposition to cancer the victim has an *hereditary* predisposition thereunto. And still we are face to face with that unsatisfactory lack of definite information and still we are whistling down the wind. What is this inherited predisposition? Do we mean by this inheritance that a man has cancer because his father had it? That a woman has cancer because her mother had it? Do we inherit from either parent, from both parents, or are we victims of atavism? And if we cannot prove any malignant lineage, what becomes of the whole proposition of predisposition? And how often can we trace any hereditary tendency in this connection? Is it not a fact that most cancers occur in people who give no such history? Where we have had an opportunity to observe two or even three generations, what confirmation have we ever found of the transmissibility of this fancied propensity? If the predisposition was communicable from father to child, the literature would teem with undeniable and incontrovertible instances. But the logic of the facts is all to the contrary, indicating that whatever the condition may be that renders one individual open to the assaults of the cause of cancer, it is demonstrable that it is not an hereditary cancer diathesis. Isolated instances to the contrary offer no reasonable basis for argument, for rules cannot be drawn from exceptions. In point of fact, this whole question of the susceptibility to malignant disease is a mystery to which we have no clue. Theory may be erected with the most painstaking ingenuity, only to collapse in the presence of fact. Every hypothesis suggested has been controverted by some rebellious phenomenon.

All that we can honestly say at this moment, is that given a certain amount of irritation one individual will succumb to the invasion of the neoplasm and another individual will not. We cannot even estimate the degree of irritation provocative of this malignant reaction. It may be considerable and it may be trifling. Sometimes it is so insignificant that the patient has no recollection of it. Sometimes it is the mere presence of a mole that has

remained innocuous for years, or of a seborrheic wart which is the commonest development of a senile skin. Instances are on record where the tissues have been subjected to marked irritation in one locality, and cancer has developed elsewhere without irritation. For example, I recall the case of an old Irishman who presented himself with an epithelioma of the lip; clearly the result of smoking, as demonstrated by the odor of his respiratory exhalations and the production of a deeply colored stumpy old clay pipe. He had been indulging for years and admitted that his dwarf pipe was strong and burned his mouth. A learned dissertation on the evil of smoking, especially with such an apparatus, was followed by the disconcerting declaration that the patient always held the pipe on the side opposite to the cancer! This was what Dick Swiveller would style a "quencher." The writer's equanimity and the theory of irritation blew up simultaneously. This embarrassing incident illustrates the paucity of our knowledge regarding even the direct provocation of persistent irritation. Will some theorist kindly explain why one side of the mouth may have a stronger predisposition to cancer than the other?

A woman of sixty years, with a prolapsus uteri of the third degree for fifteen years, acquires an epithelioma of the face from an almost indiscernible wart of the seborrheic variety. Her womb had been bruised and excoriated for years; it had become hyperplastic, fissured, and granular; it had been bathed in an acrid, foul, and mordant exudation, producing in the contiguous cutaneous tissues an active dermatitis; and yet this usually susceptible organ, liable to take on malignancy in the most unexpected manner, had resisted all this sustained and serious abuse, and she showed a cancer in a situation where it was utterly unlooked for and apparently inexplicable. How are we to construe such an anomalous occurrence? She had the cancerous "predisposition" evinced by the lesion on her face. Yet she withstood for fifteen years irritation enough to render malignant a dozen other uteri. Was she "predisposed" only in spots like the Irishman with the pipe? If it is objected that individuals may actually be susceptible "in spots" and that certain regions degenerate more easily than others, how can we understand the peculiar immunity enjoyed by tissues of identical construction and almost identical situation, or tissues generally and correctly regarded as fields of election for malignant disease? Postulating a parasitic cause for epithelioma (which I believe will be eventually demonstrated), we are just as much at sea regarding the inclination of the germ to attack certain individuals and certain anatomical areas and to avoid others, even under stress of greatly aggravated irritation. Whether this invader makes its assault directly on the skin, after the manner of the streptococcus in impetigo, or indirectly by the circuit of the circulation after the manner of the hookworm, it will still remain an impenetrable mystery why it selects particular, well defined, and sharply circumscribed areas in which to halt and begin its destructive operations. If determined to points of irritation, why not always to points of greatest irritation? Why to points of trifling irritation like seborrheic warts, and moles

of thirty years' duration? If circulatory disturbance invites the eager parasite, why is its malignancy not expended upon the tip of the nose in acne rosacea, where the blood supply is persistently excessive, or over the crest of the tibia where there is a marked ischemia?

Trophoneurosis will come as nearly as possible to expressing the condition of the tissues that yield to the supposititious microbial invader. There is undoubtedly an alteration in the nutrition of the cells, increasing their vulnerability. Senile keratosis, the favorite culture ground for the cancer parasite, is admittedly an alteration of this character. Doubtless the injuries that focus the cancer assault, lessen the normal resistance of the cells through involvement of the trophic nerves. Hyperplasia, a trophic manifestation, supervenes, to be followed by degeneration. As noted a little further back, all this theorizing on the susceptibility of different tissues to the attacks of cancer is the loosest conjecture, but discussion clears away the mists of uncertainty and occasionally brings forth an idea that is profitable. We will admit then that we do not know what constitutes the predisposition to epithelioma nor what is the exciting cause. We *do* know, however, that in a most capricious manner it develops in consequence of trauma too often grave and sometimes trifling, and that damage to the tissues should be sedulously guarded against in individuals at the time of life shown to be most prolific of cancer. Experience teaches that most of the cases appear after forty years and usually much after that. Hence it is at this period that irritating conditions should be removed, if possible.

No man over forty years old should be careless of a persistent dyspepsia, or a chronic laryngitis, or a smoker's sore tongue, or a chronic cystitis, or even of a little obstinate scab on his face which repeatedly falls off and as regularly reforms. While it is conceded that in a vast majority of instances these symptoms do not eventuate disastrously, yet since it is impossible to determine, in the present state of our knowledge, who will be the unfortunate weakling destined to succumb, it is the part of wisdom to include them all in the suspected class and take measures accordingly. We shall meet with many anomalous situations where our wisest preconceptions will be at fault and the sequence of events a rank delusion. In the hope of saving a few, however, let us warn the many.

Epithelioma, as its name implies, consists in a proliferation of the epithelium, which takes place *downward*. Note this well. This is the condition constituting malignancy—proliferation downward. Proliferation upward would simply result in scaling and exfoliation. This is seen in many processes, such as seborrheic dermatitis and psoriasis. In proliferation downward the superfluous cells are driven in between the normal elements of the part and are condensed into tubes or balls covered with the different layers of the invaded structures, described as globes, pearls, or nests. They have been accurately compared to the homely onion, the innermost strata being imperfectly cornified, the intervening layers showing a gradual progress to the basic cylindric cells of the rete. The centre frequently undergoes colloid degeneration. In the

tubular form the cells, as might be surmised from the title, are condensed into little tubules which usually extend perpendicularly to the surface, but may be deflected laterally. In this variation the typical nests are not discovered. It is this penetration of the stricken field by these minute prolongations of the malignant focus that gained for this disease the sobriquet of the "crab" and aroused the impression that it had "roots."

Truth to tell, this old idea founded on a misconception of the pathology was not so far astray, for a cancer *has* roots in the sense that if it is not extirpated by chemical or surgical means, and if the most microscopic particle is left in the tissues, it will serve as a root for the regrowth of the neoplasm. Practically our predecessors had hold of a great truth, although they inverted the order of the cancer's progress, believing that it was a constitutional dyscrasia growing outward, instead of an irritative process advancing inward. In their view, operation offered little if any chance of complete success, because the origin was in the patient's constitution, whence it was impossible to cut it out. We know that, if we secure all of the existing cancer cells, we have done for that particular neoplasm utterly.

While the microscope has not disclosed to us the etiology of epithelioma, it has disclosed its construction and thereby furnished us the means of making a positive diagnosis, early enough to save the patient. Many times the condition is not clinically frank. It will appear under aspects more or less misleading. It will be confounded with other and less serious diseases. It will be permitted so to fortify its position that its removal will be incomplete and its relapse inevitable. It will be the part of wisdom then to learn to recognize, not only the typical manifestations of epithelioma, but what may properly be called the uncertain manifestations, the unusual and irregular and deceptive forms which suggest anything but the true state of affairs. The microscope is not immediately available in every dermatosis of a circumscribed, persistent character. We cannot get permission to cut pieces out of people's faces, unless we can furnish a reasonable excuse. We must be sufficiently familiar with the clinical appearances of epithelioma under its various guises to warrant our asserting that any particular lesion is in the suspected class and should be subjected to biopsy. So the intervention of the microscope does not relieve us of the need of scanning the gross appearances on the skin.

A typical epithelioma might be described as a shallow ulceration with a raised, rolled pearly border. The exudation from this dries into a scab which is constantly being dislodged and reformed. Its progress is slow, its disposition indolent. Pain may or may not be assertive, depending largely on situation, depth of excavation, and acuteness of the patient's sensibility. This lesion may occur anywhere on the skin, but shows a preference for the face. Cheeks, forehead, temples, eyelids, nose, angle of mouth, and even the helix of the ear may be the site of election. Elsewhere on the body it may choose its habitat in the most capricious and inexplicable manner. Shoulders, chest, buttocks, penis, have been involved, in many instances without

any detectable trauma. I have seen it surmounting an umbilical hernia. I have seen it invade the edge of an old parenchymatous ulcer of the shin. Its unusual appearance in this last situation is a matter of record and of wonder too, for if there is anything in the provocative potentiality of persistent irritation, an ideal opportunity is presented in leg ulcer. Epithelioma has been known to arise from the friction of suspenders on the shoulder. Why it appeared under one strap of the suspender and not under the other, deponent sayeth not. The essential thing to bear in mind is the persistence of a crusting lesion with a pearly edge. Do not even hold out for the pearly edge, as it may be indiscernible; but cling firmly to the untoward significance of the obstinate little scab.

The so called rodent ulcer is a shallow epithelioma occurring usually on the cheek near the eye, but sometimes found in other and peculiar situations. It presents no essential difference from the other variety, except its aforesaid shallowness. It is less liable to metastasis than the deeper cancers, but may be destructive because of its situation, close to the eye, for instance. It occasionally shows a tendency to spontaneous regeneration, but it is foolhardy to trust to that or to its apparent benignity. It possesses all the attributes of a first class malignant growth, and requires only opportunity or incentive to display its real character.

Sometimes epithelioma begins as a distinct nodular elevation in the skin, which may ulcerate after a prolonged stretching of the superimposed epidermis. It then assumes the appearance of the ordinary ulcerating form. Another deviation from the ordinary is seen in the crater form epithelioma in which, as its name would suggest, there is a miniature mountainous formation with a caving in of its summit and the formation of a deep ulceration. This shows a well marked pearly border. Lipomatous tumors have been simulated by tubular epithelioma until a superficial ulceration betrayed the deception. If a doubt of this kind arose, the removal of the growth would resolve the doubt and save the patient. The mere possibility of such a mistake emphasizes the wisdom of removing all tumors of whatsoever character, wherever situated. A curious and misleading form of epithelioma is known as the flat or parchment type. There is hardly any appreciable thickening of the affected region. There is a white or yellowish alteration in the skin surrounded by a red areola. This areola may be infiltrated. In a lesion of this sort, the diagnosis will have to be made from a patch of morphea or lues. The tenuity of the infiltration would exclude lues and a Wassermann might be called into requisition. If a reasonable term of observation failed to exclude morphea, biopsy should be resorted to. No ulceration occurs, the area traversed being changed in appearance to a more conspicuous white than the surrounding skin or to a faint shade of yellow.

Warty epitheliomata indicate the involvement of the papillary layer of the corium, and exhibit verrucous excrescences of quite a prominent height, which bleed easily and ulcerate deeply. The downward extension of these lesions is as marked as their external growth. They travel rapidly and

metastasize luxuriantly. A persistent warty growth that bleeds readily should be considered malignant in any person within the cancer age, and should be viewed with grave suspicion in even very much younger persons. The secondary epitheliomata following x ray dermatitis and xeroderma pigmentosum are not liable to be mistaken, because of the conspicuousness of the original conditions and the acknowledged proneness of the one and the absolute certainty of the other to develop malignantly. Xeroderma pigmentosum must fairly be considered a cancerous disease, because of its invariable cancerous termination. Malignancy must be essentially a characteristic from the beginning, otherwise there would be displayed the usual caprice of epithelioma in attacking some favorable situations and avoiding others. Here it never fails to attack. And this particularly atrocious and speedily fatal illustration of the destructiveness of epithelioma, runs flatly contrary to the conventional idea that elderly people have a practical monopoly of that sort of affliction, for it begins in the very young and terminates existence sometimes within the first decade.

Correct diagnosis of epithelioma is essential, not only to preserve the life of the patient by early interference, but also to avoid the embarrassing blunder of operating in nonmalignant cases. More than once it has transpired that the surgeon has operated on a luetic lesion. And more than once has the Wassermann interposed to halt the hideous malfeasance. The confusion arises in distinguishing epithelioma from lues and lupus. When the cases are typical no difficulty is experienced; but when they are atypical, the difficulty may be grave. Craving indulgence for the apparent levity of the comparison, the situation would resemble that created by the light fingered gentleman who manipulates the three shells and the pea at the country fairs. The shells look exactly alike and the pea is under one of them; but it is extremely hard to guess which. Sometimes the lesions of these three diseases look so much alike that it is hard to tell which conceals the pearl of malignancy.

As regards the differentiation between epithelioma and lues, we can cut the Gordian knot and solve the difficulty at once by recourse to the Wassermann. One element of uncertainty is to be reckoned with, and that is the possibility of an old luetic having an epithelioma. A positive Wassermann under these circumstances might be ruinously misleading. Treatment along specific lines should speedily confirm the findings of the laboratory. If ineffective, we should carefully reconsider the whole pathological problem, with the single purpose of heading off malignant encroachment. If the advanced methods of handling syphilis prove abortive, we shall be driven to the conclusion that we are dealing with an epithelioma in an active luetic. A biopsy would decide in this contingency. This is no fanciful picture. The dilemma has arisen more than once. Punched out ulcerations without surrounding infiltration, yielding a foul discharge and advancing quickly, are luetic. Cancer has a zone of induration, a rolled edge, a shallow base, a very scanty secretion, a marked tendency to scab, and a very slow progress.

Epithelioma and lupus should rarely cross orbits

on account of the marked discrepancy in the age at which they usually occur. Lupus is a disease of childhood and youth; epithelioma of advanced life. As much as lues outstrips cancer in rapidity of development, does cancer outstrip lupus. Occasions have arisen, however, when the conventions have been subverted and lupus has begun late in life or epithelioma early. The change in chronology effects no change, however, in the rate of progress, and lupus will be just as snail-like in the one case as the other. But as it is indefensible to await the verdict of duration in a situation probably involving the life of the patient, we must decide by a speedier method with what we have to deal. Lupus has a soft and pulpy edge, and little specks will frequently be found in the vicinage. If the apple jelly nodules can be found by the glass compressor, the diagnosis is settled. Ulceration is an incident in lupus: it is usually the main clinical feature in epithelioma. A careful consideration of all the circumstances ought to lead shortly to a correct decision. A history of the secondary degeneration of a preexisting cutaneous abnormality such as a mole or keratosis, would indicate epithelioma.

Epitheliomata are sometimes multiple, but preserve the characteristics of the single lesions. Some epitheliomata are spoken of as *benign*. They are about as benign as a powder magazine in the vicinity of a house on fire. If a spark does not light on the powder, everything is quiescent. But the conditions are all prepared for a magnificent explosion if the contretemps occurs. The forces of cancer are all arranged in orderly fashion in the so called benign epithelioma, ready for a vigorous assault the moment a favorable opportunity presents itself. The man with a "benign" epithelioma is literally sleeping over a mine.

The progress of epithelioma is often slow. It may pursue these dilatory tactics for many years, lulling the patient into a fancied security, and then suddenly be aroused to a frenzy of activity that sweeps him quickly to destruction. Situation governs this to a certain extent. Tissues rich in lymphatics go fast. Encroachment into the mucous orifices or the deeper dermal strata stimulates activity. Metastasis in the ordinary epithelioma is uncommon until provoked by the changes mentioned. But its advance is steady and persistent and, sooner or later, it is bound to reach a position whence its attack will be fatal.

The moment the diagnosis is made, epithelioma should be removed. Observe the word "removed." This does not mean cicatrized, epidermized, covered up, and surface cleaned: it means *removed, taken out, extirpated, eliminated* by the ablation of all the tissue involved to the uttermost cell thereof. This can be accomplished decisively only by the surgeon. The knife making as wide a detour as may be permitted by the situation of the growth, should encompass all its ramifications and descend deep enough to include the perpendicular development. The curette has been urged as substitute for the knife, on the ground that it is as effective and not as terrifying as the latter. It can be manipulated by the dermatologist, obviating the necessity of turning over all the malignant cases to the surgeon. The curette is a very clumsy substitute for the knife,

aiming to do in a blind, groping, tearing, bruising way what the knife will do cleanly, neatly, and decisively. It lacerates the tissues, tears down barriers, opens up avenues of extension, and grinds the infective material into them. It attacks only the area of visible lesion and ignores the subcutaneous encroachments. It is maintained that the basal cell cancer is safely removable in this way, but that the prickle cell type is proof against such a procedure. As a matter of fact either type may escape complete erasure by the curette, and the basal cell neoplasm may relapse like the other. It is often asserted that to operate widely enough to take in all the possible reaches of the hidden portion, would involve such mutilation as effectually to deter the majority of patients until too late to be rescued. This is not a sound objection, for the reason that the cosmetic effect is nothing compared to the safety of the patient, and for the further reason that the hypodermal disease can be removed by the removal of the fascia and fat, the cut in the skin being confined to a moderate circuit. It is argued also that metastasis being tardy, there is very little involvement beyond the confines of the visible lesion. In answer, it may be said that in these circumstances the knife will be at least as effective as the curette, and need not remove any more of the integument. If any of the malignant cells are left behind, they will certainly find a better field for luxuriation in the mashed and lacerated tissues ploughed up by the curette. There remains now the contention that the knife involves the use of an anesthetic and the curette does not and that therefore the curette is the less alarming and the safer procedure. Of course this holds good only in conditions where an anesthetic is contraindicated. As regards the actual distress experienced when an anesthetic is not employed, there is no question that a speedy knife cut is preferable to the brutality of the rasping, rending, and revolting curettage. Of course the use of a local anesthetic removes all the point from this last objection. The knife will do all the good that the curette will do, with a fraction of the trauma.

Various caustic pastes were in vogue in the practice of our fathers for the chemical eradication of epithelioma. There are truthful accounts of cures without relapse by this barbarous method. Of course in point of effectiveness, celerity of action, and operative distress the chemical destruction of the growth is inferior even to curettage. Tremendous reaction, torture for hours, perhaps for days, constitutional disturbance of so marked a character that it becomes a serious objection in those advanced in years, are the drawbacks encumbering and discrediting this line of attack. There was a paste presented to the profession a year or two ago, which promised great things in the way of chemical removal of the superficial type of cancer. It produced very little distress and as much apparent result as arsenic. However this preparation, described as radioactive by its deviser, was solemnly banned with bell, book, and candle *ex cathedra auctoritatis*, and it is now flagrant heresy to mention it by name. That leads us quite naturally to the question of radium itself in the treatment of cancer. Facts are eloquent. Cures are indubitable. Some inoperable growths deep seated and inaccessible, have yielded, if not full re-

covery, at all events a longer lease of comfortable existence. Relapses have occurred; perhaps experience will obviate them. Radium is scarce and costly and its applicability is consequently limited. It is too soon to say whether its action can be regarded as final. The x ray is a dubious and objectionable remedy. Its faculty of producing epithelioma where none previously existed, as shown by the deplorable degeneration in x ray burns, emphasizes the possibility of its aggravating an active lesion or preparing a soil for its speedy recurrence. Carbon dioxide "snow" is not indicated.

As the case stands, common sense and experience urge the surgical removal of epithelioma. If radium fulfills our expectations, we may be able to withdraw some cases from the wielder of the knife. Until that joyous day arrives, we must confess that any treatment that does not insure the total excision of the growth by as wide a margin as can be secured, holds forth no promise of permanent cure. Other measures may succeed here and there, "more by good luck than good management," but they are shots in the dark, lacking comprehensiveness and scientific accuracy.

323 WEST FOURTEENTH STREET.

PARAGEUSIA AND ITS TREATMENT.*

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The term *parageusia* was coined by Warden, in 1889, to cover the complaint of bad taste experienced by the patient when there was no material in the mouth to account for it. The term has been used by three or four writers since that time to designate a similar condition. Most of us have so long associated the complaint of bad taste in the mouth with digestive disorders that we have been overlooking the fact that it is quite often an expression of diseased conditions other than those originating in the gastroenteric tract. Another reason that it is overlooked is because the sense of taste is so largely a subjective phenomenon that we have no means of measuring its intensity or character. "There is no accounting for tastes" is an old saying, and it is frequently a very difficult thing for a patient to convey to us by means of language just what the taste that he experiences, resembles. In passing, it may be mentioned that one must not confound herewith the bitter and acid regurgitation which patients often call bad taste—because these eructations leave a bad taste in the mouth for a short time after regurgitation.

During the past year I have questioned between 500 and 600 patients; 1, as to the presence of this symptom, 2, as to its constancy, and, 3, as to its character. It was present in 180 of these patients; 105 complained of it only as a transitory phenomenon, seventy-five complained of it as a more or less constant symptom for weeks, sometimes months. In attempting to arrive at some conclusion, I selected five tastes which are intelligible practically to every

*Read at the fifteenth annual meeting of the American Therapeutic Society, Albany, N. Y., May 29 and 30, 1914.

one and used them as a basis. Occasionally a very intelligent patient will have noticed some slight modification, but inasmuch as all of these tastes are appreciated by every one, I believe they will form a working basis: 1. Bitter (gall), olives; 2, sour, acid; 3, salt; 4, sweet; 5, coppery; 6, iron; 7, metallic, and, 8, pappy or flat. Physiologists say that there are only four tastes appreciated by the tongue and that other tastes are largely olfactory, but undoubtedly these four latter are present subjectively and are independent of the sense of smell.

No special part of the tongue or mouth was affected; the taste was in all cases general. A few stated that it was more marked about the teeth. Sometimes the sense of taste as evoked by pressure, e. g., causing the tongue to be pressed against the roof of the mouth increased the intensity of the taste. Curiously enough it is after all rare to find this complaint constant in true organic gastroenteric disease; in most instances some other pathological lesion is back of it. It is present to a greater degree in functional disorders, but even in these cases it is present only for a day or two and is then absent for a long time.

My attention was first directed to this matter about a year ago, while studying a group of patients who came complaining of various disorders of the gastroenteric tract, associated with high arterial tension and the complaint of bad taste. Since then, close questioning of all patients with high arterial tension and other evidences of nephritis has practically always revealed the presence of the symptom of persistent bad taste. In the last fifty cases there were but two or three which did not give a history of bad taste of long duration at some time during the preceding six months of the disease. Most of these patients do not complain of this symptom, but gradually come to regard it as an evidence of an upset stomach and neglect to mention it, or, because of its gradual appearance, they do not refer it to the present illness and pass it over as a minor matter.

In the early stages of chronic interstitial nephritis, the patient complains of the bad taste only on arising in the morning and says that it disappears after breakfast. In this way it closely resembles and keeps pace with the suboccipital headache so characteristic of early nephritis. As the disease advances, often, but not always, it reappears later in the day, in some cases, particularly of the cardio-renal type, it reappears after exercise or at the close of the day. In one case, the ingestion of a meat meal caused a taste described as rubberlike to appear regularly two hours after eating and to persist for about two hours. In general, the prognosis seems to be worse the more constantly the taste is present; certainly in the cases observed by me, when it was constantly present and did not react to treatment, it was soon associated with other symptoms that caused one to give a gloomy prognosis.

In many instances bad taste was the only symptom the patient complained of, and I suggest as a working rule that when any one, particularly a person of forty-five years or upwards, comes complaining of persistent bad taste, a blood pressure examination be made at once. This sign often precedes the appearance of other symptoms by a month or more.

In the management of the high arterial tension cases, three lines of treatment succeeded fairly well; in cases associated with flatulence, the bromides, twenty grain doses three times a day, act better than anything else. In cases without flatulence, digitalis, either alone or with hydrochloric acid, after meals, produced the best results, although by no means uniformly. The vasodilators, such as the nitrites, did not cause any improvement. In a few cases diuretics answered well.

Next in frequency I have found this complaint associated with gallstones and cholecystitis. During an attack of cholelithiasis a large number of patients complain of bad taste, which is generally ascribed to coincident gastric disturbance or to the morphine given to relieve pain. In most instances, the taste is described as bitter, like gall. During the diminution of the attack, i. e., after the colic has subsided while yet the pain and soreness remain, the taste is sometimes described as dry, but quite often the "gall" taste remains. In a few cases, the taste was described as being like musty eggs. Medical treatment has not yielded any satisfactory results in this class of cases.

Bad taste is not necessarily associated with jaundice, inasmuch as the taste must be due to other toxic substances, as bilirubin does not appear in the saliva in jaundice. I believe that when the sign is present, it is of valuable diagnostic aid in differentiating gallbladder disease from other abdominal affections. It was present, in some degree at some time, during the course of seventy per cent. of the cases of cholecystitis and cholelithiasis observed by me within the past year. In some cases it was present in the interval after the attack and was the only symptom complained of. In a few cases of cirrhosis of the liver, bad taste was complained of, but it was described as being like the taste of a tallow candle. This gall taste is practically always present in cases of drainage operation of the gallbladder and persists as long as the bile drains off. In two cases where cholecystectomy was done, it was not present after the operation. In three cases of catarrhal jaundice, the gall taste was present three or four days before the jaundice was noticeable, in one instance, a week before. At first sight one would be apt to think that the taste was due to the attack of gastroduodenitis that so often precedes catarrhal jaundice, but the taste persisted for several days after recovery, appearing only in the morning on awakening, and it was distinctly different from the ordinary bad taste of digestive disorders.

There are many other diseased conditions associated with bad taste, of longer or shorter duration, but as far as I have been able to ascertain, the presence of this symptom does not materially aid us in diagnosis, except in the two diseases above mentioned. Of such conditions diseases of the digestive tract easily rank first in frequency. Contrary to the experience of other observers, patients presenting evidences of intestinal toxemia without other disease, have not commonly complained to me of persistent bad taste. While it is true that at times almost all such patients do complain of taste troubles, it is rarely present persistently. Of two dozen such patients seen recently, only three complained of this

symptom; in these cases the patients complain of flat, pappy, or "dark brown" taste.

The ordinary bad taste occurring in acute digestive disorders, is generally described by the patient as a flat taste. Sour or bitter tastes are rather rare; they are temporarily present and are not of any importance. In the treatment, the use of calomel, followed by a simple rhubarb and soda mixture, is all that is necessary. Occasionally there are cases that do better with hydrochloric acid.

In some cases of pulmonary tuberculosis, a bad taste comes on about noon and lasts until bedtime. The patient sometimes tastes his food as it should be, and experiences bad taste only with the mouth empty. In other instances, the food tastes flat. Occasionally antipyretics of the coal-tar series modify it, but rarely is this so.

The bitter taste sometimes associated with coryza is occasionally relieved by adrenaline spray. More often there is a complaint of no taste or that everything tastes the same. This is only temporary.

Kleiner has described a disordered taste present in acute rheumatic fever. He thinks salicylates relieve it. I have observed this symptom frequently and believe it is present in about sixty per cent. of the cases. Some complain that it is a bitter taste; others say that it tastes acid. One must not confound it with the taste sometimes following the administration of antirheumatic remedies; it disappears before the joint symptoms do. In passing, it may be mentioned that the administration of certain drugs, particularly iodides, is followed by unpleasant taste. Here, of course, its persistence depends on the continuation of the drug.

A sweet taste is said to be present in cases of inanition. In two cases of pernicious anemia, persistent bitter taste preceded the other clinical symptoms by six and eight months respectively.

Decompensating cardiacs often complain of bitter taste; it is associated with edema and other evidences of passive congestion of the kidneys, and is probably analogous to the taste in nephritis mentioned above. Digitalis and diuretics usually lessen it. Patients with arteriosclerosis sometimes complain of an inversion taste, i. e., salty things taste sweet to them.

A metallic taste appeared in one case one hour after the beginning of the pain of renal colic; this was associated with dryness in the mouth. In another case, the taste appeared during the attack. The taste in diabetes is described as sweetish, but in my experience this is uncommon. Most of the diabetics had albumin in the urine in addition, and had really combined diseases; they complained of a bitter taste, which is present in a large proportion of all diabetics when the disease is progressing.

In hysteria and neurasthenia, the taste most commonly complained of is that of an intense acid, and this is a source of great irritation to the patient. Argument and reason cannot dissipate it, and curiously enough examination of the buccal secretions generally reveals a marked acid reaction. Occasionally there is an accompanying dryness of the mouth most noticeable at meal time or when talking. Bromides lessen, but do not relieve it. Prolonged rest has always cured it.

At the menopause, many women complain of this

symptom. It is usually more marked in the afternoon and generally does not interfere with the taste of food. Many women, before or during the menstrual molimen, complain of bad taste. It is often associated with bad breath, but it bears no relation to gastrointestinal disturbance. Nothing that I have been able to do has lessened the complaint at this time.

Many men complain of a bad taste the morning after excessive smoking. It is variously described, but a flat taste is the commonest complaint. Stopping the smoking gives relief, as might be expected.

In passing, it may be mentioned that a complete bilateral loss of taste is almost always due to hysteria. Occasionally, in the early months of pregnancy, a sour taste is present, usually most noticeable in the morning. Sometimes it is present shortly after eating and is not associated with other gastric disorders. Gastric and duodenal ulcer patients occasionally complain of continuous flannel-like or sweetish taste, but it is not characteristic. In cancer of the stomach, sometimes the patient complains of a pappy or an insipid taste. Two patients with cancer of the uterus complained of a slimy taste.

Pyorrhœa alveolaris is accompanied by bad taste, but here the relation is quite evident. In the course of nearly all acute febrile diseases, bad taste is complained of, but it does not have the same persistence as in the cases mentioned above. In disease of the central nervous system, anomalies of taste occasionally occur. These are generally due to syphilis. In one case, the patient complained of complete absence of taste for six months. Two weeks of mixed treatment completely cured him.

A bad taste sometimes precedes epileptic and migraine attacks. Occasionally in accessory sinus disease, there is a complaint of bad taste, yet in most cases I am inclined to think that it is due to disturbance of the olfactory portions of the taste apparatus. The location of much taste perception is in the superior pharynx and posterior nares. The irritating odors of pus from the sinus give the impression of bad taste.

Finally, as a result of a year's close questioning of patients on the subject, I am convinced that persistent bad taste in the mouth is a symptom of much importance; that it is always an expression of a serious toxemia, and is frequently of very great service in the early diagnosis of disease.

I wish to express my thanks to the attending staff of Harlem Hospital for the privilege of examining many of the cases mentioned above.

220 WEST 139TH STREET.

Kuhn's Mask in Tuberculosis.—A. Gausse, in *Revue de la tuberculose* for April, 1914, states that Kuhn's well known device may be used with advantage in pulmonary tuberculosis when the morbid process is of slow type, progressing but little or not at all. Cases of chronic bronchitis of tuberculous origin with associated emphysema, of fibrocaceous tuberculosis showing a tendency to spontaneous fibroid change, and of tuberculous pleurisy, do not appear to be among the forms of the disease in which the mask yields its best results.

VOICE FATIGUE IN SINGERS AND
SPEAKERS.*BY IRVING WILSON VOORHEES, M.S., M.D.,
New York.

This subject has been so fully and intimately explored by German authors, notably Flatau, Imhofer, and Gutzmann that I can scarcely hope to add much from my own relatively meagre experience to our stock of common knowledge. However, since there seems to be a dearth of information concerning voice fatigue in singers and speakers in our American periodical literature, I have thought it not unwise to present some of the facts which I have been able to gather from a thorough review of the literature and from an intensive study of such cases as have come to my attention.

Voice fatigue was recognized as a pathological entity as far back as 1600, when Fabricius Ab Aquapendente expressed his views on the subject in a rather laborious essay. In England the condition was long known as clergyman's sore throat, while in France it was named more accurately *fatigue de la voix*. Not until 1906, however, was it scientifically and accurately described in a little brochure entitled *Die funktionelle Stimmeschwäche (Phonasthenie) der Sänger, Sprecher und Kommandanten*. In that monograph, Flatau not only gave a clear exposition of the entire matter, but recommended and described a rational and successful therapy.

Weakness of the voice, or phonasthenia as it is now commonly known, is a disturbance in which a given voluntary impulse to the vocal bands is not followed by a normal tonal effect—that is to say, the produced tone is higher or lower than the intended tone, is unpleasant to the ear, and has no staying nor carrying power.

The fundamental cause of this difficulty is in many cases faulty voice placement. Just as many people never learn to walk gracefully, many never learn how to get the most out of their voices. In America we seem to be particularly unfortunate in our speech habits, so much so, that our so called nasal twang and careless pronunciation make us a butt for ridicule in many foreign countries, where we go to exchange good American dollars for as much old world culture as we can assimilate within a few short weeks.

As an expressionist friend of mine has very tersely put it—"Americans returning from Europe hear for the first time the raucous, sharp, high pitched, nasal, unmusical voices of their countrymen. Their national self complacency has been punctured, and they set about correcting what to them has become an offence. The actor has always recognized the need for a pleasing expressive voice under perfect control. Ministers who deal with the greatest subject that has ever engaged the mind of man—the destiny of the human soul—pay practically no attention to the method of delivery of their message. They rise upon their toes and fold their fingers, and scream till they are purple in the vain effort to be impressive."

To obtain the best effect, one must study the art

of control over body and voice. This demands laborious and painstaking effort. The time to begin is in childhood, at the "awkward age" when thought processes are still plastic and have not reached the stubborn and sometimes almost hopeless automatic stage. The inadequate term "elocution" has in recent years given way to "expression" or "interpretation," and much is to be hoped for in furthering the cause of proper vocal technic.

Voice is produced, not by the throat alone as is commonly inferred, but by every part of the body. The nose, accessory sinuses or resonators, pharynx, buccal cavity, teeth, lips, tongue, larynx, lungs, bony thorax, diaphragm, respiratory muscles, and most of all the central nervous system take part in this complex vocal mechanism. The ears give one an idea of quality, timbre, pitch, loudness, etc. Touch enables one to "feel a tone" as the expression is. The muscular sense is capable of telling whether individual muscle groups and antagonists are working properly.

As for the throat itself, correct function of the vocal cords calls for the purest and best tone with the smallest output of effort consistent with artistic speaking and singing. This is a fundamental law and the one which is most frequently violated. The campaign speaker is always confounding big, burly voice with strong argument, and the ambitious singer is always mistaking a big, brawling tone for genuine art. Accuracy of method should be the first consideration.

Phonasthenia is a condition which affects nearly all ages and both sexes. Voices of high pitch are especially prone, because not infrequently they have poor carrying power, and the user is always making an effort to be heard distinctly by all. Teachers, preachers, stump speakers, vendors, telephone operators, and singers are most frequently affected.

Certain physical causes associated with diseased conditions engender disturbances which prevent the muscles concerned with voice production from reacting properly to normal impulses. Thus anemia and chlorosis, through insufficient nourishment of the muscles and improper removal of waste, are not uncommon causes. In such cases, where voice gymnastics and other therapy fail, arsenic, iron, and strychnine may work a cure.

The edges of the vocal cords are extremely sensitive to slight influences. For example, pregnancy, a physiological condition, may change the quality and carrying power of the voice very markedly. Menstruation also affects some women in like manner. Convalescence from typhoid and influenza frequently shows marked vocal changes which are for the most part, however, merely temporary. Chronic diseases are a fatal cause of voice fatigue; chronic tonsillitis with concretum formation is especially important. Nasal growths and deformities, purulent discharges, and chronic hypersecretion are also frequently responsible agencies.

Beside the above mentioned, we have also to reckon with etiological factors which demand a greater amount of strength for the production of a tone than should be employed. False teaching and improper vocal efforts are common factors. Imhofer says that two thirds of all cases of phonasthenia in singers are due to bad schooling. Flatau

*Read before the American Academy of Ophthalmology and Otolaryngology, Boston, October, 1914.

believes that eighty per cent. of young singers are affected with phonasthenia by the end of their third year of study. There seems to be no one error of method, but every rule which violates the law demanding the use of the smallest amount of effort for the maximum of effect, tends to phonasthenia.

The symptoms of phonasthenia are definite and certain. There is sudden and severe hoarseness, huskiness, tendency to clear the throat constantly, pain in the sides of the neck, and pain on swallowing. There is no sign of an active inflammatory process, although the redness due to trauma is pronounced if the condition comes on acutely, as in public speakers. The voice is weak, unsteady, tends to break in certain spots, and to slide off the pitch into a lower key.

If the patient is a singer, one should go carefully into the history. Usually there have been from two to twenty different singing teachers, each of whom has told the pupil that his method was all wrong, and must be utterly changed. This produces so much confusion and uncertainty that the patient will usually confess to a lack of knowledge of the very fundamentals of voice production.

Many of these patients have gone through a process of having the voice "screwed up" (*hinaufschrauben der Stimme*). A baritone has been changed into a tenor, or a contralto into a soprano. In some borderline cases it is almost impossible to say which type one is dealing with, whether, for instance, a voice should be trained as a baritone or a tenor. Moreover, certain peculiar changes take place quite unexpectedly at times. Thus Caruso began his career as a baritone, but his voice changed naturally to an exceedingly remarkable tenor. Singing out of one's range has ruined many a good voice. Some music, as written, is specially difficult even for a well schooled voice. For example, the character, Ortrud in *Lohengrin*, makes very severe demands upon a contralto.

Breathing, while essentially simple, is a great bugaboo to many singers. Instead of being an involuntary, automatic act, it is forced and voluntary. The fault is chiefly in improper expiration. A singer will fill the lungs with air when about to take a high note and strive to force the entire volume through the narrow chink of the glottis. The Germans aptly term this, singing *mit wilder Luft*. The column of air is too rapidly discharged. Here the abdominal respiratory curve is too sharp. It should be wide and show a gradual approach toward a straight line effect.

The much discussed *coup de glotte*, stroke of the glottis, is considered by Imhofer to be a primal cause of phonasthenia. One must distinguish between this method of attack and that used by coloraturas in doing agility exercises, for the latter is physiological, but the former demands that the vocal cords be pressed tightly together, a condition dependent upon faulty breathing, as we have just seen.

Tongue interference is also a common cause of voice fatigue. Here the tongue is arched upward and backward, pressing against the epiglottis, and dampening the desired effect to a marked degree. Usually, the more the teacher draws the pupil's at-

tention to this matter, the more unruly does the tongue become. Holding the tongue down with a pencil or spatula does no good. The condition is of psychic origin and must be corrected from that standpoint.

Nearly every teacher has some special trick or device for overcoming all the singer's difficulties, which he has elaborated into a "method" and promulgated as a law. There is only one way to sing and that is the correct way, viz., by using a minimum amount of effort to produce a maximum artistic vocal effect. Singing is a great art which does not readily yield to a series of rules and regulations. Because it is such a simple natural process, excessive thinking about how it is done has made it one of the most difficult arts to acquire. It is first of all a gift—a gift which is not widely distributed among mankind in spite of the fact that nearly every one can sing a little. A high artistic standard has been set by the world's great singers, which is impossible of attainment by the great mass of mankind. It is a gift which manifests itself in infancy, and hard work is only a very subordinate qualification in attaining great place in the world of song.

For years the battle has been waged between the so called open technic of the Italian school and the closed technic which is more distinctly French. This debate is of some importance to us as physicians, because it has a direct bearing on phonasthenia. A combination of the two would be ideal.

Singing with wide open mouth, enormous lung volume, and violent movements of the body, lays the foundation for an early onset of phonasthenia. It is especially bad for contralto, baritone, and bass voices where big tone is considered of prime importance. On the other hand, the excessively "covered" type of production, projecting lips, cramped smile, and a too frequent use of pianissimo wearies the listener and robs the voice of that dash and brilliancy so essential to certain types of song.

Anything which disturbs the automatic singing act, every adventitious element in the tone producing and tone resonating apparatus, violates the fundamental principle of the least exertion for the securing of the greatest effect, and tends to phonasthenia. The voice must be handled as an individual problem. The psychic element, mental poise and suggestion are all important. It is very necessary for everyone who essays to deal with singers to cultivate an attentive ear, refined taste, and a habit of reflection. Only in this way can critical judgment be educated to interpret what is wrong with the voice. Imhofer has put the matter tersely and correctly: *Wer sich also mit Singstimmenbehandlung abgeben will, muss Laryngologe, Musiker und Diplomat sein.* (Whoever busies himself with the treatment of voice defects must be a laryngologist, a musician, and a diplomat all in one.)

The treatment of voice fatigue, both in speakers and singers, is fraught with difficulty, chiefly because the thing mostly to be desired, viz., rest, is felt to be impossible. The patient wishes to know how he can go on with his work and make a fair showing in spite of his disability. But it is of no use to treat such a case while the causative agents go on. The physician must recognize all causes for

the vocal breakdown, both direct and contributory, and deal with them accordingly.

With singers a system of prophylaxis should be worked out. This will astonish most persons, for such a thing as hygiene of the voice is practically unknown. The teacher must be invited to send his pupils for an early examination not only of the nose and throat, but of the general condition as well. This should be done after the first interview between teacher and pupil before lessons are begun. If in the general examination there are extreme nervousness and irritability, poorly nourished body, chlorosis, anemia or debilitating disease, the pupil should be advised not to undertake so difficult and prolonged a task as voice culture. If he does, disappointment and even worse are inevitable.

The "feeling" and significance of early voice fatigue should be explained. Lessons should last not longer than twenty minutes, consisting of vocalization for five minutes, followed by a rest for five minutes. The pupil should not go home at the end of the first lesson to strain his voice by attempting arias from grand opera. He must be taught how delicate the vocal mechanism is, and that a long, bright career is rather to be desired than a short brilliant one. On his own behalf, the physician should realize the utter futility of spraying, painting, burning, the use of pastilles, etc., save when called for in acute infections and chronic productive processes.

When treatment is decided upon, the full and earnest cooperation of the patient must be insisted upon. Discipline must be rigid, even to the minute of the hour for appointment. First of all a voice analysis with piano should be made with notations of all defects. Then the silence treatment must be carried out rigorously, remembering, however, that this will not cure voice fatigue, for the symptoms will disappear only to return when the voice is used.

The patient is better off away from people who make social demands upon him. In acute cases vocal gymnastics can be begun right away, but the general body condition must be good, especially the condition of the nervous system.

Local causes of minor value, growths, etc., should be removed only when analysis shows that they are of great importance. One must remember that these patients are usually suffering from local over-treatment. A specific case of this came to my attention in which a phonasthenic had been so much operated upon and cauterized that he became neurasthenic as well, so that he could not even take vocal gymnastics. Nasal insufficiency, if marked, leads to forcing and should be corrected, but preferably by a conservative method.

Large tonsils in singers must be studied before removal is advised. It may be wisest to do a tonsillectomy rather than a tonsillectomy or even to treat the crypts conservatively. Caustic agencies are to be avoided in phonasthenia. Silver nitrate should not be used in the larynx unless there is a chronic laryngitis. It does no good in phonasthenia and is very disagreeable to the patient. Warm applications are useful for pains in the throat. Menthol may be applied to the mucous membrane for cooling, analgesic effect. In 1908, Flatau advised cupping each side of the larynx for from fifteen to

forty-five minutes. After a few hours, this is followed by moderate edema and swelling of the vocal cords. In a few days the cords become paler, less swollen, and of greater mobility. This method often does well with speakers. A spray of ice water is a welcome measure with some persons.

Voice fatigue in speakers is often due to the fact that the voice is pitched too high, i. e., above its normal range. According to Spiess, the most favorable tone register for speakers is about three tones below the middle of the voice range. During an attack, stasis by external cupping or a constricting neck band is of value. Meyjes advises a spray of ichthyol five to ten per cent. As soon as possible the patient should be taught by a teacher of expression, how to secure and maintain a proper relationship between the natural voice and the height necessary to declamatory demands.

The speech must be slow, fairly light, with good lip and tongue action. The voice should be directed forward against the upper teeth and hard palate, and increased and diminished in a monotone. Certain syllabic exercises such as the no, na, nu, ni, nā and co, ro, mo varieties sung with moderate strength in middle voice are helpful. During these exercises special attention must be paid to the breathing. It is, of course, impossible for the busy physician to undertake this work personally, but he should insist that it be carried out with a good teacher.

Imhofer and others have worked out a helpful but rather complicated system of electrical tests of phonasthenia, which need not be taken up here. Such tests are of value chiefly in the resistant and long standing types of the affection.

When can we safely say that we have cured a phonasthenia? This is sometimes a difficult matter to determine, but if there are no subjective disturbances, if the voice is of good clear quality and keeps to the pitch—in short, if there are no disturbances of intonation, we may safely dismiss the case. A useful test is made by applying an electrical current to the larynx during vocalization on a single note. If the larynx is normal, the tone should be elevated because of increased muscular action.

Quite marked phonasthenic symptoms may disappear under proper attack, correct breathing, and accurate tone placing. Simple exercises have sufficed to reduce vocal nodules and general cord thickening when these are not too marked and of too long standing.

In conclusion, let me say that the entire voice problem is worthy of intensive study at the hands of every laryngologist. Our advice and help are badly needed by the singing teacher, and we in our turn can learn very much of interest and practical value from him. Cooperation should be our watchword.

14 CENTRAL PARK WEST.

Liquid Petrolatum in Typhoid Fever with Constipation.—Llewellyn P. Phillips, in the *Lancet* for July 25, 1914, tried liquid petrolatum by mouth in typhoid with marked constipation; the results were so good that he gave it throughout typhoid in constipated cases. It was observed that liquid petrolatum acted easily and painlessly.

POST PARTUM HEMORRHAGE AND THE TREATMENT.

BY JOHN GARDINER, M. D.,
Toledo.

Hemorrhage in obstetric practice is a complication which always causes deep concern. Fortunately it is comparatively rare. Chrolak and Rosthron (1) in 32,180 deliveries had, from all causes, only 528 cases, that is, 1.63 per cent. Hemorrhages occurring before and during the first and second stages of labor, as those due to placenta prævia, early separation of a normally situated placenta, or rupture of the uterus are not discussed in this paper.

The term post partum hemorrhage literally signifies any hemorrhage occurring after labor, but it will be considered in its limited sense, as the term is generally accepted, applying only to those hemorrhages which threaten the life of the patient. Of these, in the series mentioned, Hofstatter (2) found 143 cases, or 0.44 per cent.

Clinically there are two forms of post partum hemorrhage; concealed and visible. Concealed hemorrhages, as the name indicates, may not be revealed until the patient shows signs of shock, for there is little or no increase in the normal hemorrhage at the vulvar opening, as the bleeding is high up in the birth canal, in the uterus. The two most frequent causes are, first, a partially separated adherent placenta, with the loosened portion of the placenta and its membranes blocking the cervical os, and, second, bleeding from the placental site, with a large clot blocking the cervical canal after the expulsion of the placenta. For the diagnosis of concealed hemorrhage, it is of the utmost importance that the action of the uterus be observed through the abdomen. This is best accomplished by an assistant, whose hand gently grasps the fundus as it has followed the recession of the uterus during the birth. Any abnormal change is recognized and treatment immediately begun. It is essential to check further bleeding. This is best accomplished by compression of the abdominal aorta, either digitally or by means of the Momborg belt. The uterus, which may be distended so as to fill the abdomen, should be lightly massaged. If the placenta is not immediately expelled it should be manually extracted to stop further bleeding. This procedure is, however, not without an element of danger, as the coats of the uterine sinuses may be the seat of pathological processes (3), and a portion of the uterine wall may be separated with the placenta. The following case illustrating the unexpectedness of bleeding from an adherent partially separated placenta, shows how a portion of the placenta blocked the cervical canal and the increasing quantity of blood distended the uterus.

CASE I. Mrs. Mary McN., para I, birth normal. Attention was directed to the child, as there was some difficulty in starting respiration. An experienced nurse was assigned to watch the uterus. The distention of the uterus was not recognized, as the placenta could plainly be felt above the pubes and was mistaken for the uterus. The patient called attention to the fact that she was feeling very queer and suffered from disturbance of vision. She was pale; air hunger was prominent, and the pulse hardly perceptible. There was no abnormal hemorrhage at the vulva, but the uterus was found to reach the ensiform cartilage. The

placenta was located above the pubes and was removed manually and a binder applied. An ergot preparation and pituitrin were given. The patient was anemic, but fully recovered.

Visible hemorrhage may be recognized by an ever increasing quantity of blood coming from the vulva. The hemorrhage may come from the lower genital tract, from the cervix, or from the body of the uterus. To make a diagnosis of bleeding from the lower genital tract, is usually easy. An examination suffices. There may be a laceration of the clitoris, vulva, or vagina, a ruptured varix or a hematoma. The following case is an example of a ruptured varix.

CASE II. Mrs. Jane K., para I, healthy and well developed; during the last two months of her first pregnancy, the veins of the vulva became intensely dilated. Labor and the puerperium were normal, but the vulva remained enlarged. Examination at this second labor revealed the vulva to be the seat of marked varicosities. The left, the size of a large Bartlett pear, was a trifle larger than the right. The labia majora and minora were affected, the skin and mucous membranes were much thickened, and in places excoriated. Some of the superficial veins were distended to the size of the patient's forefinger. The upper vaginal tract and cervix were apparently normal. Labor was normal, and the venous radicles were distended to the bursting point. As soon as the head was born, a brisk hemorrhage was observed. This increased markedly in spite of compression. The child was quickly delivered. Some anxiety was felt concerning the delivery of the placenta, but it was expelled normally two hours after delivery. Twenty c. c. of human serum, obtained from the sister thirty-six hours before, as hemorrhage had been expected, was administered immediately after birth and manual compression continued. Later the vagina was packed and a gauze compress was applied to the perineum. Patient recovered.

The diagnosis of hemorrhage from the cervix uteri, usually requires the aid of a speculum. A differential diagnosis must be made between hemorrhage coming from the cervix and from the body of the uterus. With good exposure, this is readily determined. The remedy must be rapidly applied. The attempt should be made to control the hemorrhage by suturing the cervix, but no precious time should be lost endeavoring to do this if one or two attempts fail. In this event, it is wise to abandon suturing and resort to compression by means of gauze packing. The following case is a good example of bleeding from a lacerated cervix.

CASE III. Mrs. W., aged forty-one years, primipara, pelvis normal, oblique conjugate 11 cm. In active labor fourteen hours. Pelvis rigid, and great effort was required to force the head through the bony canal. Marked lapping of the bones of the child's skull was observed. A normal placenta was expelled, fifteen minutes after birth. Immediately following the expulsion of the placenta, there was a gush of bright red blood which, at the time, appeared more than normal. It rapidly subsided and approached the normal amount. One and one half hour after birth a copious hemorrhage flooded the bed. The patient was transferred to the delivery room. Examination revealed a column of blood spurting up through the blood in the vagina. Three attempts were made to catch by suture the bleeding left uterine artery, but the cervix, its left and posterior portion, was torn into shreds, which made it impossible to anchor the ligature or suture the cervix. The uterus was contracted. It was packed with gauze, also the vagina. A suprapubic compress was applied and held in position by a tight abdominal binder; huckaback toweling being used for the binder. Pituitrin, one c. c. was injected, an ergot preparation, minims 20, and horse serum 20 c. c. The patient had become nearly exsanguinated, suffered from air hunger, and the pulse was thready; 500 c. c. of Mathew's solution was given intravenously. The

arms and legs were bandaged. After a somewhat extended convalescence, the patient recovered.

Hemorrhage from the uterus is recognized by blood coming from the cervical canal. The source of the hemorrhage may be one of three conditions, first, a retained, partially separated placenta; second, a retained cotyledon of the placenta or membranes; third, the placental site or body of the uterus.

Bleeding from a retained, partially separated placenta has been discussed under concealed hemorrhage, and it will not be taken up, except to differentiate it from retained portions of the placenta. A retained, partially separated placenta can be felt above the pubes in the uterus, while in retained cotyledons or membranes, the placenta may be in the cervical canal or the vagina, or it may be expelled. The treatment is the same as in concealed hemorrhage. Hemorrhage from a retained cotyledon or retained membrane may be recognized by an examination of the placenta. The treatment is the removal of the cotyledon or membrane by the gloved finger wrapped with gauze.

It is impossible to differentiate clinically between severe hemorrhage from the placental site and that from the body of the uterus. Probably both are dependent upon atony. Krehrer (4) makes a distinction between atony and hypotony. In atony, he points out that the uterus does not respond to any stimuli, mechanical, thermal, or electrical; in hypotony the uterus does respond and the condition is not so serious. Labhardt (5) states that the bleeding is not always due to functional causes, but frequently there is an anatomical destruction of the uterine wall. He found that the connective tissue is sometimes increased about the vessels, so that it hinders their sufficient compression when the muscle fibres contract. The result is hemorrhage. Post partum hemorrhage occurring late in the puerperium should be mentioned, but fortunately it is rare. Braun (6), of Trenwald, in 20,000 births had only three cases. If the cervix remains open longer than normally, bacteria enter so that later there is hemorrhage with infection. The treatment is difficult. If the uterus is entered, emboli are the result, and if one treats expectantly, the hemorrhage usually returns. Each case is *sui generis* and must be treated with the best judgment of the obstetrician. Post partum hemorrhage due to general disease is rare.

In the treatment of post partum hemorrhage, the first factor of importance is to control the bleeding. The patient should be placed in the Trendelenburg position (7), the abdominal aorta compressed either digitally or mechanically, according to Momberg (8), Davis (9), Gauss (10), and Heymann (11). If the hemorrhage is from the uterus, that organ should be stimulated by massage and irrigated by hot (115° to 120° F.), intrauterine douches of dilute acetic acid or iodine solution. If the uterus does not contract, it must be packed with sterile gauze from the roof of the uterine cavity, layer by layer, through the cervical canal and the vagina. Special forceps for the purpose have been devised by DeLee (12) and Schwarzenbach (13). Chrolak (14) issues a warning that a tampon inefficiently applied is often the cause of a fatal issue. It is convenient to use strips of folded gauze, two inches wide and five yards in length, on which tape has

been sewn, long enough—about twelve inches—to extend outside of the vagina. The tape assists in the removal of the gauze. An abdominal binder should be applied to keep up the intraabdominal pressure. A good binder is a proper sized huckaback towel. It is firm and strong and can be pinned to fit the contour of the hips and abdomen. An abdominal compress, sand bag or shot bag, may be used. The parametrium in hemorrhage may be clamped from the uterus or cervix, as Zimmerman (15) states.

The two medicinal remedies which stand out pre-eminently above all others are ergot or its derivatives and pituitrin. The action of ergot is so well known that it needs no further discussion. Pituitrin, while it has proved not to be an obstetrical panacea, has a definite limited use, and not the least of which is in post partum hemorrhage. It tends to prevent post partum bleeding, as urged by Oppenheimer (16), Foges (17), and Hughes (18). When the hemorrhage occurs, even though pituitrin has been used, the dose should be repeated, says Hendley (19), as repetition of the dose in no wise injures the mother. In cases of severe hemorrhage, it has been used intravenously with splendid results, in Krehrer's clinic by Vogt (20) and Kreiss (21). The majority of writers advise the use of pituitrin in combination with some form of ergot, e. g., Edgar (22), Madill and Allen (23), and Watson (24), as it has the power of sensitizing the uterus to the action of ergot. The contraindications are advanced cardiac disease and arteriosclerosis, according to Lieb (25) and Heaney (26). There is a paucity of references to the use of serum, human or equine, in the treatment of post partum hemorrhage. It is of such value that it should be given when the hemorrhage is recognized.

If, in spite of all expectant and active treatment, blood still continues to ooze, hysterectomy should be performed, as advised by Krehrer (27) and Labhardt (28).

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210 COLTON BUILDING.

Treatment of Bacillary Dysentery.—Musgrave and Sison, in the *Philippine Journal of Science* for June, 1914, recommend absolute rest and mild laxatives, preferably sodium sulphate or magnesium sulphate, preceded by fractional doses of calomel. *Simaruba officinalis*, combined with some opiate, yields curative results.

AN AID TO THE AUSCULTATORY BLOOD PRESSURE TEST.

By FRANCIS ASHLEY FAUGHT, M. D.,
Philadelphia.

Doubtless many physicians have been slow to adopt the auscultatory method of taking blood pressure, because of the difficulty surrounding the usual method of performing this test. We all know that it is rather difficult to keep one hand on the wrist and at the same time operate the pump and hold a stethoscope in proper place over the artery. Some time ago, a stethoscope was brought out with an adjustable strap, by means of which the bell of the instrument could be maintained in position at the bend of the elbow. While this provided a practical means of fixing the stethoscope, it was not without its disadvantages.

For some months I have been using the apparatus illustrated herewith with a great deal of satisfaction. (See Fig.) This was first suggested by Dr. Harley Stamp, of Philadelphia, and as far as I know, has as yet had no public mention. It is called the

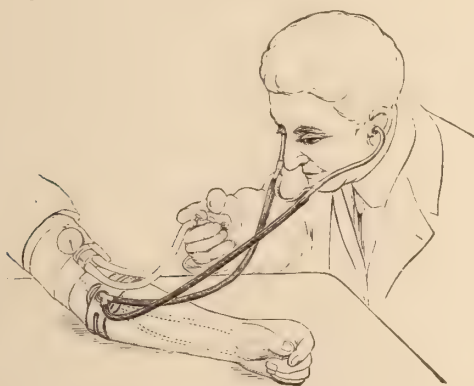


FIG.—Stamp bracelet stethoscope showing relation of sphygmomanometer and stethoscope arranged for the auscultatory blood pressure test.

Stamp bracelet and may now be obtained from any instrument dealer. The bracelet part borrows the idea of the trouser clip worn by bicyclists, modified to suit the conditions of the arm. To operate, it is only necessary to grip the two ends of the spring, one in each hand, stretch it over the arm, and allow it to snap into place, where it immediately adjusts itself firmly over the vessel. The diaphragm of the stethoscope is furnished with a projection or button, which further aids its adaptability and which, in combination with the Stamp bracelet, provides a valuable addition to our armamentarium.

There is a second advantage which should be mentioned. The metallic band does away entirely with adventitious sounds and annoying crepitus, which is so hard to eliminate when the hand is employed or when the bell of the stethoscope is tucked under or attached to the arm band. *

5006 SPRUCE STREET.

Albumin Milk in Digestive Disturbances in Nurslings.—De Cristina, in *Revue de thérapeutique médico-chirurgicale* for June 1, 1914, is said to advise the use of albumin milk which was prepared according to Finkelstein and Meyer, and caused cessation of digestive symptoms, of abnormal fermentation, and promoted the general vigor.

GARCIA FERNANDEZ.

An Obscure Physician.

By WALTER B. JENNINGS, PH. B., M. D.,
Scarsdale, N. Y.

Let us suppose the hands of the clock to be suddenly turned back to the close of the fifteenth century. Come with me for a few moments to the land of Ferdinand and Isabella, to the little town of Palos, situated in the province of Huelva, near the mouth of the Tinto, whose coppery colored waters empty into the Mediterranean. The villa de Palos today contains about twelve hundred souls, so that at the time of our imaginary journey it was extremely small. It was the time of the memorable surrender of Granada to the Spanish arms; the time when Boabdil, the last of the Moorish kings, yielded up the keys of the Alhambra. After nearly eight hundred years of painful struggle, the crescent was cast down, and the cross raised in its place. The standard of Spain was now floating over the tower of the Alhambra, one of the most brilliant triumphs in Spanish history.

A short distance from the little seaport town of Palos, there stood as late as 1827, an ancient convent of Franciscan friars called Santa Maria de Rábida.

One day a stranger on foot, in humble guise but of a distinguished air, accompanied by a small boy, stopped at the gate of the convent, and asked of the porter a little bread and water for his child. While receiving this humble refreshment, the prior of the convent, Juan Perez de Marchena, happening to pass by, was struck with the appearance of the stranger, and observing from his air and accent that he was a foreigner, entered into conversation with him, and soon learned the particulars of his story. That stranger was Columbus.

The prior was a man of extensive information. His attention had been turned in some measure to geographical and nautical science, probably from his vicinity to Palos. . . . He was greatly interested by the conversation of Columbus, and struck with the grandeur of his views. It was a remarkable occurrence in the monotonous life of the cloister, to have a man of such singular character, intent on so extraordinary an enterprise, applying for bread and water at the gate of his convent.

When he found, however, that Christopher Columbus was on the verge of leaving Spain forever, to seek aid or patronage in some other country, probably at the Court of France, his patriotism took alarm. . . . He detained Columbus as his guest, and, diffident of his own judgment, sent for a scientific friend to converse with him. That friend was Garcia Fernandez, a physician, resident of Palos.

Columbus must have been a remarkably impressive individual and was certainly possessed with honest zeal, as well as the power of persuasion, for we are told that Garcia Fernandez was equally struck with the appearance and conversation of the stranger.

One can well imagine the animated discussion that took place in the little council chamber of the convent. Columbus had up to this time waited eighteen years to carry out his plans. But what an example for all; not to despair. Napier spent twenty years developing the theory of logarithms; Newton waited the same length of time before publishing his ideas; Darwin, seventeen years before the *Origin of Species* appeared; William Harvey delayed for twelve years his discovery of the circulation of the blood. But to go back to the convent and the first talk of Columbus with the good prior and

Garcia Fernandez, the physician, how fortunate for the navigator that he met these two men, for could human nature or character be better interpreted or judged than by a priest or a physician? In another place we hear of a young man of Palos, Garcia Hernandez, who knew something of astronomy. "He was summoned to the monastery and the good prior, Jean Perez, Columbus, and Hernandez, all three spoke together, and in the counsel of a few was much wisdom."

After this first counsel, several conferences were held at the convent, at which some of the old mariners of the villa de Palos were present. One of these, Martin Alonzo Pinzon, the head of a wealthy family, told of facts in support of Columbus's theory. Here, then, at the little council at La Rábida among the navigators of the village, together with the physician, Garcia Fernandez, his project was treated as feasible, a thing which had been sought in vain at the royal court among sages and philosophers.

Now, it happened that at one time the good friar had been confessor to the queen, and he was so thoroughly convinced by the talks of these learned and practical men, that he sent a messenger to the queen, asking an audience, which was granted; further, the queen requested that Columbus might be sent to her. "The worthy friar lost no time in communicating the result of his mission; he transmitted money and a letter by the hands of an inhabitant of Palos, to the physician, Garcia Fernandez, who delivered them to Columbus."

Washington Irving says that the testimony of Garcia Fernandez exists in manuscript form among the many writings of the *pleito* or lawsuit, which are preserved at Seville. In the course of the trial in the fiscal court between Don Diego, the son of Columbus, and the Crown, an attempt was made to depreciate the merit of Columbus and to give credit to Martin Alonzo Pinzon. It was the interest of the Crown to do so. Many witnesses were called.

The witness most to be depended upon as to these points of inquiry is the physician of Palos, Garcia Fernandez, a man of education, who sailed with Martin Alonzo Pinzon as steward of his ship, and of course was present at all the conversations which passed between the commanders. He testified that Martin Alonzo urged Columbus to stand more to the southwest, and that the admiral at length complied, but, finding no land in that direction, they turned again to the west; a statement which completely coincides with the journal of Columbus. He adds that the admiral continually comforted and animated Martin Alonzo, and all others in his company. When the physician was specifically questioned as to the conversations pretended to have passed between the commanders, in which Columbus expressed a desire to turn back to Spain, he (Garcia Fernandez) referred to the preceding statement as the only answer he had to make to these questions.

This public inquiry was held in 1513, and most of the facts relating to the visit of Columbus to the convent of La Rábida are taken from the testimony of the physician, Garcia Fernandez, who, as we have already learned, was the witness most to be depended upon. The historian, John Boyd Thacher (Vol. I, page 433) gives the Spanish and English translation of the doctor's testimony, and as they are in Garcia Fernandez's own words, it is interesting to read them, for by so doing we should be able to obtain some slight idea of this man.

Garcia Hernandez—fisico . . . deposes and says that he knows the said Admiral Don Christopher Columbus in coming on foot to the landing place with his son, Don Diego, who is now admiral. He came to La Rábida, which is a monastery of friars in this town and asked the porter to give him bread and water to drink for the boy, who was a small child, and that this witness being there, a friar who is now dead, called Friar Juan Perez, desired to talk with the said Don Christopher Columbus, and seeing that he appeared to be of another country and kingdom, and foreign in his language, he asked him who he was and whence he came; and that the said Christopher Columbus told him he was coming from the court of her Highness, and that he would make known to him his errand, and why he went to the court and why he was coming away, and that the said Christopher Columbus told the said friar, Juan Perez, how he had caused the making of discoveries to be discussed before her Highness and that he pledged himself to find the mainland, if her Highness would aid him with vessels and the things pertaining thereto, for the said voyage. . . . and that many gentlemen and other persons who were present at the said discussion made light of his speech and that it was not accepted, but that instead they ridiculed his reasoning, etc. . . . That the said Christopher Columbus seeing his argument dissolve because of so little knowledge of what he offered to do and fulfil, came away from the court and was going straight from this town to the town of Huelva in order to find and converse with a brother-in-law of his, who was married to a sister of his wife, and who was living there at the time and was named Muliar; and that the said friar, appreciating his argument, summoned this witness (Garcia Fernandez)—with whom he had much friendly conversation, as he knew something of the astronomer's art, in order that he should speak with the said Christopher Columbus, and that he might be convinced in regard to the matter of making discoveries; and that the said witness then came and that they all three talked about the said matter, and that they then chose a man from here to carry a letter to the queen, Dona Isabella (may she rest in glory), from the said friar, Juan Perez, who was her confessor . . . and that they detained the said Christopher Columbus in the monastery until they learned the reply to the said letter to her Highness in order to see what she decided and thus it was done. . . . and that the queen, our Lady, having conceded this, sent 20,000 maravedis in florins, which were brought by Prieto, citizen of this town, and he gave them, with a letter to this witness (Garcia Fernandez), to be given to Christopher Columbus in order that he might clothe himself decently, and buy a small beast and appear before her Highness, and that the said Christopher Columbus received the 20,000 maravedis, and went before her Highness as has been said; . . . and the agreement and fellowship which he formed with Martin Alonzo Pinzon and Vincele Yanez dated from this time, because they were suitable persons and had a knowledge of matters pertaining to the sea, who advised him and arranged many things beyond his (the witness's) knowledge and that of the said Christopher Columbus, which were for the benefit of the said voyage and by this question this thing is known.

This testimony was given from personal recollection several years after it occurred and certainly is a very lucid account of the affair at La Rábida. It might be safe, then, judging from this testimony, to say that the doctor had a clear mind and a good memory.

The first mention of any kind that the writer has been able to find of the physician of Palos is by the great Spanish historian, Navarrete, in the *Collegion de Documentos* (1825), *Viages de Colon*, volume II, one of the documents relating to the villa de Palos. Several names are signed as witnesses and among them one finds Garcia Fernandez-Carnero. Now this brings us to a very interesting as well as a beautiful custom of the Spanish people. A child of Spanish parentage does not take his father's name alone, as is the custom among the English and

Americans, but takes his father's name plus his mother's maiden name. What a great help that would be for genealogists if we, too, followed this custom. It sometimes happens that for one reason or another one of these names is dropped, so we find several historians speaking of Garcia Fernandez and not Carnero; but the writer found one Jean Carnero, a padre of Puebla, but he was of a much later period than our friend, and so probably there was no relationship. This was the only man of that name, and he does not interest us.

Of Garcia Fernandez, the physician, very little is known, but that little may be of interest to those who are fond of history, particularly medical history. José Maria Asensio, a well known Spanish author, speaks of Garcia Hernandez as a *medico-docto-en-las matemáticas*. We have already seen that Thacher speaks of Hernandez, but all the other historians refer to Fernandez. There can be little doubt that they are one and the same man, because they both give the same testimony. Just why or how one historian spells the name with an F and another with an H, is difficult to explain. Whatever the spelling, however, all historians are agreed that the first name is the same (Garcia) and that he was a physician of Palos. John Fiske speaks of our friend, as "Garcia Fernandez, a physician of Palos, who was somewhat versed in cosmography." (*Discovery of America*.) Garcia Fernandez was steward or *despensero* (not ship surgeon or *fisicos*) on the good ship *Pinta* during the first voyage of Columbus. He had charge of the medicines for the expedition as well as the dressings. He received for his services 6,000 maravedis. Dr. Fernandez de Ybarra speaks of Garcia Fernandez as the modest village doctor who as an improvised expert in mental diseases, won for the perambulating genius the respect and sympathy of the worthy prior of the monastery of La Rábida (*Journal A. M. A.*, May 5, 1894).

Columbus must have been impressed with the character and personality of this man, for to him he left the care of his little son Diego. Fernandez was certainly an energetic man. What ground has one for making this statement? Simply that his energy is shown by the fact that he not only found time to practise medicine, but was interested in many things outside of his profession. We heard him spoken of as a scientific friend of the prior; as a man of education; as one who knew something of the astronomer's art; as a cosmographer of some local reputation; a witness most to be depended upon; a man of clear mind and good memory.

There seems to be some truth in the old saying that only the busy men are ready for whatever may turn up. Fernandez must also have been something of an adventurer to sail with Columbus on his first voyage. Certainly this is no small record, and one to be envied by most of us.

About 300 B. C., Epicurus said: "Of all the things which wisdom provides for the happiness of a whole life, by far the most important is the acquisition of friendship." Here, then, we have acquired a new friend in the physician of Palos, Garcia Fernandez, one who was indirectly the means of Columbus being received at the royal court of Ferdinand and Isabella.

THE DETERMINATION OF EXCEPTIONAL DEVELOPMENT IN CHILDREN.*

A Rational System of Medical, Physiopsychological, and Mental Tests.

BY MAXIMILIAN P. E. GROSZMANN, PD. D.,
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When one speaks of exceptional children, most persons think first of the lower ranks of mentality, and take it for granted that the term "exceptional" is euphonic for mentally defective, feeble-minded, subnormal, abnormal, and the like. There has been, and still is a great confusion in terminology; and one of the first and most important steps is to agree on some suitable set of terms and a classification which can be accepted as a working basis. The author of this paper has suggested such a tentative classification and terminology which was practically adopted by the American Academy of Medicine in 1909, and which since has been favorably commented upon and used by many individual workers and institutions.

In this classification "exceptional" is employed as a general term, including all kinds of deviations from an accepted standard or established type of normality: deviations upward no less than downward. It has reference to exceptionally gifted children as well as to the feeble-minded and abnormal. Between these extremes, the representatives of which are naturally few in number, there is a vast range of mental differences. Great numbers of children who are potentially normal are warped in their development and further endangered by faulty methods of education, environmental handicaps, disease, and other causes. There are individual differences in the physiological and mental growth rate which, under traditional standards of education and measurement, throw children completely out of gear. There are the cripples, the blind, and the deaf; those who suffer from psychopathic conditions; those whose otherwise normal development was checked at some time or other by determinable causes; and a large group of primitive minds such as are normal within their limits, but represent a level of mental achievement long outgrown by the majority.

Whenever this problem is treated, there are three distinct points under discussion: First, the confusion of terms which has been one of the reasons why mental deficiency has received such a disproportionate share of the discussion of exceptionality. Second, the faulty standards of school education and scholastic efficiency which have stigmatized many children as defective who merely represented a difference in type, or a remedial handicap. Too many have been set down as backward, mentally inferior, weak-minded, or incorrigible whose difficulty consisted in the fact that the system did not reach them. Third, the most potent cause of a misunderstanding of the situation must be found in the methods of testing which were employed when educators and physicians began to study individual children. A

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large number of investigators have been led to believe that we have with us a large and ever increasing number of defective, feeble-minded children, and that it is this group from which are recruited the ranks of prostitutes and criminals, of human failures and wrecks.

In the discussion of the first point I may be permitted to refer once more to my tentative classification, which endeavors to establish a fair perspective for all types of exceptional development. In the matter of school adjustment, it may be readily admitted that educators are now fully awake to the needs of individual differentiation. The introduction of manual training, of special schools and classes, of pedagogical clinics and vocational guidance, of medical inspection and methods of child hygiene, and of similar agencies, has done much to alleviate the injustice which many children had to suffer in the past. The startling figures established by medical examiners of school children, have begun to throw a dismal light on the conditions producing failure and deterioration. It was found that the prevalence of many diseases (other than the so called children's diseases, like measles, scarlet fever, etc.) explained a great many of the handicaps which caused children to lose in the race for success in school. Four per cent. of all children were found to suffer from defective hearing; twenty per cent. at least from nervous disorders; twenty-five per cent. from eye strain; as many from nasal obstructions. The list might be extended.

How different methods of testing affect the findings, especially when there is obscurity in terminology, may be shown by many instances. Some investigators have placed the number of feeble-minded as amounting to two per cent. of all children; while other investigators, in other places, found considerably smaller percentages. On Ellis Island, where the medical examiners recently introduced some interesting methods of rapid testing of immigrants suspected of mental defect, it has been shown that not more than one fifth of one per cent. can be called feeble-minded. Again, it has been stated by some investigators that the majority of the incorrigibles and juvenile delinquents were defectives. But of the 1,276 children who were arraigned during the past year in the children's court of Buffalo, only fifty-three were found to be retarded in mental development (a little over four per cent.). Of these fifty-three, only eight, or about two thirds of one per cent. of the total, could be pronounced distinctly feeble-minded, using the Binet scale. In the Seattle juvenile court, in 1912, careful examination revealed only 6.4 per cent. to be feeble-minded, the majority of them so called borderland cases. Even if, in some larger centres of population, the percentage of feeble-mindedness was found to be greater, the methods of testing would have as much to do with the result as the local conditions of congestion, economic pressure, etc., and no sweeping generalization should be made.

In any system of tests that will give reliable data, the causes of mental exceptionality must be discovered as far as possible. The greatest difficulty will be offered in the study of hereditary and congenital causes, including venereal infection. Family data will never be trustworthy until we have a national

system of vital statistics. Careful records of births and deaths and the accompanying circumstances should be kept, including as much of the parental history as possible; and these data should be accessible for the scientific study of every individual child. The medical fraternity can greatly help these studies by establishing to the best of their opportunity the history and etiology of each case, and by carefully studying hereditary and congenital causes. Professional discretion will prevent physicians from making the facts thus discovered public; but it seems justifiable to expect their cooperation, by legal provision if necessary, in cases of grave defect in which the State and the community have a deep interest. A commission composed of experts should be created in every State or community and should have full power to elicit all the obtainable information on any case.

Apart from such environmental causes as neglect, unwholesome companionship, economic pressure, mistakes in education, and the like, the causative factors of deterioration and delinquency are largely pathological. There is often physical precocity, or the reverse, producing tension between the various functional conditions of the individual. It is clear that a premature body will throw a less mature mind out of balance, through the superinducement of instincts for coping with which the less rapidly grown mind is not prepared. Vice versa, an immature body will produce a strain upon an unusually developed mind. There are a great number of functional neuroses quite clearly defined in many children who are serious problems to their parents, teachers, physicians, and the courts. What has been called the "psychopathic personality" is by no means rare among children. Hysteria in certain forms may be observed in children. Epilepsy is another element; but when it is a source of youthful delinquency, it is psychic in form; children show sudden attacks of excitement, outbreaks of temper, destructiveness, hitting other children, etc. Then we have cases of moral deficiency or weakness, which is not infrequently coupled with intellectual keenness and requires special methods of investigation and treatment.

The problem of juvenile delinquency has been clearly shown to be in a large measure a problem of medical survey and relief. Physicians attached to juvenile courts have testified to the fact that medical and surgical attention has cured many a "criminal." The period of adolescence furnishes the greatest number of juvenile delinquents, and this suggests that disturbances in the sexual sphere, local or psychopathic, or as atavistic phenomena reverting to primitive forms of the instinct, are responsible for much deviation. Even prepubertal irritation has caused havoc. Sex abnormalities in the male and the female child, such as lead to rape and prostitution, have often a background of neurotic constitution.

Bearing out these contentions, Dr. Lilian Merrill's findings in the Seattle juvenile court show the following causes of delinquency in the cases studied by him: Fifty-two per cent. were due to social and economic conditions; 29.5 per cent. to physical pathology, including neurotic heredity, sex pathology (including phimosis), adenoids and enlarged

tonsils, malnutrition, cardiopathic conditions, sensory defects, etc.; 18.5 per cent. to mental pathology, including moral deficiency, backwardness, epilepsy, and feeble-mindedness.

It will be seen that the testing of children for the determination of their supposed exceptional development, is the essential prerequisite and is by no means a simple matter. A mere scale of intelligence, so called, for instance the Binet scale, can never give a valid measure of a child's status. There must be a thorough study of a child's history, environmental and physical, there must be an understanding of his heredity, his education, and a number of other points. It is therefore refreshing to read Doctor Merrill's sentence: "Any system of tests by which alone it is attempted to classify the child as being of a given mental age involves the fallacy of pseudoexactness and needs carefully to be avoided."

The author of this paper has ventured to offer a set of tests and investigations which, while as yet by no means final, may illustrate what ought to be done. The complete form includes the following schedules:

First, a Child History giving data previous to the time of examination; second, a set of body measurements; third, a system of medical and physiological examinations; and finally a scale of physiopsychological and mental measurements which, in conjunction with the other investigations, will allow of some sort of definite conclusion as to diagnosis.

The Child History data comprise as full etiological statements as can be obtained, and refer also to the family history of the case. They also provide for information on the child's physical, moral, and mental development, his schooling, his peculiarities and habits, his abilities, attempts at relief of any difficulty, physical or mental, etc.; and it is supposed that the data are furnished by the parents with the cooperation of the family physician or a specialist.

The body measurements are of the usual anthropometric type, including height and weight, chest expansion, girths, and diameters.

For the medical examinations, several blanks have been provided. The first is in the nature of a cross section examination, giving a general picture of the child's physical condition. The succeeding blanks require the cooperation of specialists and suggest such special laboratory tests as will make the examination comprehensive. They ask for important anatomical data, skull measurements, x ray photographs of the carpal bones, etc. Further data refer to the musculature and special characteristics, peculiarities of the face, of the genital organs, and the like. The functional charts are for a close examination of the special senses, chorea tests, neuroses, speech, heart, lungs, blood, etc.

Finally, in the working out of those tests which are intended to probe the mental reaction of the child, a distinction has been made between the *intelligence* tests proper, and those which refer to physiopsychological reaction. For example, the recognition and naming of colors are not in themselves tests of intelligence; they depend upon the physiological ability to distinguish color, and the ability to attach a name to a clearly differentiated color. A color blind child will neither match nor name col-

ors correctly no matter how intelligent he may be. Again, the visual and aural memory span is of great importance; but it does not in itself vouch for intellectual strength. Memory is the indispensable tool of the mind; but even idiots may have a remarkable memory, which their minds do not use to advantage; and some highly developed minds battle with the freaks of their memory all their lives.

Both the physiopsychological and the mental developments depend upon certain biological factors of growth. These have been reflected in the history of race development. It will be impossible to draw clear lines of demarcation between the chronological years of a child's age, as to his mental standard, inasmuch as the anatomical, physiological, psychological and mental growths do not run in parallel lines, or at equal rate of speed, in all individuals. But it is feasible to mark off, in a general way, certain periods of development in a child's life. These periods correspond broadly with the periods of race development, by way of a succession of ascending instincts and mental attitudes, in rate of reaction, in the matter of motor coordination and response, memory span, etc. The author has distinguished four such periods: the first being the primitive or human animal period; the second, the race period in which race characteristics evolve from the general human potentials; third, the nation forming period which is concurrent with the pubescent stage; and finally, the period of individual differentiation which develops the adult of mature age. The tests include sense tests, tests in judgment, association, motor coordination, expression, esthetic attitude, etc., and are elastically arranged so that omissions, substitutions, and additions are possible without affecting the underlying principles.

The objection may be raised that such a comprehensive examination is impossible in general practice, or under the conditions of schools and courts or similar opportunities for clinical investigation. Without entering into a complete discussion of such an objection, I will briefly say this:

No rapid examination can be thorough and reliable; it tends toward fallacious deductions. Even the strictest adherents of the Binet scale have been adding medical examinations and many other data to their scheme, and many Binet examiners have amplified the system itself by the introduction of further tests. One of the most ardent students of the Binet scale assured me that he considered it a grave mistake for physicians, especially neurologists, to have fallen into the habit of using these tests in a rapid office examination of children for determination of mental status. Even when a child falls three or more years below his chronological age—a condition which some think gives the Binet tests a chance of value—I have found in numerous instances that the conclusion of intellectual inferiority is not always tenable, as the child's opportunity for training has to be considered, and the kind of tests used, and passed or missed, gives a warped picture of his mentality.

An investigation like the one suggested by the writer will obviously have to extend over some period of time, and cannot be completed in one sitting. But, to exemplify my case, I will say that in the matter of juvenile courts, the detention home

should be developed into an observation clinic, where tests can be made at leisure and under easily controlled conditions. Every school system should have such an observation clinic, equipped with the proper apparatus and assistants. A number of the tests can be made in the schoolroom upon many children at one time. Experience will teach the examiner where his results will allow of conclusions without applying all the clinical details. I have at present an arrangement under preparation which will automatically limit the examination to the essentials.

One of the most important helps which my tests have given, I think, is that they enable us to distinguish between *types of mind* in children. Mere backwardness, educational neglect, simplicity and primitiveness of mind have too often been confounded with true mental defect. Many of our delinquents, e. g., are primitives, not feeble-minded. You cannot call the Mexican peon or the follower of Zapata, a feeble-minded person; yet his instincts, his valuation of life, his ideas about property differ so essentially from our modern standards that he would constitute a criminal, actual or potential, in our American civilization. Many of our delinquents represent a type parallel to this primitive stage. In these primitives, we have borderland cases where there is a mixture of retarded and arrested development and of mental defect of the psychopathic type. We must be careful in differentiating these types for the sake of scientific accuracy, even though the treatment of individuals representing these types may not always have to differ in kind. But it is clear that the term "mentally defective" includes both the feeble-minded and the insane.

I may be permitted to illustrate at least some of my points by citing briefly a few cases from among those that have come under my observation. The first two cases were referred to me by the Juvenile Court of San Francisco, last year:

CASE I. F. C., boy, aged fifteen years, reported because he was unable to retain any job, and had become practically a vagrant. The mental tests proved him to be intellectually very immature and certainly grossly unschooled. His physical condition showed that he should have had special treatment for many years past; septum deflected on right side of nose, with great obstruction to breathing; nasal catarrh. This constituted so constant an irritating condition that it required immediate surgical relief. Hearing was reduced by two thirds in right ear, with occasional discharge, indicating otitis media and calling for treatment to prevent further deafness. The boy proved to be an epileptic, with attacks dating back at least two years. On the basis of these findings the following report was sent to the court: "The boy is unable to undertake independent employment. Should have surgical relief and be placed in a home for epileptics where also his manual faculties may be developed. He is entirely unfit for education in the public schools."

CASE II. J. F., boy, aged sixteen years, had been arrested for repeatedly attacking his father, even his mother, and not doing well at anything. When brought to clinic, was handcuffed, sullen. His mental development was found to be exceedingly uneven. He showed much power of rational judgment, together with singular retardation in specific applications. He gave the impression of a mentally neglected child. He represented a transition period from childhood to adolescence, with all the mental disturbance characteristic of that epoch. Emotionally he was under a distinct strain, being sullen and antagonistic under unsympathetic influences such as his home represented; but yielding to personal sympathy. He was hardly

mature or trained enough for independent work. The medical examination revealed catarrh of the throat, enlarged turbinates which obstructed the nasal passages, and a long adherent prepuce. Nasal treatment and circumcision were indicated for immediate relief, and it was suggested that he be placed away from home somewhere where he would have firm, but kind discipline and special training without stigma.

His case suggests the fact that it is easier to make recommendations than to have them carried out. At the present time, there are hardly any places in existence, under public control, which would have given this boy a chance. Reformatories, so called parental schools, and the like, as they are now organized, are not the things needed in such a case.

The following cases I have had under observation in the east, in part in our institution for atypical children, at Watchung Crest.

CASE III. G. S., boy, aged fifteen years, very backward in school when first reported, and a bad stutterer. Extremely nervous and morbid from infancy, and given to tempers. His principal physical troubles were the following: Diminutive in size for his age, and sexually underdeveloped. Very defective eyesight, through muscular insufficiency. Readily fatigued. He had no visual perspective, owing to his defect, and his visual and aural memory span was limited. At present, a year after first reported, had improved splendidly under training, in every direction. Had acquired considerable ability to concentrate and to endure, also to control his speech defect. His backwardness had been in part overcome since his difficulty was understood. Organized manual work, especially outdoors, helped him to acquire muscular control and improve generally in physiological function.

CASE IV. R. F., boy, aged seventeen years, of good appearance, above average in size; good conversationalist and apparently intelligent, with ability to do a number of ordinary things. The son of wealthy parents, he had never done well, and had recently drifted into bad habits, undesirable companionship, even delinquency. The medical examination was largely negative, except that circumcision was strongly indicated to correct preputial hypertrophy and his bad sexual habits. The mental tests revealed the causes of his somewhat shiftless and dangerous life. Visual and aural memory very poor, and what was retained was not in proper order. Muscular memory unreliable, sense of balance impaired. Reproduction of oral information only fair. The judgment tests showed distinct weaknesses; where he succeeded, he needed much time and the opportunity of a second and third attempt. His methods in manual and art expression were distinctly primitive. In language, he was quite proficient and could talk very intelligently; yet, when he was to formulate his thought in writing, he was vague and loose in construction. It was plain that this boy, having grown up without the proper recognition of the special training he needed, could profit little from ordinary school instruction and influences. When let loose, he had no perspective of situations and causal relations, and could not learn quickly enough from experience, owing to his unreliable memory. He had, however, sufficient intelligence at bottom to be helped toward considerable improvement through a kind of training which took his needs into consideration. He became a very tractable and very much better boy, and had good prospects of becoming finally saved if he could be long enough under the reconstructing influence.

CASE V. L. D., boy, aged seventeen and one half years, recently barely escaped being placed into an institution for the feeble-minded. He had been unmanageable, inefficient, morbid, with suicidal tendency, backward, and given to many forms of sexual perversion. His medical examination gave a clue to his mental difficulty. Weight and height above normal, making him very heavy for his age. Flat chested; heart beat somewhat weak and rales in right lung. Network of varicose veins on both buttocks. Sexual organs showed contrasting development; overgrown penis with entirely undeveloped testicles. Had been masturbating since childhood; indulgence in homosexual practices resulted in funnel shaped rectum, which caused chronic constipation. Careful exercise in the open air and

special treatment relieved these serious conditions so markedly that a great change came over the boy. His sexual inverted acts ceased. His mental tests, after his main difficulties were removed, proved very satisfactory, showing him to be an absolutely normal boy, with creditable power of judgment, logical and associative faculty, and good concentration. His memory span in visual and aural impressions remained narrow, and he had difficulty in graphic and constructive expression, being rather primitive in these things. The boy was plainly capable of considerable advancement, and with the further improvement of his physical condition there came a gain in temperament, application, and perspective. He needed attention to prevent a recurrence of the neuropathic condition which underlay the other symptoms. He needed training in memory, mental coordination, and discipline.

Were my space not limited, I should present another interesting case in detail. A few items must suffice. The boy, now twenty years old, is distinctly primitive; to call him feeble-minded in the accepted sense would seem a superficial valuation. He is still very backward in his school studies, and did some absurd things in his judgment tests. Yet, in others, those that required action of some kind, he did remarkably well, showing considerable penetration and quickness to learn a new thing. Thus he learned to do all the five tests with the Knox cubes; connected 100 dots rationally and immediately; was normal with his form board and the dissected pictures, etc. His drawbacks were, first, his extreme slowness in response, and, second, his very narrow memory span, both visual and aural. They account for his difficulty in learning and in building up a conceptual world on the basis of experience, for he cannot well learn from his so easily forgotten errors and experiences. The boy shows other faults which would stamp him ordinarily as a criminal. He has dirty personal habits and a strong inclination to pilfer eatables and glittering things, jewelry, money, etc. The money can have no attraction for him, as he does not understand its value; neither has he any conception of the value of jewelry. There is simply the attraction of the tempting objects and the tendency to hoard, even though he forgets the hiding places. Again, even when he has had a full meal, he will steal eatables in large quantities and gorge himself to nausea. All these traits are distinctly those of savage people, and would be altogether normal among Igo-rots, New Zealanders, and the like. In other respects the boy shows intelligence, is good hearted, companionable, and unselfish, likes to work on a primitive level, and is as harmless as a child. This is an extreme case. But when we think of the racial strata that produce the Black Hand crimes, the Mafia, and similar outcroppings of an undeveloped moral conscience, we must recognize the existence of civilization levels in modern society which broadly correspond with the types of lower civilizations of past ages. Here we are dealing, not with atavistic or degenerate individuals, but with groups and with layers of society. In some instances, as with the Camorristi of Italy, we may discover distinct psychopathic epidemics, closely allied to epilepsy, hysteria, and mania.

It will have been noted that in many of these cases the visual and aural memory span is short, which prevents the child from profiting by experience; again, there is very often some functional neurosis or some other disturbance of normal func-

tion. It will be seen that we must agree on some suitable classification and terminology so that there will be no confusion. We must distinguish as clearly as possible between fundamentally different types of exceptional development. We must further recognize that only a small number of exceptional children belong to the unredeemable type, to the human refuse heap, so to speak; and that the vast majority, even of the distinctly handicapped children, may be saved for useful citizenship by proper methods of diagnosis and training.

Finally, it is plain that a trustworthy diagnosis must depend upon a really thorough study of a child's physical and mental condition. Whether or not the system of examinations suggested by the author of this paper will stand the test of further experience, or not, I hope all will agree that something of this sort is needed. There must be medical and pedagogical cooperation, and legal methods must be devised by which the status of the exceptional child can be better determined. In the medical field, the psychopathic and neuropathic aspect of the problem is becoming more and more recognized, and the cooperation of this great body of research workers is therefore most urgently invited.

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLII.—How do you treat bedsores? (Closed.)

CLIII.—What has been your experience with condensed milk as a substitute for the mother's milk? (Answers due not later than December 31st.)

CLIV.—How do you treat prostatitis? (Answers due not later than January 15, 1915.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

Therapeutic Notes.

Management of Joint Adhesions in Hemophilia.

—A writer in the *Lancet* for March 14, 1914, asserts that recent adhesions in a hemophilic joint can be broken down without danger or risk of articular effusion. This statement is based on experience in three cases, one being in his own person. The adhesions, he says, seem as a rule to be periarticular, and not intraarticular, and when broken down, though pain and slight swelling result, no trouble is set up in the joint; in a few weeks' time the patient has a useful limb once more. Before breaking down the adhesions, an x ray picture should, of course, be obtained showing that the limitation of motion is not due to bony outgrowths. In the writer's case, a fall

set up trouble in his left knee which did not subside for eight months, adhesions meanwhile forming which limited ganglion motion to about one third of a right angle. Later, because of the inconvenience, massage and passive movements were tried, but proved useless. A year after the fall and about nine months from the time the adhesions had formed, the adhesions were broken down—easily—under anesthesia, the leg flexed at a right angle, and then left in extension between sandbags. Pain and puffiness subsided in about ten days; motion was found as limited as before. Three weeks after the first attempt the writer had the operation repeated, but this time had the leg as strongly flexed as possible and passive movements, started forty-eight hours after, continued daily. In three weeks he was walking about with a useful limb, and at present, seven years after, can flex it about two thirds of a right angle, sufficiently for most purposes.

Treatment of Bronchiectasis and Chronic Bronchitis.—G. Singer, in *Therapeutische Monatshefte* for May, 1914, reports benefit in bronchiectasis and in all bronchial affections, with abundant expectoration, by systematic restriction of the fluid taken by the patients. The method consists in reducing the daily quantity to 600 c. c. (20 ounces) for three successive days, removing the restrictions on the fourth day, then restoring them for three more days, etc. The amount of fluid allowed on the days of fluid restriction is gradually carried down to 400 or 200 c. c. (12 to 6 ounces). The solid diet permitted is ample, including fruit and vegetables. Under this treatment the amount of sputum visibly diminishes and its consistency is increased. In many cases, the treatment led not only to temporary betterment but, after repetition of the periods of fluid restriction, to complete relief from affections of years' standing. Cases of bronchial disorder of syphilitic and tuberculous origin—the active process having subsided—also proved amenable to the treatment; likewise cases of bronchial asthma with a paroxysmal rather than permanent increase in expectoration. The results obtained in these cases tend to show that the effect is not produced by a mere drying out of the tissues, but through osmotic changes to which the reduction of fluid leads. This surmise is corroborated by the fact, observed both by the author and others, that intravenous injections of hypertonic salt solution yield like favorable effects.

Treatment of Sporotrichosis.—Bith, in *Revue de thérapeutique médico-chirurgicale* for June 1, 1914, is credited with the following formula for the administration of potassium iodide in sporotrichosis:

R Potassii iodidi, ...5ss to 3iiss (2 to 10 grams);
Mucilaginis acaciæ, ...3ss (15 grams);
Syrupi aurantii, ...3i (30 grams);
Aquæ, q. s. ad.....3iv (120 grams).
M. et ft. solutio.

The initial daily amount of the iodide given should be thirty grains (two grams), and this should be augmented on alternate days by seven and one half grains (0.5 gram) until sixty grains (four grams) is reached. If this amount is well borne by the patient a further increase by fifteen grains (one gram) each week should be made until 120

grains (eight grams) are being taken. This amount should be continued for a week, and a reduction of fifteen grains (one gram) a week then made until thirty grains (two grams) is attained. Further similar increases and decreases should thereafter be made until a month after all symptoms have disappeared. Milk and vichy water should be used during the treatment, or 150 grains (ten grams) of sodium bicarbonate taken daily. The general system should be supported by the administration of arsenic. Where the stomach is completely intolerant of the iodide, the following enema should be used:

R Potassii iodidi, ...5ss to iiss (2 to 10 grams);
Tincturæ opii, ...miv (0.25 gram);
Aquæ, ...3iii (100 grams).
M. et ft. solutio.

Superficial sporotrichosis abscesses should never be incised. Where they open spontaneously, the following solution should be locally employed:

R Iodi, ...gr. xv (1 gram);
Potassii iodidi, ...gr. lxxv (5 grams);
Aquæ, ...Oj (500 grams).
Ft. solutio.

Superficial lesions from which there is no discharge should be treated locally with tincture of iodine.

The throat is frequently involved in the affection and an iodine gargle should then be used, e. g., the following:

R Tincturæ iodi, ...3i (4 grams);
Syrupi toluatani, ...5x (40 grams);
Aquæ sterilisatæ, ...3xiii (400 grams).
M. et ft. solutio.

The iodine stimulates the phagocytic action of the macrophage (large epithelioid) cells and supplies to the leucocytes the iodine from which they elaborate antiseptic iodine compounds or compounds activating the leucocytic ferments.

A Precaution to Be Taken in the Use of Abbott's Method in Scoliosis.—E. Kirmisson, in *Bulletin de l'académie de médecine* for June 2, 1914, reports two cases of tetanus traced to the use of sheets of infected felting as an elastic mattress between the plaster cast and the thoracic surface upon which pressure was being exerted by the plaster. Slight excoriations of the skin were found beneath the felt in these cases, and cultures from the felt yielded an abundant growth of tetanus bacilli. In view of the possibility of tetanic infection of felt, any of the latter that is used in applying Abbott's method should be sterilized before it is employed. Since this precaution has been taken in the author's cases, no additional instance of tetanic infection has been met with.

Treatment of Sleeplessness in Cardiac Insufficiency.—Fränkel, in *Therapie der Gegenwart* for May, 1914, states his belief, as a result of a study of the value of various measures for insomnia in cases of heart insufficiency, that intravenous administration of strophanthin is the most effectual agency available when sleeplessness is a pronounced feature. The same measure proved more reliable in his hands in cardiac asthma than digitalis administered orally in any form. In the insomnia of chronic heart disease morphine should not be administered regularly until the cardiac tonics have been found insufficient.

NEW YORK MEDICAL JOURNAL

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A Weekly Review of Medicine.

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NEW YORK, SATURDAY, NOVEMBER 28, 1914.

MEDICAL JOURNALS AND THE FEDERAL ACT AGAINST MAILING OBSCENE MATTER.

The editor of the *Southern California Practitioner* has recently been indicted by a Federal grand jury on the charge of sending through the mail "obscene, lewd, and lascivious" matter published in his journal as an original article. The article contained matter relating to the sexual act, which, being published in a medical journal was naturally intended for physicians and not for the laity. Without intending to pass upon the guilt of the accused in the present case or in any way to usurp the functions of the court, we are constrained to reflect upon the application of the statute under which medical journals are constantly so perilously near to offending, that is, if the editor of our contemporary is guilty as charged.

There is no question that the mailing of matter characterized by the statute as "obscene, lewd, or lascivious" is unlawful and subject to severe punishment, but to determine when matter comes within the scope of that characterization is often difficult. In applying the test, the words are given their ordinary recognized meaning rather than a technical or legal meaning. Applying this test, anything which is offensive to chastity and decency and

has a tendency to produce that form of immorality which has relation to sexual impurity in those open to such immoral influence into whose hands it may fall, comes within the prohibition of the statute.

Unquestionably an article dealing with the sexual functions circulated among the general public would create in the minds of many of its readers sensations of disgust or lewdness, depending upon the conditions, circumstances, and temperament of the particular reader, but the suggestion that a physician would be similarly shocked or moved by such a production would doubtless come to most members of the profession as a humorous surprise. It would seem, therefore, that the court, not only from the necessities of the case, but as well from the application of the ordinary import of the words, would apply to matters intended for a select and restricted circulation such as a medical journal, a distinctly different standard from that applied to articles intended to be placed in the hands of the general public. An examination of the decisions discloses such a disposition, although it does not appear that the courts have passed upon the application of the statute to the facts existing in this case.

In the case of *U. S. versus Chesman*, 19 Federal Reports, 497, Judge McCrary said: "It may be, and probably is true that much of the offensive matter is taken from books upon medicine and surgery, which would be proper enough for the general use of members and students of the profession. There are many things contained in the standard works upon these subjects which, if printed in pamphlet form and spread broadcast among the community, being sent through the mails to persons of all classes, including boys and girls, would be highly indecent and obscene." The judge then proceeds: "I am not prepared to say, and it is not necessary now to decide whether these medical books could be sent through the mails without a violation of the statute." And accordingly in the case of *U. S. versus Smith*, 45 Federal Reports 476, Judge Jenkins says: "Whether act or language is obscene depends upon circumstances. The public exposure of the person is most obscene, yet the necessary exhibition of the person to a physician is not only innocent, but is a proper act, dictated by positive duty. Instruction touching the organs of the body, under proper circumstances, is not reprehensible; but such instructions to a mixed assemblage of the youth of both sexes might be most demoralizing."

While in the case of *U. S. versus Clarke*, 38 Federal Reports 500, Judge Thayer, after considering the distinction suggested by Judge McCrary between matter contained in standard medical works and in pamphlets for general circulation, de-

clared it to be his understanding that the character of a publication, whether obscene or otherwise, is to be determined by no other criteria than its subject matter, the method of treatment of the subject involved, the illustrations it contains, and its tendency, in all respects, to corrupt those whose minds are open to immoral influences, but that if the defendant were in any case justified in sending what would ordinarily be deemed an indecent publication through the mail, by reason of the calling, profession, or peculiar need of the person to whom it was sent, that was a matter of defense to be brought forward by the defendant.

None of these views or expressions may be regarded as having any binding force or effect upon a court now passing upon the question directly involved, as they are mere *dicta*, expressions *obiter*, setting forth views entertained upon a subject only collateral to the question then being decided. These views are in a large measure helpful, however, as from them one may, to a considerable extent, forecast the character of instructions that the judge will give to the jury, which, after all, is the body that must determine whether or not, under all of the circumstances submitted to their consideration, the defendant is guilty of having mailed "obscene, lewd, or lascivious" matter.

LEVIES UNFIT FOR WARFARE.

One reads in the lay press how youths and men past forty years of age are appearing on the firing line, are taken prisoners, are lying dead in the trenches. The conclusion seems inevitable that when such levies are made, the end of the war cannot be far distant. Such troops are unfit and cannot endure; they must quickly succumb to war's privations and horrors; for one dying of wounds several will die of disease. Many will go insane; many will destroy themselves. Warfare is attended with peculiar physical hardships and psychic stresses; to endure these both mind and body must be fit. The boy from sixteen to twenty years old is utterly unfit; physically because he is not yet developed, as to his skeleton, his musculature, or his vital organs; especially are his lungs, heart, and vessels immature. The strain upon the whole organism far exceeds that of any peaceful calling. In our civil war most of the boys who enlisted had to be discharged within the first few months. Military history gives ample evidence to the same effect.

Not only are young men less fit for arduous military service than seasoned men, but they are much more susceptible to disease. In our war with Spain and in our Philippine campaigns during the year from May 1, 1896, there were 968 killed or

died of wounds, injuries, and accidents; while 5,436 died from disease (typhoid, dysentery, malaria, pneumonia, yellow fever, smallpox). Our own warfare has been a junket in comparison with the horrible campaigning now going on. "To what we are up against now," wrote an English soldier who fought the Boers, "Spion Kop was heaven." Other diseases in the present war are tonsillitis, measles, cholera, influenza, and, in the Eastern fields, plague.

Even worse off than the adolescent are the middle aged and elderly levies. Let any colleague who is himself graying at the temples, put himself in the place of the men in the trenches that gridiron and honeycomb the battle line from Ostend to Lorraine, where men are without food for days or must satisfy their hunger with bacon, beans, hard tack, and pea soup; where men who through many years of comfortable living have, come forty year, acquired undistributed middles, must now march a dozen miles a day weighed down with seventy pounds of accoutrements; where men who are inefficient after a poor night's rest must dig trenches before dawn, from which to fight without sleep the next day; where men accustomed to the morning tub are tortured by filthy, bacteria conveying vermin; where men in whom the degenerations are becoming manifest must now fear rheumatism, the camp infections, the heart, artery, urinary, and liver diseases, and the terminal affections which do for a man for good and all. Nor are the physical discomforts and diseases the worst, for either youth or him who has come to the farther side of the hill of life; campaigning is far more disastrous to the psychic machinery—the brain and nervous system. Even among those within the recognized soldiering years, insanity suicide, running amuck, "the anger of frightened men," and Berserker frenzies are everyday commonplaces. How then are men under and over those years to escape psychic disaster?

NOVEL INFECTIONS IN GUNSHOT WOUNDS.

The special correspondent in northern France of the *British Medical Journal* contributes to that periodical for November 7th, an account of the novel infections found in gunshot wounds during the present war. Instead of the streptococcus and staphylococcus infections so familiar to us, these organisms seem to be prevented from getting a foothold in the wounds by the prompt invasion of the latter by an extraordinary quantity of anaerobic organisms, the tetanus bacillus, the bacillus of malignant edema, and *Bacillus aerogenes capsulatus*. Only after a considerable time, and sometimes not at all,

does pus begin to form. It is not because wounds are not promptly and properly treated, that they exhibit this bacteriological peculiarity, but because of the nature of the soil of Belgium and northern France. This soil has for many years been subject to intensive cultivation, has been manured over and over again, and consequently teems with the anaerobic organisms which inhabit the intestines of the higher animals.

TWILIGHT SLEEP IN THE DEPARTMENT STORE.

We have from time to time commented on the objectionable exploitation of scopolamine-morphine anesthesia in childbirth under the name of "twilight sleep." We hardly foresaw, however, the extent to which this exploitation in the lay press would be carried. We reproduce a portion of an advertisement of a department store in a New York daily paper, an advertisement sandwiched in between announcements of special sales of lingerie, etc.

"Twilight Sleep"

Thursday at 3:30 P.M.

In response to the general request of our customers and friends, we have arranged for a second program on "Twilight Sleep" at the



Conference for the Betterment of Babies

Under the Direction of the
Better Babies' Bureau
of the
Woman's Home Companion.

Speakers

Dr. Irwin Arnow, Superintendent of the Jewish Maternity Hospital—
"Some Observations of Twilight Sleep."

A. Löbel, M. D.
"A Twilight—What Is It?"

Demonstrations of the Scientific Care of the Baby, 11
A. M. and 3 P. M.
Tenth Floor, No. 18 Elevator, 32d St. Side.

It will be only a matter of time probably when the daily press will be printing advertisements of a new twilight sleep hospital for wealthy mothers, for which all this notoriety has so well paved the way. It is hardly believable that such an extensive and intensive propaganda should have been carried on without some such commercial object in view. If such a hospital should be established, the older maternity hospitals may find it necessary to enter the advertising field themselves, and we foresee the possibility of display signs on the fronts of the hospitals, advertisements in the daily press, and pos-

sibly sandwich men, announcing "twilight sleep provided," or "painless childbirth a specialty." In this way they could meet the keen competition of department stores. It would probably be impossible to emulate the so called "painless dentists" by giving street corner demonstrations, though this would be logically the next advertising step. As our readers know, our protests have been aimed particularly at the vulgarization of the procedure and not at the procedure itself, which, in certain cases and in proper hands, is advantageous, although the decision as to when it is to be employed is the exclusive prerogative of the attending physician.

INTRASPINAL INJECTIONS.

New therapeutic procedures, even when they make important additions to our means of controlling disease, often carry with them new, and sometimes grave dangers of their own. Many of these dangers appear only with experience and must be met as they arise. Intraspinal injections for therapeutic purposes are now in comparatively common use. To the dangers from increased intraspinal pressure and from septic infections, attention of late has been directed to one other, the untoward effect from the antiseptic customarily used in the preservation of most therapeutic serums, more especially antimeningitis serum.

In the majority of cases in which antimeningitis serum is administered no unpleasant symptoms arise, but in certain cases the administration has been followed by collapse with cessation of respiration and rapid fall in blood pressure. Flexner and Sophian have attributed this to increased intraspinal pressure. Some have sought an explanation in the lytic action of the serum on the meningococcus with consequent liberation of toxin. Others have tried to interpret the condition as due to anaphylaxis. Finally, Kramer has attributed the striking phenomena to the antiseptic, most frequently tricresol, employed in the preservation of the serum; and Hale demonstrated experimentally the toxic action of tricresol serum when introduced into the subarachnoid space of dogs and cats.

Voegtlin, in *Bulletin No. 96* of the hygienic laboratory, reviews the subject and presents important experimental data of his own, including several striking blood pressure charts. Experimenting with dogs and monkeys, he shows quite conclusively that both tricresol and phenol serums, in as low concentrations as 0.25 per cent. (the concentration usually employed by the manufacturers), caused definite symptoms of toxicity in the animals, shown by fall in blood pressure and serious interference with respiration. He found that serum

preserved with formaldehyde, in concentration as low as one to 1,000, was even more toxic. On the other hand, serum preserved with chloroform to saturation, seemed to be without such untoward effects; and Voegtlin approves the suggestion of Auer that this substance might perhaps be preferred in preserving serum for intraspinal use.

Special attention in his paper is given to the method of injecting the serum. Increased intraspinal pressure is an ever present danger, and this too will cause a decided fall in blood pressure. This danger can be largely avoided, however, in the choice of method for administering the serum. Voegtlin supports clinicians of experience in his opinion that administration with a syringe is far more likely to result in unpleasant effects than the gravity method; and he recommends the employment of blood pressure estimations during the administration of serum by the intraspinal route. Such estimations, he thinks, will give a good index of the margin of safety.

SHRAPNEL.

The word is on everybody's tongue, observes the *Lancet* for November 7, 1914, but it is not everybody who knows its origin. Henry Shrapnel, an English artillery officer, the youngest son of a family of nine children, was born on June 3, 1761, entered the Royal Artillery, and visited Newfoundland, Gibraltar, and the West Indies while still a mere boy. He served also in the army of the Duke of York in Flanders, and was wounded at the siege of Dunkirk in September, 1793, and now just 121 years afterward, his invention is in great use not many miles from the very same place. He devoted all the time and money he could spare to inventions in gunnery, and his case shot or shell was recommended by the board of ordnance for adoption into the service. He was afterward employed at the Royal Arsenal at Woolwich perfecting his inventions. In 1804 his shell was employed in the attack on Surinam, and favorably reported upon, and he later received flattering testimonials as to its efficacy from the Duke of Wellington, Admiral Sir Sydney Smith, and other notable commanders.

Obituary.

CHARLES S. MINOT, Sc. D., LL. D.,

Dr. Charles Sedgwick Minot died at Milton, Mass., after an illness of several months, on November 19th. He was born in West Roxbury in 1852, attended Boston schools, and graduated from the Institute of Technology, as bachelor of science, in 1872. Subsequently he studied in Leipsic, Paris, Würzburg, and at Harvard University, where he received the S. D. in 1878. Other honors paid him comprised the Sc. D. from Oxford in 1902, and the LL. D. from Yale University in 1899, the University of Toronto in 1904, and St. Andrew's University in

1911. He was engaged at the Harvard Medical School from 1880, first as lecturer on embryology and instructor in oral pathology and surgery, then as instructor in histology and embryology, finally as James Stillman professor of comparative anatomy. He was a member of numerous scientific societies here and abroad and had been president of the Boston Society of Natural History, the American Association for the Advancement of Science, and the Association of American Anatomists. He was the author of several noted books, both in English and German, on embryology and biology. He is survived by a widow and one brother.

News Items.

Changes of Address.—Dr. Frances F. Cohen, to 980 Fox Street, New York.

Dr. Samuel F. Zahn, to 6049 Chestnut Street, Philadelphia.

Dr. Alexander Abrams, to 145 East Eighty-ninth Street, New York.

Buffalo Academy of Medicine.—The meeting place of this organization has been changed to Orpheus Hall, 432 Franklin Street, and meetings will be held this winter on Wednesday instead of Tuesday evenings. The change in date was made necessary by the change in meeting place.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Tuesday, December 1st, Medical Examiners' Association, Philadelphia Laryngological Society; Wednesday, December 2d, Physicians' Motor Club (directors), College of Physicians, Lebanon Hospital Medical Society; Thursday, December 3d, Obstetrical Society; Friday, December 4th, Kensington and Southeast Branches of the County Society.

Louisiana State Board of Medical Examiners.—At the recent annual meeting of the board, Dr. Leon J. Menville, of Houma, La., was appointed by Governor Hall to fill a vacancy caused by the resignation of Dr. E. M. Williams, of Paterson. The board now consists of the following members: Dr. J. G. Martin, president; Dr. S. L. White, vice-president; Dr. E. L. Leckert, secretary-treasurer; Dr. Homer Dupuy, and Dr. Leon J. Menville.

Peter Bent Brigham Hospital, Boston.—Founder's day was celebrated at this institution on Thursday, November 12th. The exercises really constituted the dedication of the hospital, although the institution has been open more than a year. Five hundred persons were present and among the speakers were Dr. William H. Welch, of Baltimore; Dr. Frank Billings, of Chicago; Dr. Harvey Cushing, of Harvard Medical School, and Dr. J. Warren Coleman, of Boston.

Measures to Prevent the Entrance of Cholera Into Italy.—Owing to repeated reports of cholera among the armies in Poland, Hungary, and Austria, rigid measures are being taken in Italy to guard against the entrance of infection. All travelers from suspected regions are subject to sanitary vigilance and those whose hygienic condition is unsatisfactory are detained at the frontiers and submitted to medical examination, and their effects are disinfected. No case of cholera has been found in Italy nor among persons arriving at the frontiers.

Civil Service Examination for Superintendent of a County Tuberculosis Hospital.—Under the Civil Service Commission of New York State a competitive examination will be held Saturday, December 12th, for the position of superintendent of the Tompkins County Tuberculosis Hospital, with a salary of \$1,200 and maintenance. An unmarried man is preferred, as the hospital has no accommodations for a family. The examination is open to male physicians only, licensed to practise medicine in New York State. The subjects of examination are practice of medicine, tuberculosis and its treatment, hospital management, and experience and training. Persons desiring to take this examination must file application on blank form E-10 in the office of the State Civil Service Commission, Albany, on or before December 8th.

German Red Cross Fund.—The total contributions in the United States to the work of the German Red Cross Society for wounded soldiers, widows and orphans of those killed in the war, and sufferers in general, amount to \$576,671. Of this amount \$160,000 was collected by the German Relief Fund in New York.

Rockefeller Foundation Relief Work in Europe.—Dr. Wickliffe Rose, head of the commission appointed by the Rockefeller Foundation to aid in the work of relief in the war zone of Europe, with his associates, will visit France, Austria, Servia, and some parts of Russia, where it is said the needs of the people are great, particularly in Servia. They will find the localities where distress is greatest and send immediate relief, regardless of the country. The cargo of provisions sent to the destitute people of Belgium by the Rockefeller Foundation on the steamer *Massapequa* was unloaded in Rotterdam on November 23d and forwarded at once to Belgium.

Knowledge of Demography Necessary to Officers of the United States Public Health Service.—Surgeon General Rupert Blue, of the United States Public Health Service, has issued a set of questions on demography to illustrate the kind which candidates for entrance to the corps will be required to answer. It is the belief of the Public Health Service that the relationship of the practising physician to the question of registering births and deaths and reporting notifiable diseases, is such that it is safe to assume that a man who has graduated in medicine and is ready to enter practice is familiar with the essentials of demography, at least to the extent indicated by these questions.

Tri-State Medical Association.—The thirty-first annual meeting of this association, whose membership is composed of physicians from Tennessee, Arkansas, and Mississippi, was held in Memphis, November 17th, 18th, and 19th, under the presidency of Dr. John Darrington, of Yazoo, Miss. The meeting was in every respect a success. Dr. W. P. Hicks, of Earle, Ark., was elected president, and vice-presidents were elected as follows: For Tennessee, Dr. Vernon Dickson, of Covington; for Mississippi, Dr. E. R. McLean, of Cleveland; for Arkansas, Dr. J. L. Hare, of Wynne. Dr. J. L. Andrews and Dr. J. A. Vaughan, of Memphis, were reelected secretary and treasurer, respectively. Next year's meeting will be held in Memphis, the date to be fixed later.

New York and New England Association of Railway Surgeons.—The annual meeting of this association, held on October 21st and 22d, at the Hotel Astor, New York, under the presidency of Dr. C. A. Pease, of Burlington, Vt., was one of the most successful ever held. A symposium on the treatment of fractures was presented. The address in surgery was delivered by Dr. William Seaman Bainbridge, of New York. Officers were elected as follows: President, Dr. W. H. Marcy, of Buffalo; first vice-president, Dr. D. H. Lake, of Kingston, Pa.; second vice-president, Dr. H. G. Stetson, of Greenfield, Mass.; treasurer, Dr. J. K. Stockwell, of Oswego, N. Y.; recording secretary, Dr. J. H. Reid, of Troy, N. Y.; corresponding secretary, Dr. George Chaffee, of Brooklyn. The next meeting, which will celebrate the twenty-fifth anniversary of the association, will be held in New York, October 21 and 22, 1915.

Mortality for the Week Ending November 21, 1914.—The week just passed has been one of exceedingly low mortality, the rate going down to 11.62 per 1,000 of the population, which is equivalent to a relative decrease of 199 deaths compared with the corresponding week in 1913. The mortality from most of the infectious diseases was at low ebb; only two deaths were reported from measles and whooping cough. Typhoid fever caused only seven deaths against seventeen in the corresponding week of last year. Cerebrospinal meningitis was also below the average. The mortality from pneumonia and organic heart and kidney disease was also lower.

All age groups participated in the general reduction, noticeably so between the ages of five and sixty-five years. The Borough of the Bronx had a death rate of almost 10 per 1,000 of population. As the year draws toward an end, it is found that the rate for the entire year gives fair promise of being the lowest in the history of the city; the forty-seven weeks have passed with a rate that approximately stands at 13.05 against 13.07 during the corresponding period of 1913.

Association of Seaboard Air Line Railway Surgeons.—The thirteenth annual meeting of this association was held in Petersburg, Va., on Monday, Tuesday, and Wednesday, October 19th, 20th, and 21st, under the presidency of Dr. H. A. Burke, of Petersburg. Officers to serve for the ensuing year were elected as follows: President, Dr. M. L. Wood, of Montgomery, Ala.; first vice-president, Dr. R. L. Harris, of Jacksonville, Fla.; second vice-president, Dr. Frank L. Eskridge, of Atlanta, Ga.; third vice-president, Dr. W. A. McPhaul, of Lumberton, N. C.; secretary-treasurer, Dr. I. W. Palmer, of Ailey, Ga. Dr. E. H. Terrell, of Richmond, was reelected a member of the executive committee. The association meets next year in August at Wrightsville Beach, near Wilmington, N. C.

A Jail Sentence for Selling Adulterated Milk.—Repeatedly prosecuted by the Department of Health for violation of its milk regulations, and in spite of this continuing his illegal practices, a Brooklyn dealer was sentenced in the Court of Special Sessions, on November 12th, to pay a fine of \$250 for selling milk improperly labeled and to serve three months in the City Prison for selling adulterated milk. For some time, a number of dealers in Brooklyn, operating dairies within the city limits, have persistently disregarded the department's milk regulations. On various occasions this man sold raw milk as pasteurized, sold milk without a permit, and also violated Sections 52 and 53 of the Sanitary Code by selling adulterated milk. The action of the Court in imposing a jail sentence is highly commendable and should act as a warning to other persistent offenders.

Medical Association of the Southwest.—At the ninth annual meeting of this association, held in Galveston, Texas, on Tuesday and Wednesday, November 10th and 11th, under the presidency of Dr. S. S. Glasscock, of Kansas City, Kansas, the following officers were elected: President, Dr. J. D. Griffith, of Kansas City; first vice-president, Dr. Malvern B. Clopton, of St. Louis; secretary-treasurer, Dr. Fred H. Clark, of El Reno, Okla. The following are the vice-presidents from the various States composing the organization, each State being entitled to one: Texas, Dr. A. E. Sweatland, of Nacogdoches; Oklahoma, Dr. T. H. Flescher, of Shawnee; Missouri, Dr. Malvern M. Clopton, of St. Louis; Arkansas, Dr. F. D. Holland, Jr., of Fort Smith; Kansas, Dr. Ernest F. Day, of Arkansas City. The executive committee or the new members of the committee elected this morning are as follows: Dr. M. M. Smith, of Dallas; Dr. J. H. Barnes, of Enid, Okla.; Dr. E. D. Martin, of Hot Springs; Dr. W. E. Stauffer, of St. Louis, and Dr. A. Dorsey, of Wichita, Kan. Oklahoma City was selected as the place for the next annual meeting.

To Regulate the Sale of Proprietary Medicines.—At a meeting of the section in medicine of the New York Academy of Medicine, held on the evening of November 17th, Dr. Haven Emerson, deputy commissioner of health of the City of New York, presented a draft of two amendments to the Sanitary Code which have been proposed. The text of the proposed amendments follows:*

Section 160. No person shall give away or otherwise distribute any sample, package, parcel, box, or other quantity of any nostrum, proprietary medicine, or other material of an alleged medicinal character or curative agency from door to door, or by depositing or leaving the same in the hallway, private area, or yard, or on any street, alley, or public place in the city of New York; provided, this section shall not prohibit manufacturers or wholesale dealers from distributing samples to physicians or to the trade.

No proprietary or patent medicine manufactured, prepared, or intended for internal human use, shall be held, sold, offered for sale, or given away, in the city of New York until the following requirements shall, in each instance, have been met:

The term proprietary or patent medicine, as used in this section, means every medicine or medicinal compound, serum, or biological product, manufactured, prepared, or intended for internal human use, the name, composition or definition of which is not to be found in the *United States Pharmacopoeia* or *National Formulary*, or which does not bear the name of each ingredient printed in clear, legible type, on the outside of each bottle, box, or package in which the said medicine, medicinal compound, serum, or biological product is sold, held, or offered for sale or given away.

The names of the ingredients of any such medicine shall be registered in the Department of Health in such manner as the regulations of the Board of Health may prescribe.

The names of the ingredients of proprietary and patent medicines, registered in accordance with the terms of this section, and all information relating thereto or connected therewith, shall be regarded as confidential and shall not be open to inspection by the public or by any person other than the official custodian of such records in the Department of Health, or such persons as may be authorized by law to inspect such records.

The provisions of this section shall not apply to any medicine prepared or compounded on the prescription of a physician when such medicine is sold or given away to or for the use of the person for whom it has been prescribed.

This section shall take effect on and after July 1, 1915.

New Staff of the German Hospital, Brooklyn.—At the regular meeting of the board of trustees of this institution, the annual election of the hospital and dispensary staffs was held, the following physicians having been elected: Medical collegium of the hospital, 1915—Dr. Frederick Weisbrod, Dr. William Browning, Dr. William Moser, Dr. Lewis S. Pilcher, Dr. Russell S. Fowler, Dr. James P. Warbasse, Dr. Charles Wuest, Dr. Carl Fulda, Dr. William A. Seimel, Dr. William W. Laing, Dr. William J. Cruikshank. Medical staff, 1915, consulting physicians—Dr. William J. Cruikshank, Dr. Jacob Fuhs. Consulting surgeons—Dr. Lewis S. Pilcher, Dr. Frederick W. Wunderleich. Medical department, attending physicians—Dr. Charles Wuest, chief; Dr. William A. Seimel, Dr. R. F. Herriman, Dr. Alexander Koch, Dr. William Moser, Dr. Harry Warren Lincoln. Assistant physicians—Dr. A. W. Westhoff, Dr. M. Gingold, and Dr. A. E. Gilmartin.

American Public Health Association.—The forty-second annual meeting will be held in Jacksonville, Fla., November 30th to December 4th. The National Mouth Hygiene Association has planned to meet in Jacksonville at the same time, and a joint session has been arranged for the afternoon of Wednesday, December 2d. In connection with the meeting there will also be held in Jacksonville the Southern Health Exhibition, November 27th to December 6th, to which reference has already been made in our columns. The officers of the American Public Health Association are: President, Dr. William C. Woodward, of Washington, D. C.; first vice-president, Dr. John F. Anderson, of Washington, D. C.; second vice-president, Dr. M. Lebrede, of Havana, Cuba; third vice-president, Dr. C. J. Hastings, of Toronto, Canada; secretary, Professor Selskar M. Gunn, of Boston; treasurer, Dr. Lee K. Frankel, of New York.

American Association for the Study and Prevention of Infant Mortality.—The fifth annual meeting of this society was held in Boston during the week ending November 14th, under the presidency of Dr. J. Whitridge Williams, of Baltimore. On Sunday, November 8th, preliminary to the meeting, addresses on various aspects of infant welfare were made in several Boston churches by Dr. John Lovett Morse, Dr. Henry I. Bowditch, Dr. James L. Huntington, Dr. Arthur A. Howard, Dr. Arthur B. Emmons, 2d, Dr. Richard S. Eustis, Dr. Karlton G. Percy, and Dr. Harold A. Gale, of Boston. On November 11th, as an additional popular preliminary, an exhibit was opened in the courtyard and corridors of the Boston Public Library, illustrating various phases of the work of different societies and organizations engaged in combating infant mortality.

Officers were elected as follows: President, Dr. S. M. Hamil, of Philadelphia; vice-president, Dr. W. C. Woodward, of Washington, D. C.; second vice-president, Dr. William P. Lucas, of San Francisco; secretary, Dr. Philip Van Ingen, of New York; treasurer, Dr. Austin McLanahan. The board of directors was increased from eighty to eighty-five members.

Cholera in the Philippines.—Cholera has been notified in Manila as follows: Week ending September 26, 1914, 74 cases with 38 deaths, with the addition of 15 cases with 9 deaths confirmed from previous week. Assistant Surgeon Duffy, of the United States Public Health Service, acting chief quarantine officer for the Philippine Islands, reported September 30th: The cholera situation in the city of Manila shows very little change. There has been a gradual increase in the number of cases, but the mortality has kept low. There has been practically no localization of the disease. Cases occur in every section of the city. The total number of cases of cholera in Manila since the outbreak of this epidemic is 327, with 190 deaths. Carriers are still found in large numbers. The facilities of the cholera hospitals have been taxed to their limit by the large number of cases and carriers, as high as 300 being in the San Lazaro Hospital on one day. Steerage passengers bound for the United States and Honolulu are required before embarkation to present certificates that they have been examined and found free from cholera organisms. The examination by this office of all the crews of river and harbor craft has been continued with the usual percentage of cholera carriers. The Provinces show a diminution of centres of infection, but a sharp increase in the number of cases in several places, especially in Union Province, about 150 miles from Manila.

Pith of Progressive Literature.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

October 20, 1914.

Treatment of Obesity with Leptynol.—M. Kauffmann now uses a mixture of colloidal platinum and palladium instead of a palladium solution alone and finds that his results are better. Two c. c. of the solution contain forty mg. palladium and fifteen mg. platinum. This is readily absorbed and there is no necessity of using an aqueous solution of colloidal platinum intravenously. In exogenous obesity in which there is no disturbance of oxidation, better results are obtained than in cases of endogenous obesity. Muscular activity helps in the reduction of weight as the action of the therapeutic agent seems to be enhanced. The injections are also followed with better results when slight fever—oxidation fever—exists. Some of these patients experience a feeling of well being, euphoria, which seems to be brought out more distinctly when the muscles are exerted, and some found that they could get along with four or five hours' sleep without feeling tired. The injections have also been used with success in gout. The author believes that this method of treatment can be employed with benefit in cases of diabetes, including diabetic coma.

Cerebral Pressure in Eye Conditions.—L. Heine has found that in seventy-five per cent. of the cases of uveitis there is an increase in the pressure of the cerebrospinal fluid, which points to a meningeal irritation. If the retina is considered as a part of the brain, then the uvea corresponds to the meninges. In sixty-three cases of uveitis, of which thirty were cases of iridocyclitis and thirty-three choroiditis, the pressure of the cerebrospinal fluid was from 150 to 200 in fourteen cases; from 200 to 300 in twenty-seven cases and over 300 in two cases. The pressure is higher in chronic than in acute cases; this is more marked in iritis than in choroiditis. Most cases showed a moderate increase in pressure; tuberculosis was the most prominent cause, syphilis being second. Of thirty cases of iritis, twenty-four occurred in men, and of thirty-three cases of choroiditis, there were also twenty-four in men. In iritis there were twenty-three cases in which only one eye was affected and seven in which both eyes were affected, but in choroiditis there were eight cases in which one eye was affected and twenty-five in which both eyes were affected. High pressure is seen more often in syphilitic cases as they give rise to acute processes, while tuberculosis, occurring in a more chronic form, gives an increase in the pressure which is not so marked.

Auricular Tachycardia and Pulsus irregularis perpetuus.—H. E. Hering maintains that pulsus irregularis perpetuus is differentiated from auricular tachycardia by the fact that in the former there is arrhythmia of the auricular contractions—fluttering. The irregular contractions of the ventricle in pulsus irregularis perpetuus are due not only to a disturbance in the transmission of impulses from the auricle to the ventricle, but the rhythm of the auricles is irregular on account of the disturbed relation between the stimulation of the auricle and its response to this stimulation. The two conditions

have the following in common: 1, The increased number of stimuli coming to the ventricle from the auricle; 2, disturbance of transmission; 3, the influence of the vagus on transmission. Auricular tachycardia may develop into the condition of pulsus irregularis perpetuus, as is seen when digitalis is administered. When this occurs the presystolic murmur disappears.

WIENER KLINISCHE WOCHENSCHRIFT

October 15, 1914.

Lumbar Puncture in Infectious Chorea.—Fritz Passini classes chorea with the infectious diseases, asserting that the etiological factor is similar to that of rheumatism, of pericarditis, and endocarditis. Inflammation of the brain is supposed to exist in chorea; lumbar puncture was done with a view to studying the fluid bacteriologically. The patients with cases of chorea minor previously had rheumatic attacks or cardiac murmurs. They were not suffering from an acute general infection of the system, as the normal temperature showed, but the process had localized itself to the nervous system. Lumbar puncture showed that the cerebrospinal fluid was under increased pressure and increased in amount. The fluid itself was not turbid, showed no fibrin clot on standing, was slightly alkaline in reaction, and contained a very faint trace of albumin. Bacteriologically it was sterile; stained smears showed no organisms and only a few polynuclear leucocytes. The increased amount of cerebrospinal fluid and the resulting mechanical increase in pressure are not responsible, however, for the choreiform movements. They are supposed to be due to a chemical change in the cerebrospinal fluid or to the action on the nerve centres of toxins, produced by the infecting bacteria and somewhat similar to the action of tetanus and diphtheria toxins. Some of the patients showed a marked improvement after lumbar puncture. These were children who had symptoms of chorea for the first time and in whom the symptoms were quite intense. In those who had chorea for some time, or in whom the lumbar puncture was performed during an exacerbation, the results were not so good. The pressure of the cerebrospinal fluid was lowered, but the symptoms were not influenced. The different results might be explained by supposing that in acute cases the toxin has not had the opportunity to cause the profound changes in the brain cells which it does in chronic cases.

October 22, 1914.

Dentistry in War.—M. Kraus considers every wound in the region of the face an infected one. Infection of face wounds is of three kinds: 1. spreading subacute phlegmons of the face; 2, emphysema of the upper jaw; 3, osteomyelitis of the lower jaw. In treatment the following must be striven for: 1. Arrest of hemorrhage. 2. Fixation of fragments. 3. Correction of large wounds of the soft parts. 4. Prevention of infection. Hemorrhage may be controlled by tamponing, pressure bandage, compression of carotid, and, if necessary, by ligation. Lacerated wounds of the soft parts may be corrected by approximation of the wound edges; infection may be combated by application of antiseptic solutions, of which colloidal sil-

ver solutions have given the best results. Luxations of the lower jaw are usually unilateral, but occasionally bilateral. The luxation is forward for the most part and the reduction is carried out by putting both thumbs, covered with gauze to prevent the patient's biting, over the lower molars and pressing downward and backward until the bone slides over the articular process into position. Fracture of the lower jaw is the most common of the injuries to the bones of the face. The most important symptom is displacement of the fragments. Treatment consists in keeping the mouth clean with gargles of hydrogen peroxide or collargol, and in applying splints. These are either of rubber or of metal and the different models of Schroeder for fractures in different parts of the lower jaw are most serviceable. The prognosis in these cases in the absence of complications is good. At times tracheotomy has to be performed because of the danger of suffocation; ligature of the carotid or lingual for hemorrhage, and incision and drainage of an abscess. The treatment with splints lasts from four to eight weeks. X ray pictures should be taken both before and after fixation. Prompt and scientific treatment is of great importance in the treatment of fractures of the lower jaw. If hard or soft callus is allowed to form between the fractured ends of the bone, deformities and loss of function will take place, difficult or impossible to correct subsequently.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

October 13, 1914.

Observations in Military Surgical Practice.—Tuffier, from observation in emergency hospitals at the front and in receiving hospitals in the interior of France, asserts that the superiority of antiseptic over aseptic treatment of wounds has become clearly manifest. Shell fragments entail the greatest danger of sepsis, gangrene, and tetanus, and must be immediately removed wherever possible. Compound fractures of the extremities have proved especially dangerous when situated near the roots of the limbs; in fracture of the upper third of the femur especially, bullets or shell fragments, bits of clothing driven into the tissues, and splinters of bone must be carefully removed and drainage provided. Large wounds of exit in cases of injury by small projectiles are found to be due to bursting of the hard shell of a bullet against a bone or to the projection of a fragment of bone to the exterior, and constitute no evidence whatever of the use of dum-dum bullets. Tincture of iodine, applied in small amount only, an aseptic compress, a little cotton, and a bandage are often followed by first intention repair in simple wounds, sometimes without any redressing. Padded wooden splints have proved more effective than curved metallic splints for immobilization of fractures. Success was not obtained in attempts to operate in abdominal wounds at the first line emergency hospitals, owing to lack of time and the presence of infected cases requiring immediate operation. Abdominal patients must be starved and kept in the sitting posture until they reach a completely equipped hospital farther from the front. Tetanus has been the most dangerous wound complication; infection occurs when the wound is

sustained or soon after, and antitetanic serum must be administered as the earliest emergency treatment. Gas bacillus infection has been unexpectedly frequent, especially in shell wounds. Cauterization with the hot iron and injections of hydrogen dioxide, deep as well as superficial, not infrequently fail and in five cases under the author's observation, even amputation did not save life. Preventive treatment by early removal of shell fragments is the most efficient measure in this connection.

Conservative Treatment of Wounds of the Soft Parts, Involving the Shafts of Long Bones.—L. Picqué states that among fifty-two cases of wounds treated in a hospital in the interior of France, twenty-four were admitted with uninfected wounds. Most wounds were of soft parts or bone diaphyses. Where a bullet remains in the tissues in such cases, nonintervention should be the rule, unless the presence of the foreign body continually preys upon the patient's mind, as is sometimes the case in spite of the physician's reassuring words. In fifteen cases showing local infection—but not gangrene—upon admission, the author practised conservative treatment, consisting in a daily careful search, frequently under chloroform anesthesia, for local causes of pyrexia and, in apyretic patients, for deep foci of suppuration or bone fragments. In spite of the serious nature of the conditions seen upon admission, recovery without amputation followed in all but one. In the single patient who finally succumbed, disease of the liver and kidneys had previously existed.

PRESSE MÉDICALE.

September 16, 1914.

Immediate Proof of Death.—M. d'Halluin recommends, as a rapid way to establish death, the instillation of ether into one eye, the other serving as control. Where rubefaction appears, life is certainly present. No failure of this method has been observed by the author; he admits, however, that in the case of greatly slackened circulation, the eye might fail to redden though life might exist. A negative result is thus not absolutely conclusive evidence of death, though a positive result definitely shows life. During the test the subject should be placed on the back, to favor circulation in the head. Icard's fluorescein test is valuable, providing a good quality of the drug is used. The solution employed consists of fluorescein, twenty grams; sodium carbonate, thirty grams, and distilled water, enough to make 100 grams. Icard's method is to inject eight to ten c. c. under the skin. If life exists the skin and mucous membranes—especially the conjunctivæ and the buccal mucosa beneath the frenum—become yellowish, and the humors of the eye and the urine, greenish. D'Halluin improves upon this by injecting five c. c. (ten c. c. would, however, not invalidate the test) into a vein in one of the lower extremities. This test is extremely sensitive and the intravenous method renders it absolutely accurate for all practical purposes. A third method which the author recommends is to introduce a grooved director or blunt needle down to the heart. If the needle fails to show rhythmic movements, heart action has ceased; if the heart is still excitable, up and down movements of the blunt needle will stimulate it to resume beating. The relatively slight

danger of injuring the heart entailed in this procedure is counterbalanced by its simplicity and reliability.

REVUE MÉDICALE DE LA SUISSE ROMANDE

September, 1914.

Artificial Heliotherapy.—C. Martin-du-Pan reports results obtained by the use of the 7,000 candle power mercury vapor quartz lamp devised by Vignard, of Lyons. This lamp is provided with a double bottom for the passage of a cooling current of air, as well as a draught chimney. Sweating of the patient from heat given off by the lamp is avoided. To obtain therapeutic results the author found it necessary to interpose a four mm. layer of glass of a special type, more colorless when viewed in thick layers than the ordinary window glass, between the lamp and patient, in order to exclude certain of the ultraviolet rays. A constant current of 500 volts is used for Vignard's lamp. The patients treated were chiefly children with various forms of surgical tuberculosis, and were exposed to the lamp in groups of five to ten, stripped, on successive days for ten minutes to three hours at a time. The treatment causes tanning of the skin even more rapidly than direct sunlight, and is advantageous in being available at any season and in all weathers. The results were frequently superior to those attained with direct sunlight, a number of patients unsuccessfully treated by outdoor heliotherapy showing rapid improvement under the artificial method. Two cases of osteomyelitis of the tibia with sinus formation healed after operative intervention and after twenty-three and fifteen sittings, respectively, of artificial light treatment. With postoperative treatment previously employed, the time required for healing would have been at least three times as long. Cases of white swelling of the knee, Pott's disease, tuberculosis of the ischium, os calcis, mastoid, and lower jaw, and cervical adenitis, were greatly improved or cured. A case of simple chronic peritonitis was cured, and one of tuberculous peritonitis much benefited by short exposures to the light. The general condition and appetite were rapidly improved in most cases.

Landau's Reaction in the Diagnosis of Syphilis.—Jean Golay employed this reaction in sixty-three syphilitic and seventeen nonsyphilitic cases. The simplicity of this reaction is a great advantage over the Wassermann reaction; it can easily be performed by any practitioner. The author found, however, the end reaction of the test to be frequently uncertain. With normal serum the typical end result is a milky fluid and with syphilitic serum a clear fluid; but in a number of cases the fluid is almost, yet not quite clear, so that the result can only be termed doubtful. A second, though less important drawback, is that at least four hours must elapse before the result of the test can be observed. Comparison of Landau with Wassermann findings in various stages of syphilis showed that the former is more sensitive than the latter, is positive sooner after infection, and is less influenced by antisyphilitic treatment. Of forty-five treated cases of syphilis, twenty-three gave negative Wassermann and only ten negative Landau reactions. Among seventeen nonsyphilitic cases, however, none gave a positive Wassermann, whereas three out of five

cases of chancroid, both out of two cases of tuberculosis, both out of two cases of malignant tumor, and one out of two cases of gonococcal infection gave a positive Landau test. This test is thus apparently nonspecific, and unless later modifications increase its value, cannot be expected to displace the Wassermann test in routine practice. It seems merely to demonstrate a reaction of the system against some serious affection.

RIFORMA MEDICA.

October 24, 1914.

Gerlier's Disease or Kubisagari.—S. Fichera declares this condition to be limited to two small regions widely separated, one being on the Franco-Swiss frontier, and the other in northern Japan. It attacks man, and animals like cats and chickens. It was first observed almost simultaneously in 1884, by Gerlier in France and Nakano in Japan. It begins in spring, reaches its maximum in summer, and disappears in autumn. Its symptoms are ptosis, falling forward of the head, with inclination of the head towards the right shoulder, rigidity of the fingers, ataxia, and curvature of the spinal column. Of these symptoms, the first and principal one is paresis or paralysis; the other two symptoms are accessory, visual disturbances and radiating spinal pain. The paralysis attacks only the voluntary muscles, usually the extensors, and is bilateral. The visual disturbances are diplopia and cloudiness of vision. The causes of the disease are: 1. Occupations requiring the repetition of the same muscular movements over a long period of time, as milking. 2. Stooping position with prolonged contraction of the extensors of the neck. 3. Watching rapidly moving crowds or objects. 4. Hunger or digestive disturbances. The diagnosis is usually easy from the flexion of the head, with ptosis. It is distinguished from Menière's disease by the absence of tinnitus, and from epilepsy by the intact consciousness. During the year 1914 the cause was discovered by Couchoud and Shionoya to be a small Gram negative diplococcus, which is found in the cerebrospinal fluid of the patients and which on cultivation produces the symptoms of the disease when injected into cats.

REVISTA DE MEDICINA Y CIRURGIA PRACTICAS

October 28, 1914.

New Method of Obtaining Crystals of Acid Hemochromogen.—A. Lecha Marzo, in collaboration with Piga, of Madrid, and Leon-Trilla, of Valladolid, has evolved twelve new methods of obtaining these crystals. These agents have, as a fundamental base, pyridine in combination with hydroquinone and various organic acids as acetic, formic, lactic, citric, oxalic, and tannic. The reaction takes place without the use of heat.

BRITISH MEDICAL JOURNAL.

October 31, 1914.

Treatment of Arthritic Deformities.—Robert Jones presents an extensive discussion of many of the problems in the treatment of joint deformities and summarizes his observations by saying: Deformities are preventable if a surgeon is acquainted with the natural course of the disease. In view of ankylosis the joint should be allowed to become

fixed in the position of greatest usefulness as regards function. In children most deformities can be corrected by manipulation, and osteotomies and excision of bone are very rarely required. Reduction of deformity in a septic or a tuberculous joint during the existence of disease can be safely undertaken if it is immediately followed by fixation. In firm fibrous ankylosis of the hip an osteotomy should be preferred for the correction of adduction, as some recurrence of deformity would follow reduction by manipulation. The site of osteotomy will depend upon the nature of the ankylosis and upon the extent of deformity. Transtrochanteric osteotomy gives the most accurate mechanical result. It should be practised in all cases of bony fixation where the femoral neck is not absorbed and where there is no marked pathological dislocation. Where destruction of the head and neck have occurred and the femur lies close upon the pelvis, a wedge should be removed from the neighborhood of the trochanter. In cases of fibrous ankylosis in the process of becoming sound, a subtrochanteric osteotomy is indicated to prevent strain upon fibrous bands. All osteotomies require subcutaneous division of the adductors. Subtrochanteric osteotomy is contraindicated where flexion is extreme. Arthroplasty of the hip joint in any of its many forms may be looked upon as a valuable and successful procedure. The character of the intervening substance—whether bone, free or pedunculated fascial flap, fat, or muscle—is not so important as a good technic and sound judgment on the part of the operator. It should not be performed upon children nor in the presence of active disease. It should be reserved for adult life, and has proved more successful after recovered septic than after tuberculous disease, and in the case of septic disease it should be postponed for one or more years until the periarticular structures have become more normal. The results of arthroplasty of the knee are not too encouraging. In bony ankylosis of the femur and tibia, the results are distinctly discouraging. In those instances where the ankylosis is fibrous, with perhaps bony fixation of the patella, results are often good. It is to be remembered, however, that in such conditions mobility may often be secured without operation. Finally, there are in painful and progressive deformities such as osteoarthritis of the hip many procedures destined to give relief by preventing the friction of tender joint surfaces.

Mechanical Considerations of the Human Foot.—H. S. Rowell has studied the angles of strain in the support of the weight of the body by the human foot both under static and locomotive conditions. He finds that when the foot is at an angle of about twenty-three degrees to the floor in the static state, its ligaments giving support to the longitudinal arches are under the maximum strain. This corresponds approximately to the position assumed when an average woman's shoe is worn. From this it would seem that raising the heel of the ordinary shoe could have no beneficial effect on incipient flat foot, which is preeminently a condition resulting from prolonged standing. But when the condition of the foot in locomotion is considered, it is found that the maximum strain occurs at an angle of sixty-six degrees. The anterior portion of the foot being more resilient, it is safe to state that the

stress on the other portions of the foot under these conditions would be reduced. As the momentum of the descending mass is taken up in a longer time, the impulsive force is reduced, and the person wearing high heels and walking on the level has a lighter and springier step than the one with low heels. This position throws a greater proportional stress on the calf muscles which aid in the support of the arches, and this in turn serves to maintain and increase the tone of these muscles. The lifting of the heel occurs through the action of the gastrocnemius on the os calcis and through this on the plantar fascia. If this lifting begins from a high heel the stress on the ligamentous fascia is reduced, for the leverage is shorter. Probably the reduction of the jar on the heel and spine is an important factor; a high heel is capable of storing more strain energy than a low one. Thus it should not only lessen the shocks on the human frame, but, other things being the same, it will not be so highly stressed, and should thus last longer. The high heeled shoe seems, therefore, to be the preferable type for the drawing room, office, or shop, though not suited for rough walking.

November 7, 1914.

Blood Pressure Readings in Man.—J. A. MacWilliam and G. Spencer Melvin call attention to the fact that the accurate determination of the systolic pressure gives insufficient evidence of the condition of the circulation. In cases of complete heart block there may be a high systolic pressure while the mean pressure is low and there are signs of inadequacy of the circulation. The diastolic pressure, on the other hand, has come to have considerable value alone in the estimation of the state of the circulation. For example, as long as this remains low, even in the face of a high systolic pressure, there is slight tendency toward the rupture of vessels (cerebral hemorrhage, etc.). Changes in the peripheral resistance and in the rate of the heart are the most important factors influencing the height of the diastolic pressure. In the technic of reading the diastolic pressure, there may in some cases be a considerable difference in the readings obtained with a falling pressure in the arm band and in the readings obtained with a rising pressure. The digital estimation of the tension (diastolic pressure) of the pulse and of the pulse pressure is specially fallacious, and much less correct than is the estimation of the systolic pressure in the same way. Certain cases are encountered in which there are the ordinary evidences of circulatory defect—cyanosis, dyspnea, etc.—but in which both the systolic and diastolic pressures and the heart rate are normal. In such cases the defective factor lies in the small output of the heart in systole. On the other hand, there are cases in which the volume of the blood stream is normal, but in which there is an abnormally low pressure, systolic, diastolic, or pulse pressure. It was not infrequently found that the systolic pressure in one extremity was considerably above that in another, read at the same time. The condition is the result of the muscular contraction of the walls of the local vessels. This leads to the flattening of the opposite sides of the compressed vessel together with the persistence

of small lumina at either side of the apposed surfaces through which the circulation continues. A relative excess of pressure is needed to obliterate these marginal apertures and this leads to the abnormally high systolic readings in such cases. It was further observed that this condition of contraction of the vessels of an extremity could be overcome and the systolic pressure reduced to the level of that found in the other extremities by the process of repeated local digital compression of the vessel above the point at which the arm band was to be applied.

LANCET

November 7, 1914.

Intratracheal Use of Chloroform.—W. Dakin Mart modified the Junker apparatus by the connection of the two tubes which pass into the chloroform container so that either pure air or chloroform vapor could be administered at will. Preliminary anesthesia is given by the ordinary inhalation method and when the patient is partially unconscious, the pharynx is cocaineized, and the tracheal catheter introduced. This catheter is specially devised so that there is an outlet on one side at a point outside of the mouth, and over the catheter a metal tube is slipped to prevent its compression by the teeth of the patient. The insufflation is carried out by hand pressure on the bulb three or four times while the lateral opening in the catheter is closed with the finger. The patient is then permitted to exhale through this opening. When anesthesia is sufficiently deep the by-pass is partially opened so as to permit the dilution of the chloroform vapor with some air, and this is adjusted to the point at which it is just possible to maintain the requisite grade of insensibility. This method has been employed in sixteen cases without ill effects, and seems to have the advantages of giving much more perfect control of the grade of anesthesia; the concentration of the vapor inhaled, and the rapid recovery of the patient through the insufflation of pure air at the end of the period of narcosis. There is also the added element of safety in the ability at will to stop all chloroform and wash out the lungs with pure air at a moment's notice.

Intratracheal Ether Anesthesia.—Rupert L. Jones reports observations on forty-nine patients anesthetized in this way. He found that it was not necessary to cocaineize the pharynx for the introduction of the catheter if the preliminary anesthesia was carried deeply enough. The inhalation was preceded by the injection of hyoscine and morphine. The catheterization of the larynx was found to be a matter requiring considerable skill and dexterity and often had to be carried out by an expert. In a considerable proportion of the patients there was some sore throat following recovery from the anesthesia. It was found that the method, contrary to frequent statements, did not prevent leakage of blood into the trachea or the development of pneumonia.

Accessory Spleen.—R. C. Alexander and Archibald Romanes report the case of a young woman aged twenty-five years who for several years complained of acute attacks of abdominal pain and recurrent symptoms of intestinal obstruction. Lapa-

rotomy was finally performed and an accessory spleen about the size of a Tangerine orange was found at the lowest portion of the great omentum. Several large vessels supplied it. It was removed and the stump covered with omentum. Recovery was complete. The authors believe that the symptoms of which the patient complained were due to a partial torsion of the mass with some disturbance in the mesenteric circulation and the kinking of a loop of intestine to which the accessory spleen was attached. A search of the literature has revealed only one other reported case of this kind, and it is generally conceded that the accessory spleens, which are so common in childhood, usually undergo atrophy in adult life.

Action of Drugs on Plants.—J. C. Bose records his observations on the motile organs of such plants as *mimosa* and *desmodium*. These observations were made both by inspection of the plant under different influences, and by graphic records of the movements actually performed. He found that these plants responded to electrical stimuli and to chemical agents in a manner almost precisely similar to that seen in living animal tissue, and he postulates the existence of a similar molecular mechanism and response. It was shown that by repeated stimuli paths for conduction which had not previously been open to the transmission of impulses could be thus canalized—a phenomenon similar to that seen in nerves. The rhythmic pulsations seen in the motile organ of the *desmodium* were physiologically in every way closely analogous to those observed in the hearts of animals. Chemical agents such as carbon dioxide, chloroform, etc., which are depressants to man, were found also to be depressant to plants. Acids and alkalis produced similar effects on the contraction of the animal heart and the contractile organ of *desmodium*. The importance of dose, or concentration, of the agents which were used in the study of plant reactions was quite as great as that in animal studies, and depressant drugs were found to be stimulant when given in very small amounts to plants, just as is the case with animals. Lastly, the nature of the response induced in these plants was found to depend largely on the physiological condition of the tissues. Thus, if the tissue was subtonic, it could be readily stimulated if the subtonicity was not the result of previous fatigue, in which case further attempts at stimulation led to the death of the plant. Bose is of the opinion that the study of the physiology of plants and the action of drugs on them will yield valuable information in the effort to explain the causes of analogous responses and conditions in animals.

BRITISH JOURNAL OF DERMATOLOGY

October, 1914.

Zoniform or Segmental Nævi.—H. G. Adamson contends that a zoniform nevus may be composed of any of a number of elements of the skin, such as pigment, hair, bloodvessels, lymphatics, unstriped muscle, sweat glands, and sebaceous glands. Zoniform nævi are not of necessity unilateral; they may be bilateral, symmetrical, or unsymmetrical. Features common to all nævi, as well as zoniform nævi, are their tendency to appear not at birth, but

some time afterward; they may at times disappear; they may frequently be associated with other congenital deformities; they may involve mucous membranes and have an unexplained tendency to inflammatory periods. There is probably a close relationship between the various forms; the ordinary linear warty nevus may be found to arise primarily from a lymphangiectasis and telangiectasis.

A Fatal Case of Purpura.—Charles J. G. Taylor describes a fatal case of purpura occurring in a well grown boy aged twelve years. The salient features of the case were: The patient had two attacks at rather long intervals; in both his mouth was foul and his tonsils were septic looking. He had joint pains, vomited blood, and passed blood by rectum; and as he became worse, his kidneys failed to function. At autopsy ulceration and hemorrhages were found in the stomach and intestines. Blood cultures were negative. The disease was due to a toxemia the exact nature of which was obscure; the passage of a single immature *Ascaris lumbricoides* had probably no connection with it.

BOSTON MEDICAL AND SURGICAL JOURNAL.

November 12, 1914.

Symposium on Cancer of Certain Pelvic Organs.—Farrar Cobb said that in cancer of the uterus, the extended radical operation is the best method; it offers the greatest possibility of cure in cancer of the cervix if performed by specialists. The earlier the diagnosis is made the greater is the chance of cure. Simple vaginal hysterectomy is a safer and better method than simple abdominal hysterectomy in ordinary hands. The extended abdominal operation is contraindicated in marked adiposity and in feeble patients.—Daniel Fiske Jones stated that results obtained in cancer of the rectum depend almost entirely upon the character of the growth and its duration, and comparatively little upon the operation. Results also depend upon the vigilance of the patient, and the vigilance and thoroughness of the physician and surgeon. Certain cases in which there is much tenesmus demand a radical operation, even when hopeless, simply for the relief it gives, which is not obtained in many cases by a simple colostomy. Theoretically, the combined abdominal and sacral operation is preferable. The mortality, however, is too high except in selected cases. Statistics of late results are not sufficiently good to warrant taking the extra risk in the obese, feeble, and in men fifty years old. The combined two stage operation, if the second is done under spinal anesthesia, will give a mortality between fifteen and twenty per cent. A serious objection to this operation is the danger of infecting the denuded area with cancer cells brought through the lymphatics from the growth. The Kraske operation is best in the obese, the feeble, and patients sixty years old.—Arthur L. Chute, in a reference to cancer of the bladder, drew attention to the very large amount of bladder that may be removed, practically all but the trigonum, and yet with a bladder that will hold a considerable amount of urine. He spoke of the advantage of fixing a large ureteral catheter in the ureter when it has been resected or transplanted.—Horace Binney said that in cancer of the prostate, early carcinoma

can be removed satisfactorily and with much assurance of permanent cure by the perineal operation, but this operation is valueless as a curative measure after the growth has begun to spread beyond the prostatic capsule. When the growth has invaded the subtrigonal lymphatics, or reached the seminal vesicles, operation is not to be advised, unless for the purpose of relieving urinary obstruction. When the involvement of the urethra or bladder neck makes a conservative operation of doubtful value, a suprapubic fistula for permanent drainage of the bladder is advisable.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

November 14, 1914.

Some Factors Tending toward Adequate Instruction in Nervous and Mental Disease, by W. W. Graves.—This paper was abstracted in our issue for July 4th, page 50.

Disease and Poverty, by J. N. Hurty.—This paper was abstracted in our issue for June 27th, page 1311.

Tuberculosis as a Cause and Result of Poverty, by S. A. Knopf.—This paper was abstracted in our issue for June 27th, page 1311.

Management of Delicate and Premature Infants in the Home, by H. M. McClanahan.—This paper was abstracted in our issue for July 4th, page 48.

Some Experiences with Alcohol Injection in Trigeminal and Other Neuralgias.—Wilfred Harris remarks that periodic supraorbital neuralgia, after influenza, may be cured by a single injection. Migrainous neuralgia, often mistaken for chronic trigeminal neuralgia, is rarely benefited. Postherpetic neuralgia, whether of the face or trunk, should never be treated by alcoholic injection. In chronic trigeminal neuralgia the largest proportion of cures are wrought by this means; practically its only rivals are neurectomy and gasserectomy. The former affords no long relief, and cannot be repeated at the same place, while with gasserectomy there is the necessity of a severe operation under an anesthetic, with a permanent scar and the possibility of fascial palsy and frequently of keratitis and permanent injury to the brain.

Relation of Physical Therapy to the Hospital Patient.—W. L. Bierring says that only a small proportion of patients coming into the hospital will need physical methods of treatment, yet hospitals should be equipped to meet demands of this kind. The best forms of physical therapy are not always the most elaborate and costly; often valuable work can be done with improvised apparatus, accompanied by good sense.

Six Years' Experience at the Medicomechanical Department of the Massachusetts General Hospital.—C. H. Bucholz says that massage and exercise must be conducted not as routine, but with the full understanding of physiological and pathological laws. Such a department must have the intelligent and hearty support of the whole hospital; the physicians must feel that it is not an institution for the worst type of cases.

The Tonsil as a Habitat of Oral Entamebas.—A. J. Smith, W. S. Middleton, and M. T. Barrett report the findings in nine cases; they freely ac-

knowledge that the data do not prove that oral entamebiasis is surely a factor in the production of arthritis or anemia, yet they believe that positive finding of parasitism in these cases, and favorable effects of emetine, are sufficiently suggestive. That toxic states of the mouth determine either arthritis or anemia, if there is a relation, is true only in individual cases.

Crotalin in Epilepsy.—C. L. Jenkins and A. S. Pendleton, as a result of their observations, conclude: 1. The blood of epileptics is less coagulable than that of normal individuals, and the coagulability is transiently increased by the use of crotalin. 2. The number of convulsions is increased by its use, and in direct proportion to the amount employed. 3. The administration of crotalin appears to have no effect on the mental condition of the patient; all of which is absolutely contrary to the assertion of the advocates of the treatment. Its use, however, does to a certain extent satisfy the abnormal craving for medicine which all epileptics have.

MEDICAL RECORD.

November 14, 1914.

Toxic Diseases of the Nervous System.—E. D. Fisher calls attention to a class of cases, large in number, which both in diagnosis and treatment are indefinite and unsatisfactory. They are of bacterial origin, as yet unknown, and toxins are given off which align themselves to the cells of the nervous system, causing impairment or destruction of the nervous elements. The more we study these indefinite cases, the more probable seems the conclusion that we have to deal with many germ diseases and their accompanying toxins, as yet unclassified, which closely resemble the better known infectious diseases with their toxins. Disease due to toxins differs from that of infection; the latter is communicable.

Cholera in the Philippines during 1913.—V. G. Heiser, who makes this report, states that in Manila, up to December 31st, there were 210 cases, with 137 deaths, and in the provinces 639 cases, with 510 deaths. As regards measures to combat cholera, the whole campaign was directed toward the prompt disinfection of the stools and vomited matter of the sick and of the carriers. In the treatment, intravenous transfusion of salt solution was mostly depended upon. The experience in this outbreak, Heiser says, has again forcibly demonstrated the necessity for further laboratory studies regarding cholera. The reasons for the simultaneous appearance of the disease in widely separated sections, if clearly understood, might be of great assistance in combating it.

Thromboangitis in Which the Wassermann Reaction Was Negative, Then Positive.—W. C. Lusk states that a case was shown before the New York Surgical Society in April, 1913, as one in which the symptoms had been relieved under the use of the Schnee four cell electric bath. With a history of syphilitic infection in 1895, the Wassermann test of the patient, made six times (once of the spinal fluid) during 1913, was always negative or doubtful; recently two examinations of the blood have both been strongly positive. As a result of a some-

what limited experience with the treatment of tertiary syphilis in cases of thoracic aneurysm, the author has been impressed with the seemingly marked benefit from salvarsan when the drug has been preceded by a long course of potassium iodide and mercury. The giving of salvarsan alone, in repeated doses, in cases of aneurysm appears to be followed by an increase in the severity of the symptoms.

Painless Parturition.—M. W. Knapp remarks that so much has recently been said regarding twilight sleep in parturition, its benefits and its dangers, that he feels called upon to make known his experience, in the last three years, with a method which is shockless and painless. This he employs as freely in the humblest home as he would in the hospital; it requires no corps of trained assistants. When called to a woman in labor, and he is sure that the pains are real labor pains, he waits until the patient shows some signs of distress, if it is a first confinement. This is in order that she may know what labor pains really are. If the woman has had one or more children he does not wait for the pains to become even severe. He gives her one twelfth grain of heroine hydrochloride hypodermically, and within twenty minutes she will grow drowsy and no longer feel the pains. At this time he explains to the patient the need of her bearing down when the contractions come on. Between pains she will often fall into a light sleep. The effect of an injection of one twelfth grain of heroine usually lasts about three hours, and some very severe cases require more heroine before the end of three hours. He simply watches his patient, and if the pains are getting more severe again, he sometimes gives another full dose. Again, he may give only one twenty-fourth or one thirty-sixth grain, and he aims never to have more than one twelfth grain in action at one time. One twelfth grain of heroine inhibits the sensory nerves, but does not affect the motor nerves. He has used as high as three and one half doses in a single case, but rarely needs more than one or two. He has employed this method in about one hundred cases, all in general practice, and has found it without any injurious effect upon the child.

LANCET-CLINIC.

November 14, 1914.

Early Amputation in Compound and Commi-nated Fractures.—J. E. Pirrung considers early amputations of extremities justifiable only in cases where the blood supply has been cut off by the rupture of the vessels. The soft parts may be badly torn, but will recover if the skin is not too badly lacerated. The latter condition increases the liability to infection. With the newer methods of treatment, bloodvessel suture, bone transplantation, serums, and vaccines, these patients should be given every possible chance, as amputation of an extremity has a decided effect on the mind; most patients become depressed and discontented after operation.

Sources of Wassermann Error and Their Control.—Albert Faller enumerates the following causes of error inherent in the test itself: 1. Presence of few antibodies resulting from heating of serum; 2, effect of treatment; 3, early stage, or so called latency of the disease; 4, presence of natural

anti-sheep amboceptor in quantities sufficient to disturb the proper ratio of Wassermann factors. During the first five minutes of heating, forty per cent. of antibodies are destroyed; during the next five minutes, twenty per cent., and at the end of inactivation only twenty-five per cent. remain. This shows the necessity for conserving antibodies, especially in intensively treated and in early and latent cases. When antibodies are few it is important that there should be no excess of amboceptor. Among modifications of the Wassermann test is that of Bauer, who adds no amboceptor. He inactivates and therefore destroys antibodies. Some serums contain an insufficient amount of amboceptor and here this method would not be applicable. The most widely applicable and useful of all complement fixation tests is the Hecht-Weinberg test, as it indicates antibodies, shows the presence of anticomplementary substance, the amount of amboceptor and complement. It makes use of the natural anti-sheep amboceptor and natural complement and is performed with unheated serum.

ARCHIVES OF INTERNAL MEDICINE.

October, 1914.

Relation of Sewage Disposal to the Spread of Pellagra.—J. F. Siler, P. E. Garrison, and W. J. MacNeal found upon investigation of the methods of sewage disposal in Spartanburg County, S. C., that pellagra morbidity was higher in congested communities using surface privies than in more sparsely settled districts in which similar methods of sewage disposal were employed. In the city of Spartanburg the endemic foci of the disease were located in the districts in which surface privies were in use. In cotton mill villages equipped with surface privies the disease was found to be endemic, and new cases arose there year after year. In two villages completely equipped with water carriage systems of sewage disposal, it was impossible to find cases of pellagra which had certainly originated there, although some cases that had originated elsewhere were present. Some evidence was obtained that pellagra spreads in hospitals for the insane more readily in wards housing untidy patients than in the others. The study as a whole indicates that methods of sewage disposal may prove to be a determining factor in the spread of pellagra in certain communities, and suggests a method of prophylaxis.

Nodular Periarthritis.—A. R. Lamb reports two cases of this condition, with the pathological findings post mortem, reviews cases previously observed, and lays stress on certain symptoms which, according to his analysis, should make it possible to suspect the disease and prompt careful examination for characteristic subcutaneous nodules. Nearly always there is fever of more or less irregular type, rapid pulse, anemia, progressive weakness, and a striking leucocytosis with a high percentage of polymorphonuclears and in some cases, at all events, a distinct eosinophilia. Of almost equal importance are edema and nephritic symptoms. One should be reluctant to suspect periarthritis without these signs. If one finds, in addition, some of the following symptoms, it seems justifiable to suspect the disease: Pains of tearing character in the limbs;

pain and swelling of joints; attacks of acute abdominal pain, generally in the upper abdomen; vomiting; hemorrhagic eruptions; cyanosis; and asthma. If subcutaneous nodules appear, the diagnosis can be easily settled by excision and histological examination.

Abderhalden Reaction.—E. L. Ross and H. D. Singer call attention to the fact that positive Abderhalden tests are frequently obtained with normal serums and substrates prepared from normal blood, brain, kidney, liver, spleen, pancreas, suprarenal, sex gland, thyroid, and muscle, and demonstrate that the cause of these positive tests is a material which may be removed by prolonged washing of the substrate, and precipitated from the washings by addition of an equal volume of alcohol. The only way to ascertain whether a substrate is fit for use with pathological serums is to have it thoroughly tested with a number of serums from normal persons.

Poisoning from Canned String Beans.—R. L. Wilbur and W. Ophüls report twelve cases, one fatal, presenting the typical clinical picture of botulism as a sequel to the ingestion of domestically prepared canned string beans, served without preliminary heating. Vascular thrombosis was found about the brain stem in the patient that succumbed. Such lesions better explain the clinical phenomena observed than does the more or less hypothetical assumption of a specific action of the toxin of *Bacillus botulinus* on certain ganglion cells.

Normal Peculiarities of the Heart Sounds in the Region of the Sternum.—George Blumer says that there is normally a difference in the quality of the heart sounds beneath and near the sternum, compared to the sounds over the rest of the heart. The peculiar quality of the sounds in this neighborhood has been mistaken by several observers for a pathological phenomenon and may lead to diagnostic errors. In normal subjects over two years of age, the author has seldom failed to find it. The sound is a superficial scratching one, both systolic and diastolic, and usually of brief duration. It suggests a friction rub, and is usually best heard opposite the fifth and sixth cartilages, a little to the left of the median line. The possibility of confusion from this normal sound should be borne in mind in suspected beginning pericarditis.

JOURNAL OF CUTANEOUS MEDICINE.

September, 1914.

Spinal Fluid and the Nervous System in Secondary Syphilis.—Udo Julius Wile and John Hinshman Stokes believe that a large percentage of syphilitic patients in the secondary stage show evidences of involvement of the central nervous system, as evinced by a study of their spinal fluid. The proportion of cases which the writers cite in their series is 66.7 per cent., but they are convinced that this by no means represents all the patients who show reactive change in their nervous system. The very fact that one examination of the spinal fluid of a patient in the second stage of syphilis is negative, is no justification for the conclusion that his central nervous system has shown no reaction. When we compare the large percentage of early in-

volvement of the central nervous system to the comparatively small percentage of late involvement, we are driven to the conclusion that early involvement must in a large measure be transitory in character. In examining the spinal fluid, we may find increase in lymphocytes, increased albumin or globulin content, and positive complement fixation test, each one of these singly or in combination being sufficient to indicate involvement of the central nervous system. The most frequent finding was increased albumin and globulin content, positive Wassermann, and last, lymphocytosis. The central nervous system is particularly likely to show involvement if the eruption is papular or follicular; when headache, insomnia, and nervous irritability are marked; when there has been little or no treatment; and lastly, when the general health of the patient has shown considerable impairment.

Abderhalden Technic Applied to the Diagnosis of Syphilis.—H. R. Varney and P. F. Morse conclude that the specificity of the Abderhalden technic applies to syphilis, and that tissues derived from active human lesions are more specific than syphilitic tissue of rabbit. It is also to be concluded that syphilitics have in their blood serum enzymes which react with the protein of the organism; and these mixed with infection in the human lesion, give rise to error in mixed infections. It is evident that further work will be necessary to determine whether all syphilitics have the power of evolving ferment and at what stages of disease the test is present or absent. Further success in this work will increase with greater care, and also with the use of polyvalent antigen.

White Spot Disease.—George M. MacKee and Fred Wise state that nearly all the cases can be divided into two classes: The white spot disease, morphea guttata, and diseases represented by lichen planus sclerosus et atrophicus. There are, however, some transitional cases. Their patient had four lesions, two on the penis and two on the right side of the anterior surface of the scrotum. The most striking feature of the lesions was their opaque white, porcelain look. The centre was bluish white. The spots were fairly sharply margined. There was slight infiltration. After observing the lesions for some time, no evidence of involution or evolution could be observed; and the authors conclude that their case after studying the sections obtained from a biopsy and from a clinical view, belongs to the scleroderma or morphea group.

Proceedings of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, October 19, 1914.

The President, Dr. THOMAS S. SOUTHWORTH, in the Chair.

Congenital Genital Obesity (Dystrophia adiposogenitalis).—This paper, by Dr. EDWARD WAITZFELDER, was published in the JOURNAL for November 21, 1914.

Dr. REYNOLD WEBB WILCOX said that the case to which Doctor Waitzfelder had referred in the

paper was one which he reported to the American Therapeutic Society in 1908; the patient at the time (February, 1905) was fourteen years old. He had not increased in weight or stature for three years, during which time he had been treated by several competent physicians. His mind was bright and active, but physically he was much inferior to his younger brother. His weight was eighty-one pounds, his height four feet, ten inches. From the fact that the thymus gland remained large during the period of growth, and then atrophied, it was reasonable to suppose that its activity influenced the general growth of the body. It therefore seemed possible that this boy's lack of growth might be due to thymus deficiency, and, acting on this hypothesis, Doctor Wilcox recommended a course of thymus extract. The result was startling. By February, 1908, the patient's height had increased to five feet, 7.5 inches, and his weight to 124 pounds. Thus, during the three years in which the thymus treatment had been employed (following a period of three years in which there was no growth) there had been a gain of 9.25 inches in height and forty-three pounds in weight. Furthermore, the boy had now quite outstripped his brother in size and physical development. This single case did not prove anything. The subject was still much in a cloud, and the remarkable result observed in this instance was possibly a coincidence.

Dr. ROBERT T. MORRIS said that in the transplantation of the ductless glands they must bear in mind whether this was to bear upon single glands or glands forming a part of a group closely connected, such as the adrenal group. The thyroid was the most readily observed of these glands, and when anything was wrong with the thyroid they were in some measure able to interpret the manifestations presented. Most of the ductless glands belonged to closely connected groups, but the ovary did not appear to be in quite such intimate relationship with any other gland. In the case of testicular grafting to which Doctor Waitzfelder had referred, in forty-eight hours from the time when the grafting was done the patient was conscious of masculine *cenesthesia*, after ten years of loss of such feeling. It was, however, very difficult to secure a successful transplantation of any of the ductless glands. Almost invariably they underwent atrophy, but once in a while an instance was met with in which there was a harmony of action between the grafted gland and the organism of the individual receiving the graft, and the procedure proved successful. Thus in rare cases normal function could be restored, so far as internal secretion influence was concerned, and sometimes, in the case of an ovary, children might be born.

Dr. EDWARD WALLACE LEE thought that it was possible that the effect of the transplanted pituitary was to change the patient's whole nervous organism, and that the spells referred to were a manifestation of the transition of his former docile condition to one of violence. The short continuance of this violent state was no doubt due to the rapid absorption and disappearance of the graft, and he then reverted to his former condition; no permanent effect whatever having been produced by the transplanted pituitary.

Doctor WAITZFELDER thought there could be little doubt that there was a relationship between the thyroid and the ovary. When the first menstruation occurred, there was congestion of the thyroid, and this gland diminished after the menopause. In Doctor Morris's case of heteroplastic grafting of the testicle, he did not believe it possible that, under the circumstances, there could have been any emission of semen, as averred by the patient. The secretion noted was, no doubt, that of the prostate. Eunuchs were capable of having erections, with the emission of prostatic secretion.

Pelvic Abscess Following the Employment of the Fowler Position in Appendicitis.—This paper, by Dr. H. BEECKMAN DELATOUR, will be published in the JOURNAL.

Doctor MORRIS said that in one class of cases, where the fluid was of thin consistence, the capillary drain would answer best; while this would be inadequate in cases where the fluid was thick. In other cases intraabdominal pressure sufficed to force fluid along a line of least resistance. Hence they must always take into account the character of the fluid present in the abdominal cavity. Where the fluid was thick there was one danger to be apprehended. In the Fowler position gravitation acted strongly, and there was a tendency for it to pocket and make its way into some one of the hollow viscera. He had been glad to hear Doctor Delatour advocate draining an abscess through the rectum. This was new to him, and it appeared to be an excellent plan. In former times many general practitioners hesitated to send their patients to the surgeons, because the latter were accustomed to allow the abscesses to empty wherever they could. Commonly this was into the bowel. With the patient in the prone position they were more likely to have consolidation pneumonia and subphrenic abscess—an unpleasant state of affairs on both sides of the diaphragm. After all, he had not been convinced that any one position offered great advantages over another. If the surgeon favored a certain position, his confidence in it was likely to have a psychic influence on the patient. The general experience of our hospitals seemed to show that the ordinary prone position of the patient in bed was the most desirable. So many patients got well in any sort of position that posture was apparently not a matter of vital importance.

Dr. RUSSELL S. FOWLER said that postoperatively pelvic abscesses occurred in two classes of cases: those in which the foundation for the abscess already existed in the pelvis at the time of operation and those in which material descended to the pelvis, after the operation, from some other part of the abdominal cavity. A separate pelvic abscess might also exist undiscovered at the time of operating upon the original focus. By bearing in mind these three conditions at the time of operation, subsequent abscess could for the most part be avoided. Taking up the last condition first, an already existing abscess, it was possible to remove an appendix so carefully and with so little disturbance of the surrounding intestine as not to rupture or discover an abscess in the neighborhood. Several times he had so removed an appendix, only to discover by passing a stick sponge into the pelvis that

there existed a distinct collection of pus at this, the most dependent portion of the abdominal cavity. Such cases in females were drained by a posterior colpotomy, the abdominal wound being closed, while in males a curved glass drainage tube, with its lower end in the pelvis, was used. These cases he classed as appendicitis with independent pelvic abscess, independent in that there was no demonstrable connection between the appendix and the pelvic abscess. Such cases occurred without reference to the posture of the patient. The other two classes of pelvic abscess might occur in spreading peritonitis and in diffuse septic peritonitis cases. In the former, spreading peritonitis cases, it was a question of judgment whether pelvic drainage by vagina or glass pelvic tube should be used at the time of the original operation, or whether no drainage should be employed. At operation there was present a slight amount of sticky fluid in the pelvis, shown by the introduction of a stick sponge. Personally, he usually drained in these cases by a glass tube from twenty-four to forty-eight hours, though in some cases the pelvis was simply sponged dry, and no drainage employed. In such cases not drained it was easy to understand that posture might result in a further collection and localization of the infected material in the pelvis. Personally he had not noted postoperative pelvic abscess in this class. When diffuse peritonitis existed, unless the pelvis was drained there was always the chance that a pelvic abscess would form. Formerly he had closed tight an occasional case of diffuse peritonitis where the peritoneum did not show much structural change, and he did not note secondary abscesses. His usual procedure was, however, to drain by a glass tube; in which event secondary pelvic abscess did not occur unless the tube was withdrawn or shortened too early. Still, in these cases he had occasionally noted an abscess occurring at the pelvic brim on the left side. This collection could be opened by removing the tube and inserting the finger through the tube tract into the pelvis, and curving the finger upward and to the left to reach the abscess, thus opening the abscess into the pelvis. In other cases it was necessary to open the abscess on the left side through an abdominal incision. Secondary abscesses occurred, of course, in other locations in diffuse peritonitis cases. Except in these three ways he did not see how a pelvic abscess could occur postoperatively, nor did he think that the nonuse of the elevated head and trunk position would prevent their formation. On the contrary, these abscesses were bound to occur; so that the position was only instrumental in localizing the abscess. The examination by rectum he thought was important.

Dr. FRANZ TOREK's views in regard to the Fowler position were still the same as those he expressed in 1906. After the proper treatment of the abdominal cavity in diffuse peritonitis (a condition in which the entire peritoneum, right and left, was involved), in which all the pus was removed, there was none left to make its way down into the pelvis when Fowler's position was employed. The condition of affairs could be compared to that when a small quantity of liquid was sprinkled on a pane of glass placed upward. It

would not follow the law of gravitation, but would adhere to the side of the glass. For this reason he did not put his patients in the Fowler position, except occasionally for reasons of comfort. Fowler had done a great service by reducing the amount of drainage. Personally, he thought it still better to employ no drainage at all. In his cases of diffuse suppurative peritonitis, which included a number of four days' duration, the mortality had amounted to 16.66 per cent. In his first series he did not drain a single case. In his operations for this condition, after thorough cleansing of the abdominal cavity the wound was closed completely. In his second series of cases he had in two instances drained down to the cecum, because that portion of the intestine threatened gangrene. Here the drain was introduced simply as a safety valve, and not as a means of draining the peritoneum, for it was impossible to do that. He did not believe that Fowler's position would cause pelvic abscess.

Doctor DELATOUR was of the opinion that the abscesses were not entirely due to the Fowler position, though he certainly did believe that it was a contributory factor. The Fowler position favored the gravitation of fluid toward the pelvis. It had been his practice to employ drainage when there was leakage from a perforation. None of his cases had been in females, but in a case in a woman he would evacuate through the vagina, rather than the rectum.

Physical Defects a Factor in the Causation of Crime.—This paper, by Dr. EDWARD WALLACE LEE, will be published in the JOURNAL.

Mr. ALMUTH C. VANDIVER, counsel to the Medical Society of the County of New York, agreed with a great deal that Doctor Lee had said, but it had not been his experience that most crimes were due to physical defects in the criminal. In fact, he had never seen any which he had reason to believe were due to such defects, or even to alcoholism. There were two classes of criminal acts, those in which there was no moral turpitude, as automobile speeding, for instance, and those in which there was moral turpitude. Most crimes were of the latter class. There were also two classes of institutions for criminals, prisons and reformatories. There was nothing corrective about our State prisons, and it was a fact that criminals generally preferred to be sentenced to prison, rather than to a reformatory.

Mr. DRYER, legal associate of Mr. Vandiver, spoke of the necessity of proper training of the child in accordance with his individual aptitudes. The uncontrollable child was only the exception, as was shown by the truant from school. When controlled, there was an opportunity for the child to develop along normal lines. No less than fifty per cent. of those tried in the Court of General Sessions were under thirty years of age, and as a rule they were physically perfect. The commission of crime was due, not to physical defects, but to environment and defective or improper training. In the public schools there were often thirty or forty children under the charge of a single teacher, and it was impossible to devote the individual attention which each child ought to receive. Thus, crime was largely due to economic causes. Another cause was

lack of moral sense. It was essential that a moral standard should be carefully inculcated at a time when such training was possible.

Doctor MORRIS held to the view that deranged function depended upon defective structure. In the case of man his structures were defective in many ways, and so his functions were improperly, or at least irregularly performed. There were always a host of hormones creating disturbances in his organism. Crime was a comparative matter, and in a young man at the age of romanticism it was often due to a spirit of adventure and sometimes was the result of alcoholic impetus given to a concept. When any race ceased to progress, there was in it a lack of protoplasmic energy, and the occurrence of physical defects was observed in increasing ratio. Crime was to be defined to some extent from the standards, the *mores*, the customs of a given community—"run with the pack." Life was a chemical problem. In brief, it depended upon food and the oxidation of the food. There could be no question as to the desirability of individual training of the child. That was the ideal of all educators; the difficulty was to discover and develop the peculiar characteristics of each child and to find teachers enough. It was a matter of quantity, as well as quality, of teachers. The most worthless, defective child would require the largest expenditure for bringing it up to mean type, morally and intellectually.

Dr. ARTHUR C. BRUSH said that the subject was much confused by the medieval conception that the soul was something apart from the body which gave the human being a divine knowledge of right and wrong; but the truth was that the mind was simply the result of cerebral activity. Crime was simply a violation of certain laws or codes of ethics which the development of society had established for its own protection. Often what was considered a crime today was not so a century ago, and might not be again a hundred years hence. Criminals could be divided into two classes—those whom hunger or other causes compelled to break the law, or accidental criminals; and those who did so because they could not understand the nature of the act or control their impulses. These were the habitual criminals who formed the class under discussion. Lombroso was right up to a certain point as to the frequent occurrence of certain physical deformities in this class. One had only to notice the type of ear described by the ancients to the satyr and faun, then study the ears of the devil in medieval painting, and then to study the ears of the class under consideration, to become convinced how long this had been recognized. Physical defects were also contributory causes from the fact that they might make the subject an object of contempt or so handicap him that he was unable to keep up with his fellows, and had to resort to crime in order to live. He did not agree that all these persons were of low mental type. In the negro and southern Italian, there was a marked want of self control, just as they found it among imbeciles; but there were individuals who presented a high degree of mental acuity. Their system of education was faulty in that it treated all alike, and was about as rational as trying to fit all children with one suit of clothes. The influence of alcohol had been over-

estimated, for when they looked back at the habits of a century ago, they should expect to find a degenerate race of Englishmen instead of the present race.

Dr. J. HERMAN BRANTH said that in a paper read before the association last March, Doctor Sharpe had intimated that brain defects were to be attributed to injuries caused by accoucheurs in instrumental delivery. He held that the idiocy was a consequence of brain pressure caused by the cramped condition, and that by the removal of a piece of bone from the skull, the brain defect was modified, expansion giving relief. He had made the accoucheur the scapegoat for the mental condition of such patients as he presented on that occasion, but their brains were born defective, and no operation short of implanting a new and normal brain could make perfect individuals of them. If forceps delivery was the cause, they would have far more cases of feeble-mindedness, idiocy, and spastic paralysis. The bones of the infant's skull overlapped when passing through the pelvic outlet, and its brain was so soft and pliable that it could bear moulding into a long oval during birth. The Flathead Indians compressed their babies' heads with a board to produce their characteristic form, yet subnormal mental conditions were not noted among them. Granted that some improvement followed the skillful operation of Doctor Sharpe, such patients would not be able to care for themselves and would always be a burden on the community. If not under custodial restraint they would be criminals at large. By scientific investigation it had been established that much of criminality, if not all, was due to nervous instability, feeble-mindedness, and insanity, and one might without exaggeration say that every feeble-minded person was a potential criminal. Heredity and alcoholism were important etiological factors. Dr. Alexander Lambert had stated that many defectives were such owing to alcoholism in the parents, and in a paper before the County Medical Society, in 1901, he (Doctor Branth) had mentioned that in five out of six cases of cleft palate which he had seen within a short time the mothers admitted alcoholic intoxication of one or both parents at the time of conception. A low grade imbecile was more dangerous than a total idiot, but less dangerous than the high-grade imbecile, a class which principally made up the criminal element in the community. Mental life was of far greater importance than physical life. Alexander Pope, with his wonderful intellect, suffered from many bodily defects, and Byron had club foot from infantile paralysis. The highest life was attained through cultivation of both body and mind. Doctor Branth's paper will appear in full in the JOURNAL.

Dr. WILLIAM SHARPE described the first case in which he had done a right subtemporal decompression for the relief of spastic paralysis, in a child who was in a dying condition. This was eighteen months ago, and the patient had greatly improved and was now practically normal in its mentality. Since then he had had seventy-nine cases, with six deaths. He was accustomed to operate only in the mild cases, and the results, both mental and physical, had been very gratifying.

Dr. M. S. GABRIEL would like to inquire of Doc-

tor Lee whether in his opinion every case of crime was due to some bodily defect or to poisoning. The views expressed in the paper he thought entirely too materialistic.

Doctor LEE said he did not mean that crime was really nothing but a physical defect, but he would maintain that in those who committed crime there was always some physical defect. He believed firmly, therefore, that physical defects were important factors in the causation of crime.

Letters to the Editors.

DOCTOR KENEFICK'S PRESCRIPTION.

NEW YORK, November 18, 1914.

To the Editors:

In an article by the undersigned on the Relief of Gas Pains Following Appendicectomy, which appeared in the JOURNAL for November 7th last, the chemical combination should have read *acetol salicylic acid ester* instead of *acetyl* as printed. The latter makes a different combination from the one intended.

With thanks for your courtesy in making the correction, I remain,

T. A. KENEFICK, M. D.

78 EAST FIFTY-FOURTH STREET.

ESTIMATION OF ALBUMIN IN URINE.

BUFFALO, November 20, 1914.

To the Editors:

Referring to the interesting comparison of quantitative methods by Dr. Meyer Silberman, of New York, in the issue of the NEW YORK MEDICAL JOURNAL for October 3, 1914, I should like to mention the following simple method:

Boil the urine thoroughly, adding a drop of nitric acid. Centrifugate until the precipitate is no longer condensed. The percentage reading is about six times the percentage by weight of dried albumin. If the moist precipitate is large, say more than one c. c. in a ten c. c. tube, which rarely happens even when urine is said to coagulate entirely, the lower portion of the precipitate is still further compressed. This method is simple and rapid. No definite time is given for centrifugating, but the maximum power of the particular instrument is obtained and the ratio to dry weight can be determined empirically. Practically nothing is added to or combined with the albumin, barring the trace of nitric acid. The divisor is small compared with 48 in the Purdy method. The method is reasonably accurate, sufficiently so for clinical use but, of course, it must not be imagined that absolute quantitation is secured.

A. L. BENEDICT, M. D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

La Guerre en Bulgarie et en Turquie. Onze Mois de Campagne. I. Notes et impressions. II. Les Blessés. Par le Professeur OCTAVE LAURENT, Chirurgien de l'Hôpital Saint-Jean, de Bruxelles, Membre honoraire de l'Académie de Médecine de Rio de Janeiro. Illustré de 302 Photographies. Paris: A. Maloine, 1914. Pp. 383. (Prix, 6 francs.)

When the author, a prominent Belgian surgeon, wrote this book, in which are given the results of eleven months' active participation in the Balkan war, he little thought that his observation in the treatment of military injuries would so soon find their application in his own country! While showing that in one month there were 16,000 killed

and 62,000 wounded in the Bulgarian army, he wonders what the results would be in a war between the great powers, and evaluates at one and one half million the casualties—an estimate which unfortunately has not fallen very short of the truth. While recognizing that a policy of abstention on the field is indicated under present conditions in penetrating abdominal wounds, he urges the creation of a special *ambulance* (field hospital) for such cases, permitting the operative procedures during the first twelve hours; in hemorrhagic cases, wounds of the bladder, etc., such early attention would undoubtedly save many lives. Another feature upon which stress is laid, is the need of special training on the part of civil surgeons to enable them to carry out to the best advantage of the wounded man, the duties of military surgeon. Although himself a highly trained hospital surgeon, he soon ascertained, in field and base hospitals, how numerous were his shortcomings. The need of meeting emergencies in almost every act in time of war emphasizes the need of *preliminary* training. This advice might well apply to our own army in respect to the reserve and militia medical services. The book contains many practical hints of value, presented in a very readable style, and contains many illustrations fully sustaining Sherman's classical opinion of war in general.

Die Therapie an den Bonner Universitätskliniken. Bearbeitet von Innere Klinik (Geh. Rat Schultze); Prof. SCHULTZE, Prof. ESSER, Prof. FINKELNBURG, Prof. STURSBURG, Medizinische Poliklinik (Prof. Krause): Prof. PAUL KRAUSE, Psychiatrische und Nervenlinik (Geh. Rat Westphal); Prof. WESTPHAL, Prof. HUBNER, Chirurgische Klinik (Geh. Rat Garre): Prof. MACHOL, Dr. BAYER, Dr. ELS, Dr. FRUND, Dr. GEINITZ, Dr. KRABEL, Dr. SYRING, Augenlinik (Geh. Rat Kuhnt): Prof. KUHN, Ohren-, Nasenlinik (Geh. Rat Walb): Prof. WALB, Frauenklinik (Prof. v. Franqué): Prof. REIFFERSCHIED, Hautklinik (Prof. Hoffman): Priv. Doz. Dr. FRIEBOES. Herausgegeben von Prof. Dr. RUDOLF FINKELNBURG in Bonn. Bonn: A. Marcus & E. Webers Verlag, 1914. Pp. xv-614.

This collection is on an original plan. The idea is to give a modern outline of therapeutics, medical and surgical, the sum of expert knowledge, tersely written and annotated by professors of a famous university. The execution has that ring of finality which distinguishes the best German science. The book is wonderfully free from the superfluous, the mechanical, the obsolete. There are few undesirable importations or innovations. The remedy that best fits the case will be found easily, and usually, when several remedies are mentioned, they represent all that is essential in the treatment of each disease or manifestation of disease. The controversial points are treated briefly, but with impartial scrutiny; we are supplied with the best possible information for forming an opinion. Questions, for instance, like anaphylaxis, poisons and their antidotes, the merits and demerits of surgical operations, are discussed in exactly the right way; the trained mind is brought to bear on the precise point, and no other, that we wish to understand without loss of time. It is a relief to turn to an expert textbook, that is to say, to a textbook of which each part is written by a specialist, whose position guarantees his authority. Such a work, it is obvious, must be of the greatest value to the practitioner. It will also serve to correct many errors in the use of medicines.

The Care of the Sick Room. By ELBRIDGE GERRY CUTLER, M. D. (Harvard Health Talks.) Cambridge: Harvard University Press, 1914. Pp. 54. (Price 50 cents.)

The avowed purpose of the Harvard Health Talks, of which this little volume is one, is, in the words of the committee, "to provide in easily accessible form modern and authoritative information on medical subjects of general importance." Certainly Doctor Cutler has lived up to his task in every respect in both the subject matter and the simplicity of presentation. The larger points which make for the comfort of the patient, such as light, noise and dirt from the street, and the amount and kind of furniture, are discussed quite fully. Proper ventilation of the sick chamber and the temperature at which it should be kept are matters to which the author has obviously given much thought, and it is evident from the clarity of his suggestions that these are based upon wide personal experience. Many valuable suggestions are made regarding the

proper disinfection and disposal of excreta, suggestions which should be of great value to a member of the family who has to play the part of nurse. That he has approached his task with a mind keenly alert to the importance of the little things in the patient's surroundings, is obvious when one reads of the necessity for the removal from the room of clocks, rocking chairs, and other objects which make a rhythmical sound; of pictures which have faces in them, and of objects casting heavy shadows which may suggest to the disordered mind of the invalid the presence of mystical animals and phantom beings. Perhaps the only adverse criticism which can be made is that the author deals almost exclusively with the care of the sick in a house more or less isolated from its neighbors, and neglects some of the problems of those who live in huge modern apartment houses, with the ringing of bells, the sounds of the elevator, and the fact that the whole family, including the servants, live on a single floor on two sides of a hall which constitutes the main channel of communication between rooms. The book is so rich in suggestions, however, not only for the layman, but for the physician, that we look forward with pleasurable anticipation to the appearance of more of these health talks and can wish them no better than to be as good as this one.

Interclinical Notes.

Much misunderstanding has arisen from the mistranslation by our careless newspapers of the German word, *Kultur*. It does not correspond at all to our word culture, for which the nearest German equivalent is *Bildung*, *Ausbildung*, or perhaps *Geistesbildung*. *Kultur* may be rendered civilization, doctrine, system of opinions, methods, best possibly "the German idea."

* * *

The French word *ambulance* has been another trap for the careless. An *ambulance* is a temporary or easily movable military hospital, which includes one or more ambulances as we understand the word. To be sure, these mistakes are not as bad as the historical "marriage of convenience" for *mariage de convenance*, which means simply a conventional marriage, i. e., one based on common sense and not on immature romance.

* * *

The simple piety of 1801 is manifest in the prayer of President Wheelock of Dartmouth University, made after the morning's lectures in anatomy and chemistry. According to the *Life and Letters of Nathan Smith*, by Emily A. Smith, the orison included the following thanksgiving: "Oh, Lord! We thank Thee for the oxygen gas; we thank Thee for the hydrogen gas; and for all the gases. We thank Thee for the cerebrum; we thank Thee for the cerebellum, and for the medulla oblongata."

* * *

The writers of the article on lichens in the last edition of the *Encyclopædia Britannica* say of *Platysma juniperinum* that it was lauded as a specific for jaundice, "no doubt on the *similia similibus* principle from a resemblance between its yellow color and that of the jaundiced skin." The homeopathic principle had nothing whatever to do with this choice of the medieval physicians, who indeed knew nothing of Hahnemann or his precepts, but acted on what was to them a divinely inspired doctrine, that of signatures. They used eyebright for eye disease, the bloodstone for hemorrhage, etc. Writers for the *Britannica* do not often make so anachronistic a slip.

* * *

When the Devil was Sick, by Hale Dann, in the *Red Book* for November, turns on the familiar situation of the convalescent patient and the trained nurse; but this story does not end in the conventional manner. We have always had a liking for magic, shared, we believe, by many physicians. We believe that no such colossal trick was ever devised as that of Justin Huntly McCarthy in *The High Explosive*; it is magic in *excelsis*. The trick secures the peace of Europe for twenty years; unfortunately, although the story was written some months before war broke out, it was published only on October 23d, too late for the chancellors of Europe to profit thereby.

Olivia Roy, who writes of Doctor's Sterling's Illness in the November *Strand*, evidently did not submit her manuscript to some friendly physician; if she had, she would have been saved from much disastrous nonsense from the medical viewpoint. Anyone with a little imagination will be deeply moved by the account of A Girl's Flight in a Zeppelin, by Hanna Rion Ver Beck—a girl from our Southern States, despite the name—although the article was apparently written without any thought of approaching war. John J. Ward's study of A Tool Using Insect is excellent reading, and the original features of this magazine are up to its usual high standard.

* * *

Although no physician makes his appearance in *The Hanger On*, by Lillian Bell, in the November, *Young's Magazine*, Mr. Pfannenschmidt's drugstore on Staten Island offers its window as a stage setting for the heroine, the discarded protégée of a New York society woman. The unhappy Diana Eastman finds herself reduced to the necessity of demonstrating toilet articles to the Richmond borough commuters. She is true to type, however, and it is not the nature of the work that humiliates her, but the fact that she has to work at all. Are we really cultivating a class of people in our country, whose men may work for wages only in the army or navy, and their women not at all?

* * *

Dr. Ben Trovato writes us that a friend of his is about to open a sanatorium for the treatment of narcotic addiction, and that he has suggested to this friend that he have a handsome sign over the main entrance bearing the words: All Dope Abandon Ye Who Enter Here.

* * *

A joyous and richly colored cover adorns the December *Century*. A feature of the issue is a description of each of the countries involved in the war, with an effort to describe the psychological attitude toward one another. Each country seems to be firmly convinced that it is the innocent victim of an unprovoked attack by the others.

Meetings of Local Medical Societies.

MONDAY, November 30th.—Psychiatric Society of Ward's Island; Poughkeepsie Academy of Medicine.

TUESDAY, December 1st.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Clinical Society of the West Side German Dispensary and School for Clinical Medicine; Amsterdam City Medical Society; Lockport Academy of Medicine; Society of Alumni of Lebanon Hospital, New York (annual); Syracuse Academy of Medicine (annual); Buffalo Academy of Medicine (Section in Surgery); Ogdensburg Medical Association; Oswego Academy of Medicine; Medical Association of Troy and Vicinity; Medical Society of the County of Yates; Medical Society of the County of Ulster (annual); Medical Society of the County of Tioga (annual).

WEDNESDAY, December 2d.—Brooklyn Society for Neurology (annual); Society of Alumni of Bellevue Hospital; Harlem Medical Association, New York; Bronx Medical Association (annual); Elmira Academy of Medicine (annual); Society of Alumni of St. John's Hospital, Brooklyn; Schenectady Academy of Medicine; County of Rockland Medical Society (annual); Long Island Society of Anesthetists.

THURSDAY, December 3d.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society; Practitioners' Club, Buffalo; Geneva Medical Society; Glens Falls Medical and Surgical Society.

FRIDAY, December 4th.—New York Academy of Medicine (Section in Surgery); New Utrecht Medical Society; New York Microscopical Society; Gynecological Society, Brooklyn; Manhattan Dermatological Society (annual); Practitioners' Society of New York; Corning Medical Association; Saratoga Springs Medical Society; Society for Serology and Hematology, New York.

SATURDAY, December 5th.—Benjamin Rush Medical Society, New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending November 18, 1914:

Guiteras, G. M., Surgeon. Directed to act as attendant surgeon of the naval station at Key West, Fla., during the absence of the naval medical officer. **Keating, T. F.**, Assistant Surgeon. Granted three days' leave of absence en route to San Francisco, Cal. **Lanza, A. J.**, Passed Assistant Surgeon. Directed to extend investigations of sanitary conditions among zinc miners to Cherokee County, Kansas. **Lumsden, L. L.**, Surgeon. Granted twelve days' leave of absence from November 17, 1914. **Safford, M. V.**, Assistant Surgeon. Directed to confer with the Massachusetts Child Labor Committee relative to the medical inspection of working children. **Smith, F. C.**, Passed Assistant Surgeon. Granted twelve days' leave of absence to be taken during the month of November as the work of the station will permit. **Streeter, H. W.**, Sanitary Engineer. Directed to proceed to Washington, D. C., for the purpose of compiling the hydrometric data collected in connection with the Ohio River investigation. **Thompson, L. R.**, Passed Assistant Surgeon. Granted seven days' leave of absence en route to Washington, D. C.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending November 21, 1914:

Butler, Ethan D., First Lieutenant, Medical Reserve Corps. Resigned his commission to take effect on November 13, 1914. **Clarke, Joseph T.**, Lieutenant Colonel, Medical Corps. Relieved from duty at Fort Meade, South Dakota, and will proceed to Fort Logan, Colorado, relieving Lieutenant Colonel A. N. Stark, who upon being thus relieved will report to the commanding officer at Fort Monroe, Virginia, for duty, relieving Major P. C. Fauntleroy, who will proceed to Fort Mason, California, relieving Major W. F. Truby, who has charge of the Medical Supply at that post. **Donnelly, James F.**, First Lieutenant, Medical Reserve Corps. Resigned his commission in the Medical Reserve Corps to take effect November 19th. **Fletcher, John P.**, Captain, Medical Corps. Granted three months and fifteen days' leave of absence. **Gandy, Charles L.**, First Lieutenant, Medical Corps. Ordered to take the transport for the Philippine Islands, sailing from San Francisco on December 5th. **Gandy, Charles M.**, Colonel, Medical Corps. Granted fifteen days' leave of absence; he will sail for the Philippine Islands December 5th for duty as chief surgeon. **Gentry, E. R.**, Captain, Medical Corps. Granted one month's leave of absence. **Hall, J. R.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty and will proceed to Fort Logan, Colorado, for duty. **Hart, William L.**, Captain, Medical Corps. Relieved from temporary duty with port of embarkation, Galveston, Texas, and will return to his proper station, Fort Sam Houston, Texas. **Hathaway, Levy M.**, Captain, Medical Corps. Relieved from duty at Presidio of Monterey, Cal., and will proceed to Fort Baker, California, for duty relieving First Lieutenant Harry N. Kerns, who upon being thus relieved will proceed to Alcatraz, Cal., for duty in connection with the Pacific Branch, United States Military Prison. **Little, William L.**, Major, Medical Corps. Granted leave of absence for three months, to take effect on or about December 7th. **McBrayer, Charles E.**, Captain, Medical Corps. Relieved from duty at the Presidio of Monterey, Cal., and will report in person to commandant of the Pacific Branch, United States Military Prison, relieving Major George H. R. Gosman, who will proceed to Fort McDowell, California, and report to the commanding officer of that post for duty. **Qualls,**

Guy L., First Lieutenant, Medical Corps. Relieved from duty with the Second Division, and will proceed to Camp E. S. Otis, Canal Zone, relieving Captain George E. Pariseau, who upon being thus relieved will proceed to the United States, and report for duty to the Adjutant General of the Army. **Winn, Robert N.**, Major, Medical Corps. Granted two months' leave of absence.

Births, Marriages, and Deaths.

Born.

Ehrenreich.—In New York, on Wednesday, November 18th, to Dr. and Mrs. S. G. Ehrenreich, a daughter.

Married.

Blake—Neily.—In Catonsville, Md., on Saturday, November 14th, Dr. Herbert C. Blake and Miss Helen Neily. **Doremus—Dustin.**—In Malone, N. Y., on Tuesday, November 17th, Dr. Guy D. Doremus and Miss Winifred Dustin. **Downey—Willis.**—In Baltimore, Md., on Saturday, November 7th, Dr. Jessie W. Downey, Jr., and Miss Mary Lee Willis. **Eason—Greer.**—In Potts Camp, Miss., on Thursday, November 5th, Dr. William Henry Eason, of Lula, Miss., and Miss Willie Joyner Greer. **Kellam—Kellog.**—In Baltimore, Md., on Saturday, November 14th, Dr. Sydney Sheppard Kellam, of Belle Haven, Va., and Miss Bessie Hillyer Kellog. **McCrossan—Reid.**—In Somerville, Mass., on Wednesday, November 18th, Dr. Charles L. McCrossan and Miss Alice L. Reid.

Died.

Apple.—In Easton, Pa., on Wednesday, November 11th, Dr. Samuel Stem Apple, aged seventy-six years. **Baldwin.**—In Groton, N. Y., on Sunday, November 1st, Dr. Alva M. Baldwin, aged sixty-five years. **Bruce.**—In Casey, Ill., on Thursday, November 12th, Dr. William W. Bruce. **Brundige.**—In Marion, Ind., on Monday, November 9th, Dr. Samuel P. Brundige, aged seventy-seven years. **Bryant.**—In Lyerly, Ga., on Tuesday, November 10th, Dr. James W. Brant, aged sixty-four years. **Bryson.**—In Dorchester, Mass., on Sunday, November 15th, Dr. Adelbert Allen Bryson, aged fifty-four years. **Bullock.**—In Germantown, Pa., on Wednesday, November 18th, Dr. William R. Bullock, aged ninety years. **Campbell.**—In Chicora, Pa., on Sunday, November 8th, Dr. J. L. Campbell. **Creveling.**—In Washington, N. J., on Friday, November 6th, Dr. Philip G. Creveling, aged eighty years. **Davis.**—In Owensboro, Ky., on Monday, November 9th, Dr. Amos Davis, aged sixty-six years. **Greene.**—In West Laurens, N. Y., on Saturday, October 31st, Dr. John W. Greene, aged seventy-eight years. **Horgan.**—In Roxbury, Mass., on Wednesday, November 11th, Dr. John A. Horgan, aged fifty years. **Jackson.**—In Matawan, N. J., on Wednesday, November 18th, Dr. Andrew J. Jackson. **Kelley.**—In Worcester, Mass., on Tuesday, November 10th, Dr. Joseph H. Kelley, aged fifty-two years. **McDonald.**—In Wilmington, Del., on Saturday, November 7th, Dr. Alexander D. McDonald, aged eighty-three years. **Minor.**—In Beaumont, Texas, on Sunday, November 1st, Dr. B. Blake Minor. **Minot.**—In Milton, Mass., on Thursday, November 19th, Dr. Charles Sedgwick Minot, aged sixty-two years. **Moseley.**—In Keatchie, La., on Tuesday, November 10th, Dr. William X. Moseley. **Munro.**—In Milwaukee, Wis., on Tuesday, November 3d, Dr. Sarah Munro, aged seventy-five years. **Richards.**—In Salt Lake City, Utah, on Friday, October 30th, Dr. Joseph S. Richards, aged sixty-six years. **Sadler.**—In Okolona, Miss., on Tuesday, November 10th, Dr. R. M. Sadler, aged sixty-five years. **Stephens.**—In Joliet, Ill., on Saturday, October 31st, Dr. John E. Stephens, aged sixty-six years. **Stillwell.**—In Philadelphia, on Saturday, November 14th, Dr. Walter C. Stillwell, aged sixty-three years. **Turner.**—In Bluemont, Va., on Thursday, November 12th, Dr. Charles B. Turner, aged fifty-five years. **Tydings.**—In Louisville, Ky., on Thursday, November 12th, Dr. Joseph M. Tydings, aged seventy-eight years. **Yeager.**—In Rochester, Minn., on Saturday, November 14th, Dr. Frank N. Yeager. **Young.**—In Brockton, Mass., on Wednesday, November 11th, Dr. Henry L. Young, aged seventy-nine years.

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TONSILLOTOMY VERSUS TONSILLEC-TOMY.*

The Importance of Differential Diagnosis in Enlarged Tonsils in Children.

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New York,

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The faucial tonsils have engaged the thoughtful consideration of scientific workers in medicine for time out of mind, and while the proper methods of dealing with them when enlarged or diseased have been the reason for endless debate since they first attracted attention, still, the subject is today apparently quite as fresh and new as ever because of the state of unrest occasioned by our ignorance of the function of these much studied bodies. It is a case closely resembling that of Jarndyce versus Jarndyce immortalized by Dickens in *Bleak House* as "a never ending always beginning case." Therefore, while the subject as a whole is old, yet in some of its aspects it is now as open to discussion as it ever has been, and it is believed that a brief consideration of such debatable aspects, together with a description of a recently suggested method for making differential diagnoses, will be of interest to practitioners engaged in the scientific care of the health of children.

We approach the subject, however, with some trepidation, for as this is a radical rather than a conservative age, little heed is paid to voices of moderation. If in this writing there seems to be criticism, our justification must be that it is, at least intended to be, of a constructive character, for if we had not a suggestion to offer which might serve as a remedy for some of the ills which will be referred to, we probably could not have had the temerity to speak on this subject at all.

All investigations of the function of the tonsils have thus far proved futile, and the whole subject is involved in a labyrinth of confusion. Numberless men of talent have lent their aid in an attempt to unravel the mystery, and perhaps what now is needed is the hand of a genius in science to give form to the shapeless mass of evidence already accumulated, but which still remains unclarified. We can but hope that the inquiry about to begin in the

Sprague Memorial Institute in Chicago under the guidance of a committee from the American Laryngological Association, will reveal another Claude Bernard, who will for all time set this agitated question at rest and so remove the doubt which now besets most operators as to their right, in children, to remove the glands in part and take the chance of their being the subject of future surgical consideration, or to remove them entirely and so oblige the patient's taking the chance of a future loss of function. The comment of John N. Mackenzie (1) that until the functions of the tonsil are known, the final word on its removal cannot be spoken, is axiomatic and, therefore, does not admit of debate. In the meantime, however, the opportunity is presented for the display of our best judgment based upon our powers of reasoning and the results of our clinical experiences.

The theories that the tonsil produces a digestive ferment; that it secretes mucus to assist in the deglutition of food; that it is a lymphocyte forming organ; and that it produces an internal secretion of value to the economy have, as yet, not been proved. But even if a tonsillar function is not to be divulged in laboratory investigation, if it really does exist, it is highly probable that it will reveal itself in the course of time as the result of the recent past and present extensive practice of enucleation of the gland, for if it has a function, it will be needed and missed, and possibly the effects of its loss will be noted later in the lives of many individuals whose tonsils were totally removed in early childhood. In this way, if in no other, an answer to the question which is now being so earnestly sought may be forthcoming in the not distant future.

Swain (2), in commenting upon the various theories of the function of the tonsils, says: "No one single thing explains what the tonsil does. It may do all of them, but I think we can safely assume that it is absolutely, in every sense and in all senses, a lymph node, and as such should be protected from rude destruction. Whatever its humble office may be, it had better be allowed to perform it; if not, some other deeper lying node has got to do it. And when this deeper node does, by any chance, protect from an invader which the removed tonsil should have held up, the septic matter is nearer the more vital portions of the body by having gotten beyond the first barricade." Again, he says: "Apparently the first part of the ring of adenoid tissue in our throats to possess a function is the pharynx tonsil. Later when dentition starts, the faucials show activity, and later still the lingual tonsil. At forty the lingual tonsil may still be active. This

*Read before the Brooklyn Pediatric Society, October 28, 1914. A series of beautiful Lumière color photographs of healthy and diseased tonsils, made by Dr. Nathan T. Beers, were used as slides to illustrate the essential features of the paper.

suggests that a certain amount of activity of this tissue is all our life long necessary for the proper well being of our bodies. Now, why should we thus ruthlessly remove in childhood all of that tissue which we can lay our hands upon, when all the logic of events is that some of it is surely needed?" We have quoted thus freely from Swain, because to us his reasoning is the most clarifying and impres-

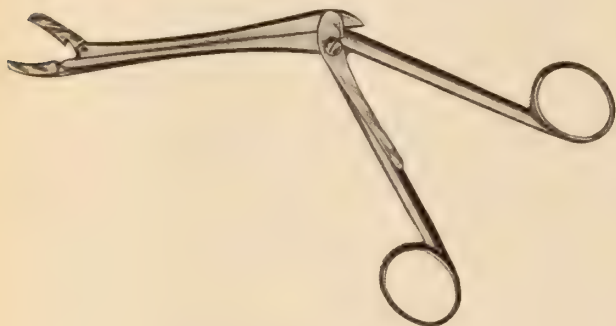


FIG. 1.—Hawk bill punch forceps.

sive which has yet been brought to bear upon the question of the function of the tonsils.

Our clinical experience corroborates Jonathan Wright's (3) contention that there is an enlarged tonsil of health; a simple hyperplasia or hypertrophy which cannot be detrimental to health unless it becomes extensive enough to obstruct respiration. A history of one case will sufficiently illustrate this class of cases:

CASE. A boy, aged four years, was brought to the writer mainly for the relief of obstructed nasal respiration which gave rise to loud snoring and restlessness during sleep. With the exception of an open mouth and a slightly sunken chest, his appearance was that of perfect health, and he was as active and as full of spirits as could be desired. His tonsils, which were of normal outward appearance, and an adenoid growth were found to be unusually large, yet he had had but few colds and very little sickness of any kind since birth. The adenoid growth was removed in detail, and the tonsils were as thoroughly removed as is possible with tonsillotome and sharp punch forceps, only a thin layer of glandular tissue being left attached to the capsule. The writer lost sight of the child for three years, when by the direction of a health board inspector he was brought for another examination to decide whether it would be necessary again to remove the tonsils. An examination showed that a recrudescence of the glands to practically their original size had taken place and that, as before, they were of normal outward appearance. The adenoid growth had not recurred.

The impressive and instructive part of this story is that during the three years since the operation the tonsils had not once been the seat of acute inflammation. Such recurrences without concurrent inflammatory disturbances are highly suggestive and would seem to indicate that the regrowth is in response to a demand for the performance of a function which the body requires.

The mooted question whether the tonsil is a protection to the body or is a portal of entry for infection and, therefore, a menace, is still before us for solution. From the standpoint of belief that the tonsils are lymph glands and are a part of the lymphatic system, we must conclude that their extirpation, of necessity, would remove one of the defenses of the body, for it is a safe assumption, from all that has been observed and deduced, that

in a state of health the tonsils, even if enlarged, act as sentinels in the first line of defense to protect the body from invasions of the poisons, or toxins, of bacteria. If, however, they are diseased, they are no longer capable of exerting a protective power against invasion of the bacterial poisons, and may then act as the portals of entry of infection for various diseases. "The tonsil is so often spoken of as a portal of entry for disease," says Louis M. Freedman (4), "that many have come to the conclusion that this is its function. That, on the surface is not rational. It is hard to believe that the particular function of any organ or tissue of the body should essentially be injurious."

A large number of diseases are, at times, supposed to be secondary infections from the tonsils. The noxious influence of protean poisons, whether from bacterial or other sources, when long continued, would be likely to result in degenerative changes in the tissues of the body and perhaps it will yet be shown, as has been suggested, that the commoner diseases of the heart, kidneys, and arteries may be brought about in that way. It has been sufficiently demonstrated, however, that various acute and a few chronic diseases may be caused by the tonsils, for the cleaning out of the crypts or the removal of the tonsils has been followed by relief or the disappearance of symptoms in too many cases to permit of a doubt of the relationship. It must be said, however, that while this is a demonstrable fact in a limited number of cases, it is highly probable that many dogmatic utterances on this subject, with far too little accompanying proof, have made the tonsils loom too large as containers or



FIG. 2.—Illuminated field and loupe for examining, during operations, exploratory sections from the tonsils

transmitters of the causative elements of systemic diseases. And whether with good reason or without, it is quite apparent that the belief that every enlarged or deformed tonsil is diseased has been extensively disseminated.

As with adenoid growths which vary in size in

proportion to the physiological or pathological stimulation to which they are subjected, so with the faucial tonsils which often show temporary enlargement during the time of the eruption of the molar teeth, that is, the second, sixth, twelfth, and seventeenth years, owing apparently to the transitory increase in the lymphoid elements. This physiological circumstance ought not to be lost sight of in forming an opinion regarding the propriety of tonsil removal, for there is reason enough to believe that tonsils are often sacrificed which would in due time remove themselves if nature was but given a chance. The same caution should be observed in dealing with transient enlargement of the tonsils in acute infectious diseases, for such enlargements are often the result of stimulation by the toxins of the acute disease and subside as soon as the stimulation ceases.

It may also be said that unless tonsils are large enough to be obstructive, their size has little to do with the question of their removal. A distinction should be made, however, between the apparent size of the tonsils which are exhibited when the tongue is protruded, and when viewed with the aid of a tongue depressor. Tonsils which appear to be of great size when dragged out of their beds by the protrusion of the tongue, will often appear relatively insignificant when they regain their natural position with the tongue in the floor of the mouth.

Another word, in passing, is that in adults whose tonsils have failed to undergo retrograde metamorphosis, we are often able to effect the most satisfactory impressions upon secondary affections by clearing out the crypts and applying local medical treatment. But, unhappily, such methods are rarely possible in young children, for the age of reason has not yet begun, and while, doubtless, such relatively mild measures would in many cases be effective, the members of the oncoming generation will, for the most part, have none of them. If the tonsils of children are large enough, therefore, to cause obstruction to respiration or are clearly diseased and believed to be the cause of recurrent local disturbances or secondary conditions, there is, as a rule, nothing to be done short of surgery.

Various writers hold the belief that there are properly no indications which call for the partial removal of the tonsils at any age; that if there are any indications for operative interference they are for the complete removal of the tonsils with their capsules and never anything less. With those authorities there are no halfway or partway measures. It must be everything or nothing, for in their opinion every tonsil calling for removal is diseased. There could be little or no objection to the total removal of the tonsils as a routine procedure were it not for two important considerations which frame themselves in our minds when contemplating the removal of a part or all of the tonsils, viz., first, the possibility that the tonsil possesses a physiological function, and, second, the likelihood of ultimate pharyngeal deformity and consequent alteration of the quality of the voice following enucleation, as has been made clear to us by recent revelations.

We cannot, however, subscribe to the view that enlargement of the tonsils is in itself a menace, for

while it is quite probable that bacteria can be found in most hyperplastic and hypertrophied tonsils, nevertheless, because of our lack of knowledge of the behavior of bacteria within the stroma of the gland, we cannot assume that their presence would be likely to give rise to regional or systemic infection unless their toxins were fed into the circulation by collections of detritus or pus within the tonsillar substance or by necrosing or decomposing masses within the crypts. Infection does occur, however, from bacteria in the contents of small chronic abscesses, which are not infrequently found in the interfollicular spaces, or from the products of inflammatory processes which accumulate and are confined within, and fill up the crypts in the affection known as chronic lacunar tonsillitis. When either of those conditions is present in the tonsils, the bacteria or bacterial poisons are quite likely to overwhelm the tissue resistance, gain entrance into the general system, and give rise to a variety of disturbances, such as acute articular rheumatism, muscular rheumatism, endocarditis, nephritis, circumtonsillar abscess, or swelling of the glands of the neck. When such relationships exist, the clinical history and local appearances often point to the tonsils as the infecting sources. It must be remembered, however, that while diseased tonsils are a common cause of cervical adenitis, we are occasionally able to trace its source wholly to a carious condition of the teeth. Indeed we ought never to reach a diagnostic finality in regard to infections which are commonly laid at the door of the tonsils without an examination of the oral cavity, for necrotic conditions of the teeth or teeth sockets and blind dental abscesses, pouring out constant streams of streptococci, play very important, though generally overlooked roles as causative factors of regional or systemic infections.

Although the doubt of the advisability of operating upon tonsils during the active stages of ~~an~~ acute arthritis, endocarditis, or other acute inflammatory affections which are believed to have a focus of infection in the tonsils, has, it would seem, not yet been resolved, it is, in our opinion, always wisest to wait, if possible, until some time has elapsed after the return of the temperature to the normal. The exceptions, perhaps, would be in cases where a high temperature persists unduly, and there is good reason for believing that the tonsils are the main causal factors. But even such a condition should call for a council of wise internists, as the outcome of surgical interference under such circumstances has not always been a happy one.

A history of a number of attacks of acute lacunar tonsillitis does not, of necessity, indicate a diseased condition of the crypts or of the stroma of the gland, for an examination of the tonsils after removal will often show the crypts to be empty and the stroma normal. The explanation lies doubtless in the large size of the crypts, which permit free drainage and the evacuation of débris after an acute inflammatory attack. If, in such cases, we were to be governed by the history alone, the tonsils would no doubt always be sacrificed.

So the questions which if answered will assist materially in deciding whether the tonsils should be enucleated or removed only down to their capsules,

are in reference to the actual condition of the tonsillar crypts and the presence of pus sacs or retention pockets in the stroma of the tonsil. If we find detritus impacted within the crypts we may know that then the crypts are but culture tubes for bacteria and, therefore, the tonsils should be entirely removed, and if, in addition, we have good reason for believing that pus sacs are present, then all the more reason that the tonsils should be completely excised. If, however, we do not find either of those conditions, the clinical history or the general character of the stroma of the tonsils must clearly indicate the presence within the tonsils of a cause of existing or recurring infection, else the total removal of the glands is not only not indicated nor desirable but, from our point of view, positively contraindicated. We cannot deem it wise or even fair to enucleate tonsils simply because they *might* contain foci of infection. That must be regarded as an extreme act, and extremes wherever applied are apt to court reprisals. Indeed, in very young children, with the thought in mind of the conservation of the possible function of the tonsils, based upon the knowledge of their great activity in early childhood, it is frequently permissible to leave them alone in cases calling for the removal of accompanying adenoid growths which are causing obstruction to nasal respiration. If there is no history of acute or chronic ear involvement or recurrent attacks of acute tonsillar inflammation, and the tonsils, even if moderately enlarged, appear to be healthy, there is no good reason for their destruction.

An interesting class of cases is that often seen in children, usually between six and nine years of age, with chronic lacunar tonsillitis, in whom there are no secondary local manifestations, but who present evidences of a systemic bacterial poisoning or bacteriemia, as shown, in part, by a grayish pallor of the skin and a conspicuous absence of animal spirits. The tonsils have a bright chronic coloring and the breath is usually offensive from decomposing debris within the crypts. An offensive breath is not always present, however, for the toxic symptoms are sometimes present in children whose tonsils have already been removed in part when they should have been enucleated, and in the healing process the mouths of the crypts have been sealed and the debris locked in. It is astonishing how inoffensive the tonsils or tonsil stumps, which are practically full of detritus and pus, may appear in their snug recesses in the fauces, and while they may, for a time, wear successfully the mask of innocence, in our experience the pathological contents are likely eventually to betray their presence in the form of some reflex or constitutional abnormality. In all such cases the indications are clear and positive for a total removal of the tonsils with their capsules, as anything less than that would not conserve the future health of the patient.

The operation of complete tonsillotomy, when performed upon tonsils of such a character, may, therefore, through the consequent cicatricial occlusion of the portions of the crypts which are not removed, be productive of local and constitutional disturbances, by locking up and walling in considerable quantities of detritus. Indeed, this unfor-

tunate end result, which occurs in so many cases in which a differential diagnosis has not been made, is the main objection to tonsillotomy as a routine practice. There may be recrudescence of the tonsils after tonsillotomy which, in itself, is of minor importance—unless occasioned by recurrent attacks of acute tonsillitis—for, as we have said, the tonsils may recur because the physiological needs of the body demand their presence. If a strict aseptic technic is followed during and after operation, the bases of the tonsils left after complete tonsillotomy almost invariably heal without infection, the integrity of the fauces is maintained, and there is no subsequent faucial deformity. The advantages of complete tonsillotomy, in proper cases, cannot be disregarded, and in view of the damage which has been and is being done by indiscriminate, unskillful, and sweeping removal of the glands, there is considerable danger of a reaction setting in which will hinder proper operating in proper cases in the future.

The demand of the parents, and not infrequently of the internist in attendance upon the family, that the tonsils be removed so that there will be no more attacks of sore throat, and no future need of attention from the surgeon, has doubtless had an unconscious bearing upon the minds of operators, who invariably enucleate all tonsils operated upon by them, for by ridding the fauces of all tonsillar tissue they can comply with at least a part of the demand—though very rarely with all of it.

Wound infection with consequent slow recovery is more common after tonsillectomy than after complete tonsillotomy. This is doubtless due mainly to the greater amount of trauma occasioned by an enucleation and the removal of the protecting capsule, but it is also in part governed by the operative method employed and the degree of technical skill possessed by the operator, for the chances of infection are greatly increased if the muscular tissue is injured. The amount of blood lost during and after tonsillectomy varies according to the method used. Unless the dissection is made with sharp instruments, we have no reason for believing that enucleation of tonsils in children increases the chances of hemorrhage. But when we come to a consideration of the degree of deformity following tonsillotomy and tonsillectomy, a very different picture is presented, for there may be as much difference between the aftereffects of healing, especially when the tonsillectomy has been unskillfully performed, as there is between a burn of the skin which simply reddens it, and one which destroys the integument and perhaps some of the muscular tissue beneath. In other words, the capsule of the tonsil acts as a protection and support to the intrapharyngeal musculoaponeurotic sheath, in much the same way as a freshly applied coating of collodion does to the human skin. A structure which serves as valuable and important a purpose as that, ought never to be sacrificed except for good and sufficient reasons. As we said when speaking of wound infection, some allowance must be made for the degree of skill exercised in performing tonsil operations, for in large measure that must account for the difference in the degree of deformities found in tonsillotomized and tonsillectomized

throats. But under any circumstance, even when the operation is performed by the most skillful, the removal of the supporting capsule and the necessarily increased area of wounded surface always results in a change in the anatomical relations of the fauces.

We believe it will be conceded, even by the most radical operators, that the fibrous capsule of the tonsil is a very valuable anatomical structure, and that its retention in the sinus tonsillaris is highly desirable. In adult life and even in old age, as pointed out by Makuen (5), the tonsil serves as a protective agent to the faucial region in that it builds up and strengthens that portion of the interpharyngeal aponeurosis known as the capsule of the tonsil, by the addition of its own connective tissue. Makuen, than whom there is perhaps no higher authority on voice defects, says further that "the capsule of the tonsil is even more essential to the normal structural relations of the pharynx than the tonsil itself, and its removal is to be deprecated from the standpoint of one who has any regard for the phonatory and articulatory function of the adjacent muscles." In speaking of the effects of tonsillectomy by a more or less extensive dissection, he says still further: "The extracapsular tonsillectomized pharynx is always necessarily a damaged pharynx and the radical operation ought to be done only when absolutely necessary, and when the damage to the pharynx and the individual threatens to become greater by leaving it undone." This authority is of the opinion that future years will find us trying, not how best to enucleate, but how to avoid enucleation.

After seeing the results in many cases of sweeping removal of the tonsils, we have acquired an increased respect for the value of the capsule of the tonsil because of the demonstrated importance of the role it plays in the pharynx, and we have a strong desire to leave it intact in every case, and are in the habit of doing so unless the conditions positively interdict. At the same time we are obliged to confess to the satisfaction it gives us to enucleate the gland when we believe that procedure is justified, for the operation is much simpler and much more pleasing than complete tonsillotomy. The truth is that tonsillectomy, by which we shell out the whole of the tonsil, capsule and all, from the tonsillar fossæ, and leave a deep, clean, and smooth temporary bed between the pillars of the fauces, is a seductive operation, and we cannot doubt that this fact explains, in part at least, the extreme radicalism of the day in regard to tonsil surgery.

It is probably quite safe to say that it is easier to take out the tonsils one way or the other than to find out which way they should be taken out. This fact, also noted by Makuen, will doubtless explain, in part, the lack of care in making differential diagnoses, especially in clinics where large numbers of tonsils are operated upon, and it is this easier way which will, more than anything else, account for the inelastic routine practice of removal, invariably by tonsillotomy or invariably by tonsillectomy, which is carried out in so many hospital clinics in this country.

It is the inelastic routine procedures which we

are especially criticising in this writing, for so long as the question of whether the tonsils are a menace or a protection remains unanswered, and also because of the deformities which are likely to result from the removal of the capsules, we are justified neither in leaving the bases in all cases nor in removing the entire glands in all cases, but must be governed by the clinical history, the external tonsillar appearances, or the condition of the interior of the glands themselves. In some cases a combination of all those means will be needed for a decision.

It is mainly because of the great importance of the capsules of the tonsils and the desirability of sparing them when possible, that we have sought diligently for a more certain method of acquiring knowledge of the actual condition of the interior of the glands before reaching a final decision. This we believe we have found, for the method about to be described has supplied our need in this particular to a greater degree and in a much more satisfactory way than any heretofore employed. In all doubtful cases the procedure is put into practice immediately after the patient has been anesthetized for operation.

The method is in brief the removal of the inner half or more of one of the tonsils, or the removal of a wedge shaped piece or pieces from practically the entire depth of the gland, and, in a bright light, submitting the specimen to examination with the aid of a finely ground loupe with a magnification of from five to ten diameters. In this way, in a few seconds, we can determine the condition of the crypts and, to the extent of the portion removed, the presence or absence of pus sacs or retention pockets. If the specimen presents a healthy appearance and the clinical history is without significance, the remaining portion of the tonsil is removed down to the capsule, and the opposite tonsil is either removed in the same way or is not removed at all; although under such circumstances it is probably best for the balancing effects to remove both tonsils down to their capsules. If, however, the exploratory section shows the tonsil to be diseased, the remaining portion of the gland is completely removed with its capsule intact, and a tonsillectomy is performed upon the tonsil of the opposite side, for while a part is not the whole, nevertheless a diseased condition of a substantial portion of one tonsil is a practically certain index of the condition of the whole of both tonsils.

The attitude of mind which has caused us to seek for a better means of determining the character of the interior of the tonsils in doubtful cases, before deciding upon the degree of removal, was not in opposition to radical measures, which are very frequently the only proper methods to be employed, but was rather one born of a desire to safeguard the patient's immediate and future interests through conservative measures when conditions permit. The suggestion, just outlined, could not have been carried into practice without the aid of the genius of Greenfield Sluder (6), whose brilliant technic of dissection with a dull guillotine blade over the alveolar eminence of the mandible, makes it possible, if a diseased condition of the tonsil is found in an exploratory section,

subsequently to dissect out the capsule in practically every case, even when but a small portion of the tonsil base is left to deal with.

An exploratory section can be readily obtained by removing the inner half or more of a tonsil with an ordinary sharp tonsillotome or guillotine, or a powerful hawk bill punch forceps (Fig. 1) with straight sides, which cut on the principle of scissors, can be used to remove one or more elongated wedge shaped pieces of tissue with the points of the wedges close to the capsule. The wedge shaped pieces are, of course, not as large as the mass obtained by decapitating the tonsil, but they enable us to secure tissue from the base or near the base of the tonsil, and thus afford an opportunity of making a preliminary examination of the tissues in practically the entire depth of the gland. In the act of removing an exploratory section with a tonsillotome, before the cutting of the tissues has actually begun, the preliminary compression made by the ring knives often discloses at once a thoroughly diseased condition of the interior of the gland by forcing detritus from the mouths of the crypts in soft creamy masses or causing the rupture of locked up pockets of pus. There is then no need of removing a section of the tonsil for examination, for evidence of such character is conclusive and calls for thorough eradication of both tonsils with their capsules.

If the specimen is removed, however, it is immediately subjected to a naked eye examination, which may be all that is needed to reach a decision as to which operative path we should take. If such a cursory examination is not conclusive, a very much closer scrutiny can be made with the aid of a finely ground loupe and a brilliantly illuminated field. To avoid a break in the asepsis, a large card, which acts as a screen, with a loupe attached to the lower edge, is hung over an incandescent lamp in such a way that sufficient room is provided for the specimen to be held under the lamp and opposite the loupe on the edge of the card (Fig. 2). When disease exists, it may, in this way and at once be readily detected, but further knowledge of the gross contents of the crypts or of the existence of small abscesses in that portion of the gland, may be obtained by subjecting the various parts of the specimen to pressure between the blades of small ring forceps. If the crypts are found to be diseased, that fact in itself is a sufficient reason for the complete removal of the tonsils. Indeed, a diseased condition of the crypts is the main thing to be looked for in an exploratory section, for while interfollicular collections of pus may be found in connection with cryptic disease, as an advanced stage of such disease, according to our observation they are not found in tonsils of which the crypts are not involved. So if the crypts do not contain detritus, we have no reason to believe that collections of pus may be present in the stroma of the tonsil. Then, too, in the exploratory section, we should take note of the character of the stroma of the gland, for as that is materially affected by the long standing presence of decomposing material or concretions, the appearance of the stroma as seen through the lens, irrespective of the condition of

the crypts, is a fairly reliable indication of the presence of disease which might act as a focus of local or general infection.

In addition to that derived from an examination of the exploratory section, some knowledge of the condition of the crypts or the presence of pus pockets or sacs in the portion of the gland remaining in the throat, may be obtained by making firm pressure upon the cut surface with a small ring curette, while counterpressure is being applied over the tonsil on the outside of the neck. In this way, in rare cases, we may discover concealed detritus which the removed portion of the tonsil failed to disclose. On the basis of the evidence secured by the methods just described, we must at once decide whether the tonsils are sufficiently diseased to make enucleation the preferable and proper procedure, or whether there is too little evidence of disease to justify the sacrifice of the capsules.

By these methods of making a differential diagnosis we may, of course, overlook a collection of inflammatory products somewhere along the course of a crypt, which, though it might ultimately be eliminated, could remain and later give rise to local or systemic infection. In such a case a complete tonsillotomy might subsequently prove to be an error. Or, again, in very young children when the activity of the tonsil is at its height, we may possibly be confused by finding the crypts partly filled with exfoliated epithelium the result of a physiological casting off process, and by such findings we might easily commit the error of removal by tonsillectomy. While there is in this method the possibility of errors of omission, we feel confident that their occurrence is likely to be far less frequent and disastrous than the errors which are committed in the now very extensive practice and routine custom of taking the tonsils out completely, capsule and all, in every case operated in.

In cases in which the relation between the tonsils and secondary conditions is well established, there is no need of carrying out the suggestion which we are now considering, but in cases in which there may be an unsuspected causative condition in the tonsils, or those in which the tonsils present a suggestive appearance but are not apparently producing secondary conditions, the procedure may prove of the utmost value. The number of cases which are found in one or the other of those classes is really astonishing, especially in dispensary and hospital practice, where it is often difficult, and sometimes impossible, to elicit a history which might link a secondary condition to the tonsils. And yet during or after an incision for an exploratory section in such cases, pus may spout out upon one of the surfaces on making the slightest pressure upon the tonsillar tissues. What is true of pus sacs or retention pockets, is also true of crypts distended with debris, its presence not having been suggested by the surface appearances of the tonsils nor even suspected because of the absence of secondary infections or a history of their occurrence. It must, of necessity, be accepted without question that no member of even the ultraconservative school would counsel anything less than complete extirpation of tonsils which are the demonstrated seats of locked up pus or

crypts tightly packed with decomposing material.

Even in private practice, where, usually, every opportunity is afforded to ascertain all the facts, we are frequently unprepared for the findings in an exploratory section when the history offers nothing to suggest the tonsils being honeycombed with diseased material. Because of the many surprises met with in this way, we have established a nearly routine usage in both public and private work of removing an exploratory section before deciding upon a plan of action.

Small tonsils are not as frequently subjected to exploratory section as those of larger bulk, because small tonsils, when free from suspicion of being the cause of local or remote disturbances, ought not to be removed. If a doubt exists, however, in regard to their being etiological factors of disease, or in the case of the so called "submerged tonsils," a portion of one tonsil, preferably the anterior, can be removed with the hawk bill forceps and still leave the remainder of the gland in an accessible position for enucleation if it is found to be diseased. And this leads us to say, that no matter how small or flat the tonsil or tonsil stump may be, if care is taken while making an exploratory incision to leave as much as possible of the posterior and inferior portions of the gland, we believe that unless there are extensive adhesions following a previous partial removal of the tonsils, the difficulty of securing all of the capsule will rarely be insurmountable.

Mainly through the evidence obtained by the method advocated in this paper, we have reached the conclusion that at least eighty per cent. of the tonsils which it is now so generally the fashion completely and finally to remove from the fauces of children, can be properly and safely left, in part at least, to serve a purpose, whether that purpose is a physiological function or the maintenance of the anatomical topography of the throat. We are pleading, therefore, for the introduction of a greater degree of elasticity into our operative methods in dealing with enlarged or diseased or enlarged and diseased tonsils, and have shown that with the means at hand we may be prepared in each case for either partial or complete removal of the tonsils, and stop midway to determine, with a considerable degree of certainty, which of the methods will best conserve the future interests of the patient. In this way we may help to eliminate the now very general custom of inelastic procedures of removal always by tonsillotomy or always by tonsillectomy without a knowledge of whether the organs are extensively diseased or, though enlarged, are still not the tonsils of health.

CONCLUSIONS.

1. A differential diagnosis should be made to determine, if possible, whether the tonsils are the probable sources of infection or are free from disease. The indications of the clinical history and outward appearances of the glands are often sufficient for this purpose.

2. Because of the possible existence of a tonsillar function, also because of the subsequent pharyngeal deformity and the consequent alteration of the quality of the voice occasioned by ton-

sillectomy, it is desirable to leave the capsules in the tonsillar fossæ whenever possible.

3. While all extensively diseased tonsils should be enucleated, it is probably safe to say that at least eighty per cent. of enlarged tonsils do not contain foci of infection and, therefore, do not need to be completely removed, and, indeed, unless obstructive to voice or respiration, do not need to be removed at all.

4. In cases in which there is a doubt of the character of the interior of the tonsils, but which are brought to operation for the removal of irritating or obstructive adenoid growths, a fairly accurate knowledge of the condition of the crypts or of the presence of pus sacs or pockets can be obtained by removing, at the beginning of the operation, a substantial portion of one tonsil and submitting it at once, in a brilliantly illuminated field, to examination under a finely ground loupe with a magnification of from five to ten diameters.

5. If the tonsil from which the section was taken is found to be apparently free from disease, and the clinical history is without significance, the remainder of the gland should be removed by complete tonsillotomy—that is, down to the capsule. The opposite tonsil, if not obstructive, may then with propriety be left alone, but if obstructive, it also should be removed by complete tonsillotomy. If the exploratory section, however, shows that one tonsil is diseased, then both tonsils should be enucleated. The base left after a considerable part has been removed for examination, can be as readily enucleated as if a part had not been removed.

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150 JORALEMON STREET.

UNUSUALLY LARGE URETERAL CALCULI.

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Although a discussion of the general subject of ureteral calculi must needs appear trite enough at this time, there are, nevertheless, a number of phases of the pathology and therapy of this condition that could bear more exhaustive inquiry. Thus the questions as to the treatment of descending ureteral calculi, the detection of ureteral calculi that do not give shadows in the x ray picture, and the pathology and treatment of cases of enormous ureteral calculus are among those that merit further study. It seems, therefore, that every additional clinical observation on any of these still obscure aspects of the subject may be illuminating, if diagnostic and therapeutic deductions can be drawn. It was our fortune to have encountered two very rare and interesting cases of enormous ureteral calculus during the last three years, both of which afford opportunity for argumentation and enlightenment in cystoscopic diagnosis, pathogenesis, and treatment.

CASE I. Enormous ureteral calculus; hydroureter, ureteritis; ureteral stenosis, hydronephrosis. I. W., aged twenty-six years, male, was admitted to the Mt. Sinai Hospital, June 15, 1914, with the following history: Except



FIG. 1.—Radiograph in Case I.

for dull pains in the back and in the left loin from time to time during a number of years, he was not sufficiently annoyed to feel that he was really sick, nor to require the advice of a physician. He considered himself practically well until seven months ago. He then began to have attacks of pain in the left side of the back and also in the left lower abdomen. The attacks would come on about once a week, moderately severe pain being also felt in the left iliac region, sometimes radiating down to the left testicle, accompanied with nausea, but never with vomiting. As far as he knew, no blood was ever present in the urine. He has a distinct notion that riding in a car or jolting aggravated the pain in the back. In short, the symptoms were attacks of pain in the back, abdomen, and left iliac region over a period of seven months without any definite history of previous renal or ureteral colic, except for certain indefinite dull aches.

Physical examination was negative, except for tenderness in the left loin over the kidney, this organ not being distinctly palpable.

X ray examination showed a large, club shaped calculus somewhat more than four inches long with a bulbous extremity pointing downward at the level of the spine of the ischium. From here (Fig. 1) the calculus could be traced upward along the course of the ureter, across the sacroiliac synchondrosis to about the middle of this joint. Its outline was somewhat tortuous, the bulbous end and the slightly sinuous body giving the calculus the appearance of the cephalic end of a serpent. The width of the shadow varied, being from 6 mm. to 10 mm. in width in its body and tail portion, the greatest diameter obtained by the head being 16 mm. The renal shadow on the left side was distinctly enlarged, that of the right side being normal.

Urine examination: Specific gravity, 1.014; acid; albumin, at times none, at other times a faint trace; sugar negative; microscopically, a few white blood cells.

Cystoscopic examination, June 24th, revealed a moderate degree of cystitis, the orifices of the ureters being practically negative. A catheter was easily inserted into both ureters. No obstruction was encountered in passing a No. 6 French catheter into the left ureter beyond a point

corresponding to the upper extremity of the suspected calculus. When this catheter had been inserted about 12 cm., a sudden gush of urine occurred, rapid and continuous flow ensuing until about 80 c. c. of urine had been collected. At the end of this time the flow entirely ceased.

Indigo carmin appeared on the right side in good concentration after ten minutes, although only a very small amount of urine could be collected from this side during the examination. On the left side no indigo carmin appeared during a period of forty minutes.

Examination of the separated urines. Right kidney; acid; albumin, faint trace; sugar, negative; urea, 2.2 per cent.; epithelial cells, occasional red and white blood cells. Left kidney; acid; albumin, trace; sugar, negative, urea 1.7 per cent.; many white blood cells, few red blood cells.

Nephroureterectomy, June 24, 1914. With a view to removing the stone alone, the usual oblique ureteral incision was made, this being extended forward and toward the median line by nicking the rectus sheath. When the peritoneum was dislodged, it was found that the region of the ureter was occupied by an enormous mass of fat, about twice the size of a man's fist. So indurated, so infiltrated, and adherent was this fat to the outer wall of the true pelvis, that it seemed at first almost impossible to do any blunt dissection whatsoever. After considerable patience, however, it was possible to liberate the ureter containing the calculus from the sclerotic mass at one point, expose the ureter which was densely inflamed, thickened, and enlarged to about 2 cm. in diameter, and free it sufficiently to be attacked. A longitudinal incision was then made into the ureter and a large calculus removed by forceps. Exploration of the lower end of the ureter revealed that the dilatation and structural change extended down to the intramural portion of the bladder. At this point a very marked stenosis of the ureter had been produced in consequence of the pressure of the head of the calculus. It was evident that, although no obstruction was encountered by the ureteral catheter in the ascending or centripetal sense, a



FIG. 2.—Kidney, ureter, and calculus in Case I.

very marked obstruction in the centrifugal sense was present, for it was practically impossible to pass even a small catheter from above downward into the bladder.

In view of the intensely dilated condition of the ureter, the distinct evidence that obstruction to the outflow of urine was present, and because the cystoscopic findings pointed to marked hydronephrosis, it was determined to proceed with a nephrectomy. It was thought that the liberation of the ureter from out of the enormous mass of



FIG. 3.—Radiograph in Case II.

inflammatory tissue would be easier after the kidney has been separated and the ureter cut through above. Nephrectomy was, therefore, performed through the usual oblique incision, a large hydronephrotic kidney easily exposed, freed, and ablated. It was then somewhat easier to shell out the ureter from its adherent bed and remove it in one piece down to its termination in the bladder.

Examination of specimen (Fig. 2): 1. The kidney is considerably enlarged, showing the lesion of extrarenal type of hydronephrosis, the pelvis being dilated in pyriform fashion forming a sac 12 cm. long and 8 cm. in diameter, at its upper pole and measured at the hilus of the kidney.

2. The ureter is somewhat shortened by an enormous dilatation of its lower half. Where it entered the bladder, it was stenosed by the extension of the inflammatory process involving the lower half of the ureter and obstructed, in the centrifugal sense, by a sort of kinking due to the pouching of the ureter above, as well as by overhanging redundant mucous membrane of the pouched ureter. The lower ureter, harboring the calculus, was dilated so that its circumference measured about 5 cm. The wall was very much thickened, in places 5 to 7 mm. thick.

3. The calculus had a club shaped lower extremity and tapering, rough, narrow, upper end measuring 10 cm. in length, being cudgel shape. The head end of the cudgel had the appearance of the head of a serpent, measuring 17 mm. by 9 mm. in width. Its lower end, abutting against the bladder, was rounded, its surface roughened below by numerous rounded prongs. The shape of the calculus was sinuous, varying from 6 mm. to about 1 cm. in diameter.

Chemical composition (Dr. A. Bookman), ammonium urate, calcium and magnesium phosphate.

The patient made an uneventful recovery and was discharged well from the hospital, July 15, 1914. The small sinus which remained at the lower end of the incision for the ureter, where a drain had been inserted, closed up in a few days.

The points of interest in this rather unusual case

are, first, the enormous size and length of the calculus; second, the absence of a definite history of descending ureteral calculus, the chief symptoms being those dependent on urinary retention; third, the intense inflammatory reaction about the stone manifesting itself in the changes in the ureter, as well as in the enlarged size of the circumureteral deposit of fat, and resulting in the formation of an extremely large lipomatous mass; fourth, the formation of a coarctation just below the end of the calculus and at the point of entrance of the ureter into the bladder; fifth, the unusual mechanism of the obstacle to the urinary outflow, since this consisted in the effects of distortion and obturation by fold formation, rather than by the occluding action of the head of the stone; sixth, very marked enlargement of the extrarenal portion of the pelvis, a type of hydronephrosis more commonly encountered in the case of aberrant vessels; seventh, the cystoscopic findings, to wit, that it was possible to pass a No. 6 French catheter beyond this large calculus.

Perhaps, even more remarkable in a certain sense is a case which came under my observation in 1911. Here, too, we were dealing with an enormous ureteral calculus, which had caused symptoms for more than ten years, the diagnosis having remained uncertain for a greater part of this time.

CASE II. Enormous ureteral calculus; enormous hydro-ureter; hydronephrosis. J. Y., man, aged fifty-five years, consulted me, September 4, 1911, because of severe pain in the back which he had had for many (10) years, sometimes coming on in attacks and lasting all day, but never accompanied with any urinary symptoms. For the past four years he thought that his urine had become cloudy. He pointed to the sacrum as the point in which the pain originated of late, and said that it passed forward into the trochanteric region of the right side, never into the abdomen, penis, or testicle. He made mention of the fact, however, that recently severe attacks of pain in the lower abdomen had occurred, which, because of accompanying gastric disturbances, had been regularly diagnosticated as "stomach disorders." One year ago, an amputation of the penis was done for carcinoma, and since that time the urine seemed to have become very cloudy. There had been none of the typical symptoms of ureteral calculus at any time.

Physical examination showed a fairly well nourished man. The penis had been amputated 1.5 inch from the meatus. The new meatus was somewhat stenosed. The urine was loaded with pus cells, and contained one per cent. of urea; specific gravity, 1.012; albumin, plus; reaction, faintly acid. The right kidney could be distinctly felt and was evidently enlarged.

Cystoscopy, September 12, 1911, revealed a slight degree

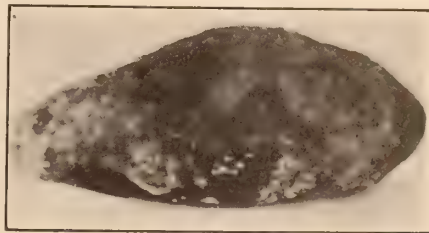


FIG. 4.—Calculus from Case II—somewhat reduced in size.

of cystitis, the right ureteral orifice slightly swollen, but not markedly so, the left orifice negative. Catheterization of the left ureter was easily done, no obstruction being encountered. In the right ureter a No. 6 French ureteral catheter met with a slight obstruction at 2 cm., but this was passed easily after some manipulation, and was followed by a copious and continuous flow of turbid, pale urine. This flow continued until 80 c. c. had been col-

lected, there being considerable retention of urine above the calculus, indicating hydrourter, and undoubtedly hydronephrosis. Indigo carmin yielded good elimination of the dye by the left kidney, the concentration being fairly good after ten minutes; the right specimens being very slightly green after the same period of time.

Examination of the separated specimens gave the following result: Right kidney 80 c. c. examined, cloudy; reaction, neutral; specific gravity, 1.011; urea, one per cent.; albumin, plus; sugar, negative; microscopic, large numbers of pus cells and occasional red blood cells, many Gram negative bacilli; cultures, *Bacillus proteus vulgaris*.

Urine from the left kidney slightly acid; urea, 0.8 per cent.; albumin, trace; no sugar; microscopic examination, a few pus cells, no red blood cells or casts. Here, too, a very few Gram negative bacilli, the organism being identical with that of the right side.

Cystoscopy indicated that we were dealing with a case of calculus low down in the right ureter, just above the bladder wall, one that was easily passed by the ureteral catheter, there being distinct evidences of hydrourter and hydronephrosis above the stone. The diagnosis was hydrourter, hydronephrosis with infection due to calculus near the lower end of the right ureter, with slight infection of the left kidney by the same organism (*Bacillus proteus vulgaris*).

X ray examination showed a large pear shaped calculus, measuring $1\frac{1}{8}$ inch in width, 2 inches in length, the narrow end situated just at the level of the right ischial spine (Fig. 3). Because of its position and large size, this shadow was regarded by the radiographist as being probably situated in the bladder or in a diverticulum of the bladder.

In September, 1911, I performed the typical operation of ureterotomy through an oblique incision (Israel), the patient refusing to have any operation on the kidney itself. It was found very easy to isolate the ureter, for it was enormously dilated, almost to the size of the small intestine, being readily detected adherent to the peritoneum. The adhesions were minimal in amount, the calculus readily found just above the bladder, an incision 2 cm. in length made over it, the stone extracted, and the wound closed by several interrupted, fine chromic gut sutures, and a rubber dam drain with a bit of gauze placed against the suture line in the ureter. This was removed after seven days, the wound healing by primary union. The patient was up and about on the twelfth day, no leakage occurring during any part of the course.

The calculus (Fig. 4) might be described as irregularly ovoid with one pointed extremity, or as pyriform, and measured $2\frac{3}{8}$ inches in length by $1\frac{1}{8}$ inch in width at its superior pole.

Examination of the patient, September 19, 1914, three years after the operation: He felt perfectly well, except for slight dull ache occasionally in the right loin. A year ago, he passed some gravel, but since then he had felt perfectly well.

Here, too, we were dealing with an unusually large calculus, imbedded in the lower end of a ureter which was enormously dilated throughout its whole course.

The more important deduction that can be drawn from the study of this case may be summed up as follows: First, enormous stones can be formed in the ureter as the result of deposition of salt about an arrested ureteral calculus, acting as nucleus; second, such large calculi may give no history of ureteral colic, most of the symptoms being referable to the results of ureteral dilatation and hydronephrosis; third, catheterization of such ureters is possible even in cases where infection of the hydronephrosis¹ or hydrourter has taken place to obtain primary union of the ureter without any leakage.

As for the size of the stone in these cases, a cursory search in the literature has failed to bring to light any instance in which a calculus of even approximately such enormous dimensions had been

found. The bulbous lower extremity of the calculus in the first case, the fact that its centre was of different density in the x ray picture, speak strongly in favor of the view that a descending ureteral calculus of moderate size became arrested just above the bladder wall; then, by the deposition of salts, the calculus grew larger in all diameters, and particularly grew upward, forming a cast of the lower half of the ureter.

The histories, as far as they could be elicited, resemble many of those which we have recently received in arrested ureteral calculus of long duration, in that the clinical manifestations of ureteral colic are absent. The clinical course of calculus in the ureter may have an insidious onset (as it doubtless was so here), the symptomatology being dominated by the results of ureteral dilatation and hydronephrosis, these manifesting themselves in more or less constant pain in the lumbar region, with occasional exacerbations of pain, or pain and fever whenever the retention is most marked.

Interesting, also, is the study of the ureter in Case 1, which, by virtue of the intense pathological lesions, the rigid walls, the incurable nature of the obstruction, became converted into a channel whose function could no longer be reestablished. There is, however, a type of dilated ureter in which the walls remain flexible and thin, without much sign of inflammatory infiltration—a form which may become restored in the sense that its function, as a drainage channel, continues after the obstacle is removed. Such was the case in patient No. 2.

From a pathological standpoint, the development of a large amount of circumureteral passages is analogous to the production of the same condition around the pelvis of the kidney, whenever this is intensely or chronically inflamed. In Case 1, the fat deposition had attained such large dimensions that a veritable inflamed tumor had been produced.

From the standpoint of the cystoscopy, perhaps the most striking observation in these cases was the fact that such large masses in the ureter, as were afforded by these calculi, presented no obstacle to the passage of a ureteral catheter. In this regard the two cases gave identical findings. Experience in ureteral catheterization, however, teaches us that the presence of a ureteral obstruction in the centripetal sense is in no way related to the size of the obstacle. Thus, we shall often find that a very small calculus, by virtue of the inflammatory reaction in the contiguous mucous membrane, brings about complete obturation, so that not even the smallest ureteral catheter can be introduced. On the other hand, stones of considerable size may, or may not prevent the passage of a catheter.

If cases of descending ureteral calculus are cystoscoped at intervals after the stage of contraction has taken place, we shall not infrequently meet with the following interesting circumstance. For a long time it will be impossible to pass even the smallest ureteral catheter beyond the stone, but after weeks or months have elapsed, and the effects of acute inflammatory process in the ureter have passed off, no difficulty will be found in slipping the catheter beyond the stone.

Then there is a class of stones of moderate size,

¹It will be remembered that operation on the kidney—possible nephrectomy—was refused by the patient.

which, by reason of the fact that their surface is extremely rough and because they are very deeply imbedded in the ureteral wall, will at no time, after the arrest of the calculus has taken place, permit of the passage of the ureteral catheter.

Very large calculi, however, may cause absolutely *no interference with catheterization*, as is evidenced by the two unusual cases here recorded.

40 EAST FORTY-FIRST STREET.

BACKACHE.

*A Plea for a More Careful Examination and a More Definite Diagnosis.**

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So frequently are we consulted for backache that it is necessary to classify the different forms of this malady so as to be able to group them intelligently and, by so doing, successfully to diagnose, treat, and cure these cases. The general practitioner hears the complaint so often, indeed, that he is apt to consider it lightly and not make a very thorough examination in search of its cause. Not knowing the etiology of the trouble, it is impossible to expect satisfactory results in treatment.

General examination.—It is not sufficient to inquire of the patient the location of the pain, its extent, and frequency, nor is it sufficient to ask a few questions relative to the general condition, the functioning of organs, digestion, etc. Urinalysis may be made, but this in the large majority of cases is of little value. What should be made is a very thorough physical examination with the clothing removed. The patient should be examined standing as well as lying down.

The general poise should be noted, as this is of the greatest importance. We can, by careful observation, detect the slightest deviation from the normal. This is true of structural as well as of postural deformity. Thus we recognize an anteroposterior postural deformity, any lateral deviation of the spine, a rotary lateral curvature, a protuberant abdomen with enteroptosis, a prominence of one hip, or an elevation of one shoulder. (See Figs. 1, 2, 3, and 4.) The exact location of the pain should be carefully noted; its character and extent carefully inquired into. Rigidity and spasm of muscle should be looked for. These, associated with the limit of motion in flexion or extension and also in side bending, are indicative of inflammation. We can also by this preliminary examination recognize weakness of the feet or ankles, which is so often responsible for continuous lumbar backache. It should be remembered that in spinal disease, such as tuberculosis, the pain is referred to the abdomen and seldom to the back.

Weak back (anteroposterior postural deformity).—If a child complains of frequent backache, an examination, such as I have described, will reveal a static deformity in almost every case. As the child stands before us, we see a picture of general lack of

tone, a protuberant abdomen, a marked lumbar lordosis, a "hollow chest," and prominent shoulder blades. The general attitude is one of lassitude and inactivity. The backache is referred to the dorsal spine, between the scapulæ, or to one or other side of the back to the inner side or immediately below one of the scapulæ. Such a backache is often considered in the light of so called "growing pains" by the laity and the seriousness of the condition is not fully realized. (Figs. 2 and 3.)

Should such a case receive no treatment, there subsequently develops a lateral deviation of the spine, in addition to which a rotation follows, and we see developing a typical rotary lateral curvature, which serious deformity could easily have been prevented had the anteroposterior postural deformity been recognized and properly treated.

Rotary lateral curvature of the spine.—The backache of rotary lateral curvature of the spine is described as of a dull, dead, aching character, usually referred to the side of the convexity. It is mostly complained of after sitting for a time and stooping forward, as when sewing, typewriting, piano playing, etc. The pain is not very great at first, but gradually increases in its severity until the patient suffers intensely and is forced to lie down and rest, when the aching is gradually relieved. The general health of the patient suffers. Physical exercise is not participated in, the general resistance is lowered, and digestion is impaired, so that rotary lateral curvature of the spine is responsible for much more than deformity.

The diagnosis of scoliosis can very readily be made, and there is no excuse for not recognizing this condition. There is always a lateral deviation of the spine which can immediately be detected as the patient stands before the examiner. With this lateral deviation is a rotation of the vertebræ, which rotation is marked when the patient is asked to stoop forward. The examiner, glancing down the back, will see a prominence on one or other side of the spinous processes, which indicates the rotation of the vertebræ. The prognosis of the correction of the scoliosis will depend in great part upon the amount of rotation present, and this is measured by the prominence thus recognized.

I wish to emphasize the importance of the early recognition of these conditions. When they are diagnosed at the beginning of their development and treated immediately, the deformity can not only be checked but corrected, the general condition greatly improved, the backache cured, and subsequent complications prevented.

Backache is the most important symptom complained of, and every case of backache should be examined with the object of finding not an already developed deformity so great that a layman could detect it, but a developing deformity, with a recognition of the slightest deviation from the normal.

Weak feet.—A frequent cause of backache in adults is weak feet. This may or may not be accompanied by painful symptoms in the feet. The symptoms are those of a tired, aching feeling, referred to the lumbar spine, complained of at the end of a day's work after the patient has been standing for a long time. The pain increases in severity in direct relation to the amount of standing or walking

*Read before the Bronx Medical Association, June 3, 1914.

the patient submits himself to. Rest always relieves the backache.

Upon examination of the back alone, there is little evidence of the cause of the pain. The spine is freely movable. There is no spasm of muscle or any other sign of any inflammatory lesion, nor is there any tenderness on pressure, nor any deformity. The cause of the trouble is therefore apt to be overlooked, unless the feet are thought of and an examination of them made. These, when examined, are found to be everted. When questioned, the patient admits that the feet tire easily, are sometimes painful, and that the pain at times extends up the leg. It is of the greatest importance to examine such feet with the patient standing, and it is of just as great importance to remember that flat feet are not necessary to account for the backache caused by foot strain.



FIG. 1.—Weak spine with postural deformity.

The back begins to ache from foot strain, in many cases, long before the foot has broken down to a flat foot. The cause of the backache is that, as a result of weak feet, the proper foot balance is lost and the body poise is so changed as to throw an excessive weight strain on the muscles and ligaments in the back, producing a dull, boring pain, which increases in severity as the patient continues to overstrain these structures in standing or walking. When the foot balance is corrected and the foot strain relieved, the backache is immediately cured.

Many cases could be cited illustrating this condition, but the following will suffice:

CASE. E. S., aged thirty-six years, occupation teacher, single, was referred to me by Dr. R. A. Dennett. Complained of a dull aching pain, like a toothache, referred to the middle of the lower spine. This was first noticed about two years ago and it would come on after standing on his feet for some hours, while teaching. The floor upon which he stood was made of cement. Felt comparatively well providing he did not stand much on his feet; but after three or four hours of standing, his legs began to feel uncomfortably tired and his back began to ache. There had also followed during the past six months severe indigestion which seemed to be of the nervous type. He had not suffered any pain in his feet. Reported that he had rested all summer and did not feel any better. Contrary to what he had expected, his back was worse, if anything, he said, with pains shooting down the thighs and legs and also calf muscles. He admitted having used sneakers frequently during the summer time and of having worn soft shoes. He found it quite impossible to return to take up his position as teacher again owing to his general and local condition.

At the time of his examination he was found to have marked eversion of both feet, although flat foot had not yet developed.

When this eversion was corrected, when a proper

foot balance was regained, a good shoe prescribed, and casts of the feet taken from which proper plates were made, the patient was sent home with instructions regarding foot exercises in order to strengthen and maintain the proper balance.

He reported, three weeks later, that he was much improved, and inside of three months had taken up his work again and had not had any return of the backache, from which he had suffered for two years previously.

Sacroiliac strain.—Another common cause of backache in adolescence is sacroiliac joint strain. The pain in these cases is referred directly to a point over the sacroiliac joint. There is marked tenderness on pressure over the joint, and this tenderness is limited to this area. Patients will sometimes complain of pain running down the thighs, and a wrong diagnosis of sciatica is often made. Pain is not elicited when pressure is made over the sciatic nerve. The pain may come on somewhat gradually or with a sudden catching in the back. It frequently is caused by lifting heavy weights when in a stooping forward position.

In addition to the pain and tenderness, an examination will reveal a lateral deviation of the spine toward the side affected, if it is a unilateral strain. Stooping forward causes an exaggeration of the pain, as does rising from a sitting position. The patient will rise slowly and with great care, supporting his body weight upon the arms of the chair and then grasp his back with both hands and gradually rise to the erect position.

This condition is relieved by a snugly fitting bandage, held firmly in place by adhesive straps. This bandage passes around the pelvis and is wound round the body, passing between the anterior superior spine and the greater trochanter on either side.

During the latter weeks of pregnancy, the severe backache so often complained of is frequently due to this strain on the sacroiliac joint. It can be greatly alleviated, if not entirely relieved, by the use of a pelvic belt which supports the abdomen from the back, rather than by the abdominal muscles from the front, which cause a strain on the muscles of the back as well as on the sacroiliac joints.

In a recent article on this subject, Lovett, of Boston, expresses the opinion that these cases of backache belong to that group which should be



FIG. 2.—Anteroposterior postural deformity. Typical case, subsequently treated and cured without any resulting spinal deformity.

classified as due to static origin, and that the pain is caused by a muscular strain rather than by an individual joint strain." Backache of a static origin is caused "by a forward displacement of the centre of gravity of the body, causing undue strain of the posterior musculature of the body, and this muscular strain is expressed by pain in the muscles and ligaments of the back. So that this type of backache

is to be regarded as a symptom complex, due to abnormal attitude by peculiarities of the skeleton, lack of proper muscular balance, or abnormal condition in the abdomen."

A case recently treated by the writer will illustrate a typical sacroiliac strain with displacement. A fellow practitioner was cranking his car when the handle caught, instead of disengaging itself, when the engine started, pulling him around with it suddenly and unexpectedly. There was a severe strain put upon the back thus taken off its guard, with the result that he

from the stooping posture, at the same time suffering severe pain over the sacroiliac joint. When called within a half hour after the accident, I found him still stooping over, supporting himself with his hands upon his hips, with a lateral deviation of the spine toward the right side. A felt pad was placed over the sacrum and the pelvis was firmly strapped by adhesive plaster two inches wide. This gave immediate relief, although he was still unable to stand perfectly erect. The following day, he still complained of some pain, and two days later, upon rising suddenly from his chair, felt something slip with an audible click, after which he had considerably more comfort and was able to stand erect without effort. The pelvic adhesive girdle was worn for three weeks, after which time he resumed his daily duties without further inconvenience or inability.

Retrodissplacement of the uterus. If the case is that of a woman and these several causes of backache already mentioned have been examined for and are not found, then the cause is likely to be a retroflexion or retroversion of the uterus, or both. Retroflexion and retroversion usually coexist. Retroversion is progressive and usually proceeds from bad to worse. The most probable cause of retrodissplacement is parturition. Retroversion may result directly from a laceration of the perineum. With the support of the pelvic floor gone, the posterior wall of the vagina collapses and pulls upon the cervix. The uterus in this way may be turned backward. The symptoms are those directly referred to the altered position of the uterus. The most persistent symptom is backache. This aching

is referred to the upper part of the sacrum. It is severe and is always accentuated at the time of menstruation. It is a bearing down pain and is described as a dragging sensation. The pelvic organs feel heavy, and the bearing down feeling is referred to the perineum and thighs.

The general condition of the patient is depleted and there follows a marked physical weakness; she is unable to walk or stand, excepting for a very short time. These symptoms are associated with a general nervous irritability, often so marked that it is the only symptom, except that of backache, complained of.

A bimanual examination easily makes the diagnosis clear. With the hand over the abdomen, we are unable to palpate the fundus of the uterus in its normal position. With the finger in the vagina, one feels the cervix directed, not backward, but forward toward the symphysis pubis. The posterior wall of the uterus can be plainly felt inclined backward. When, in these cases, the uterus is replaced and held in position, the symptoms of backache are immediately relieved.

Lumbago. Lumbago includes a class of cases like myalgia, which unfortunately are too often diagnosed as muscular rheumatism. This term indicates so little that, although it may be a sufficiently satisfactory diagnosis to the patient, it should not be for the physician. These are cases of infectious origin and the origin of infection should be sought for and found. They occur frequently after exposure to cold or wet, or both, develop suddenly, and last usually for a few days, when the pain gradually subsides. The symptoms frequently pass from one part of the body to the other, and when the back is affected, the patient is severely crippled and is unable to move about without excruciating pain. The history in these cases will enable us to make a diagnosis.

CONCLUSIONS.

1. The exact cause of backache should be sought for and definitely determined.
2. A thorough examination is too seldom made.
3. The cause is very often found to be a postural deformity with a resulting muscle strain.
4. The cause of the postural deformity is very frequently weak feet.
5. A sacroiliac joint strain, with or without muscle strain, is responsible for a number of cases.
6. When retrodissplacement of the uterus is suspected, a bimanual examination will immediately settle the diagnosis.
7. The diagnosis of muscular rheumatism should seldom be made, as by so doing we are simply evading the question.
8. When myalgia is present, an infectious origin should be sought for.



FIG. 3.—Anteroposterior postural deformity, untreated, developing into rotary lateral curvature. See Fig. 4.



FIG. 4.—Beginning rotary lateral curvature, causing backache. Same case Fig. 3.

9. Spinal disease, such as Pott's disease, presents such a different picture, that it should not be confounded with any of the conditions enumerated.

10. The diagnosis of osteoarthritis is made clear by the age of the patient and the history of the case and can in every instance be corroborated by the x ray.

11. More careful attention should be given to all patients complaining of backache to seek for and to remove its cause, not only for the relief of pain complained of, but also to prevent the complication of the undermining of both the general and nervous systems which may directly follow.

40 EAST FORTY-FIRST STREET.

FRACTURE OF THE CLAVICLE.

A Report from the New Haven Dispensary.

By WILLIS E. HARTSHORN, M. D.,
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It has been found in the treatment of injuries to the clavicle at the New Haven Dispensary, that it was exceedingly difficult to secure a proper adjustment of the fragments in the oblique type of fracture, though the functional results in all cases have been excellent. The transverse fractures require practically no reduction, as they are usually impacted and constitute a class which often do not appear for treatment until several weeks have elapsed since the injury.

The clavicle develops by two centres, one for the shaft and extremity which articulates with the acromion, and one for the inner extremity. The former appears very early, which probably accounts for the fact that fractures at birth are rare; the latter about the eighteenth year and unites with the shaft between the twenty-first and twenty-fifth year. The clavicle is absent according to most anatomists in animals which use the front feet for forward movements. It acts primarily in man as a support for the weight of the upper extremity and affords the muscles arising from, or attached to it, a central point from which power may develop. On the first rib, beneath this bone, lie the vessels and nerves which form the brachial plexus and which, except for the protection afforded them by the subclavius muscle, owing to their exposed situation, would be peculiarly liable to trauma. It is worthy of note that in our series of cases, embracing twenty-five or more fractures, no such injury was noted.

Few bones in the human body are more liable to fracture than the clavicle, forming as it does the shoulder girdle and the only bony connection between the thorax and the upper extremity. The articulation between it and the sternum is an arthroidal or gliding joint. The bone is held firmly in position by anterior, posterior, and capsular ligaments. The joint is important, as it is here that practically all the movements between the shoulder and trunk take place. Distally is the acromioclavicular articulation, which with the conoid, trapezoid, and coracoclavicular ligaments give strong support, so strong in fact that the amount of displacement when a fracture occurs in this region is comparatively slight.

Dislocation at either the sternal or acromial end

is not uncommon. When it occurs at the sternal end of the clavicle, the tendency is for the bone to slip anteriorly. Owing to the fact that the strength of the joint depends entirely on the ligaments, this dislocation is not easily held reduced, there being a constant inclination to recurrence. It is not infrequent to see patients at the dispensary with the proximal end of the clavicle very much more prominent on one side of the sternum than on the other. This projection can be easily pushed back into the normal relation, but on relaxing the pressure it at once springs out of place again. Dislocations at the distal extremity are not infrequent. The superior acromioclavicular and capsular ligaments are the ones torn and the acromion process slips under the outer end of the clavicle. There is moderate tenderness on palpation at the site of the injury. The function of the arm is temporarily much impaired. The dislocation can be reduced and so held by strong outward and upward pressure on the arm, followed by the use of adhesive straps over the shoulder, the upward pressure being maintained by the use of the second strap employed in the ordinary Sayre dressing. These adhesive straps accomplish two results, pressure downward on the outer end of the clavicle and elevation of the acromion.

Two factors are of especial importance when considering a fracture of the clavicle near its middle. The first is the weight of the upper extremity; the second is the musculature of the clavicle. When a fracture occurs in this location, the support of the shoulder having given way, it drops, on account of its own weight, downward, inward, and forward, carrying with it the outer fragment. Now comes into play that other very important item, the pull of the muscles. The deltoid has its origin from the outer third of the anterior border and upper surface of the clavicle. It tends to exaggerate the drop of the shoulder by its contraction. The sternomastoid arises from the superior border and inner surface of the inner one third of the bone. It therefore exerts an upward pull on the inner fragment. The pectoralis major begins at the anterior surface of the sternal half of the clavicle and is inserted into the outer bicipital ridge of the humerus. It not only neutralizes the action of the sternomastoid which, unless unusually strong, is made nil, but also, with the aid of the pectoralis minor and latissimus dorsi, tends to pull inward the inner end of the outer fragment. In almost all cases, the inner fragment appears to be elevated above the outer, the skin often being drawn tense over its outer end. This appearance is more apparent than real, however, and is due to the fall, down and in, of the shoulder. The serratus magnus, arising from eight ribs and inserted into the ventral aspect of the scapula, exerts upon the outer fragment a powerful action, rotating the outer end outward and the inner end backward.

Fractures of the clavicle most frequently occur near the junction of the outer and middle third. They are oblique, transverse with impaction, and greenstick. The oblique fracture is the most common. Here the deformity is much more marked than in any other type. When first seen, the patient usually supports the injured side by holding

the well hand under the elbow. There is a marked dropping of the shoulder with a shortening of the shoulder girdle; marked pain on pressure over the seat of the fracture with loss of function; the head is drawn toward the injured side to relieve, as much as possible, the muscular contraction.

On the other hand, with a transverse fracture the picture is very different. There is very little displacement. To this class of cases belong those patients who do not appear for treatment until some time, often a number of weeks, has elapsed since the injury. The reason for this lies in the fact that the ends of the fragments are splintered, and instead of slipping the outer under the inner as in the oblique fracture, become impacted. For this reason the clavicle continues to support the weight of the shoulder, and the fracture causes surprisingly little deformity or loss of function.

Three cases recently treated at the New Haven Dispensary well illustrate this type.

CASE I. Woman, aged sixty-five years, three weeks before admission fell down a flight of stairs, striking on the left shoulder. Since that time she had been unable to use the extremity. Examination showed a fracture at the middle of the left clavicle, no deformity, and a moderate callus giving a result which, if obtained with the usual surgical treatment, would be considered especially good. On elevation and depression of the shoulder, fibrous union, not bony, could be detected. There was at the point of fracture a moderate mobility, but no crepitus. The patient was able to abduct the arm on her own exertion only about twenty-five per cent. of normal. By use of passive motion, this was readily increased in a comparatively short time to over seventy-five per cent. The treatment in this case consisted simply in the effort to secure proper function. No bony union could be expected.

CASE II. This case was instructive. Italian, aged thirty years, two weeks previous to admission, fell from a tree, striking on the left shoulder. Partial loss of function followed the injury, but it was not sufficient to cause him to seek medical assistance. Examination showed a fracture at the junction of the middle and outer third of the clavicle. The callus, 3 cm. in diameter, was profuse. There was distinct crepitus on palpation, though no overriding of the fragments. An unusual feature was that function had been very little interfered with. The patient had used the extremity since the injury and was able to remove his clothes for examination without assistance. The shoulder joint was not interfered with functionally to any marked degree, as might have been expected. There was no shortening of the shoulder girdle. This patient wore the Sayre dressing for one week with great discomfort, and thought the treatment unusually severe. At the end of this time, it was removed and a band of adhesive plaster, ten cm. wide, was carried around the arm and chest after carefully protecting the axillary region with gauze pads. This was allowed to remain in place for ten days. No pain was complained of at any time during treatment. This was true, even when the pressure placed upon the fragments was considerable.

The use of adhesive plaster is a very disagreeable feature in the treatment of all these cases. In adults the zinc oxide is almost always employed; in children on account of the sensitive skin, the so called mole skin.

CASE III. This case showed how slight the symptoms may be in children, even for the oblique type. A child, aged eight years, fell three weeks before admission, causing loss of function in the left arm which the mother, a very intelligent woman, attributed to a bruise on the shoulder. On examination, fracture of the clavicle near the middle was apparent. There was overriding of the fragments and a moderate callus. The loss of function in the arm was very much more apparent than in the previous two cases, and there was considerably more pain on pressure at the site of the lesion. The treatment employed

consisted simply of a band of mole skin adhesive plaster, ten cm. wide, passed around the arm and chest.

It is astonishing how few of these fractures which occur without overriding are taken seriously by dispensary patients. Most of them are considered to be in the class with bruises or contusions. Without recognizing this class of fractures, it is undoubtedly discouraging for the surgeon carefully to set a broken clavicle and note a result far inferior to that which occurs in patients who apply for treatment several weeks after the accident.

Our greatest problem, however, is in the reduction of the oblique fractures. Here the skill of the physician is tested to the utmost. Too commonly we hear the statement made that functional results are all that we need look for, and if these are good, the deformity requires little consideration. This might be true if it applied simply to the adult male, but in women and children much overriding with its attendant shortening of the shoulder girdle and large callus, is a serious matter. Fortunately these fractures occur nearly fifty per cent. more frequently in males than in females. Scoliosis undoubtedly is a condition to which children with this narrowing of the shoulder girdle are predisposed, and scoliosis is one of the most difficult conditions to treat, if advanced.

The downward, inward, and forward displacement of the fractured clavicle has been studied since the time of Hippocrates and is still worthy of the most careful thought. It is most interesting to read the views of this noted surgeon of antiquity, and I may be pardoned if I repeat a few of them. He lived about 470 B. C. The quotations are from the chapter, *On the Articulations*, sections 14, 15, and 16, where he makes the following statements:

When a fractured clavicle is fairly broken across, it is more easily treated, but when broken obliquely, it is more difficult to manage. . . . When a fracture has recently taken place, the patients attach much importance to it, supposing the mischief greater than it really is, and the physicians bestow great pains in order that it may be properly bandaged; but in a little time the patients having no pains . . . become negligent, and the physicians finding they cannot make the parts look well, betake themselves off and are not sorry at the neglect of their patients, and in the meantime the callus is quickly formed. A deformity, however, may arise from fracture of the clavicle, and in these cases it is very great at first but by and by it becomes less. . . . And moreover, when broken, the part which is connected with the sternum flies upward, the fragment attached to the shoulder inclines downward, for it inclines much more readily with the shoulder and arm downward than upward . . . but if one will push the arm when at the sides as much as possible upward . . . it is clear that in this way it will be adjusted to the fragment of bone connected with the breast from which it was torn. . . . It is of great importance that the patient should lie in the recumbent position . . . and if some elevated substance was placed between the shoulder blades, so that the breast may be depressed as much as possible upon the two sides; and if, while another person raised the arm extended along the sides, the physician applying the palm of the hand to the head of the bone, would push it away, he would thus reduce the parts most readily to their natural position.

Hippocrates was the first to suggest this very rational line of treatment, and up to this time only modifications of his technic have been employed. This, it might be timely to remark, is also true of many procedures classed today as new in the field of surgery. The originator of not a few of these

will be surprised to find, if he investigates some of the classical textbooks on surgery, that the principles involved in his "new" method were employed by his predecessors hundreds of years before his



FIG. 1.—Sayre dressing in fractured clavicle, modified by Collins with hooks and eyes and lacing.



FIG. 2.—A different view of Fig. 1.

time. The treatment of fracture of the clavicle has proved no exception to this rule.

In looking over the files of the various medical journals, the investigator is struck by the various means suggested to hold the shoulders back and up, thus reducing the overriding of the oblique fracture. The classical dressing is the Sayre. At the New Haven Dispensary, as elsewhere, it has proved unsatisfactory for the following reasons: 1. It is very uncomfortable for the patient to wear, unbearable in fact if applied tightly enough to accomplish the desired result. 2. The backward pull of the circular adhesive strap is on the arm instead of the shoulder. 3. The circulation of the arm is obstructed. 4. The Sayre dressing cannot be adjusted. 5. The adhesive plaster, whether mole skin or zinc oxide, is very irritating to the skin,



FIG. 3.—Bellamy's dressing of fractured clavicle.



FIG. 4.—A different view of Fig. 3.

especially in children, and any means which eliminates this is a distinct advance. 6. The plaster slips on the skin and needs frequent renewals.

It should always be borne in mind, however, that the principle of the Sayre dressing is right, giving as it does a backward pull with the circular strip and an upward push with that applied over the tip of the elbow. The need is for a dressing which accomplishes this same thing in a manner which makes the splint simple to apply and easy for the patient to wear. The object of this paper is to suggest the form of treatment found most satisfactory in our experience. Seventy different methods of dealing with a fracture of the clavicle have been reported by Gurlt. A perusal of the literature of the last ten years adds another long list. Most of these are simply changes in the Sayre dressing. In order to make this adjustable, Collins, of New

York, inserts hooks and eyes in the mole skin plaster front and back, and by lacing inserted through these the desired result is accomplished. (See Figs. 1 and 2.) The greatest objection to this procedure is that it takes considerably more time to apply than the ordinary Sayre, and that in actual practice the adjustable feature has not, in the writer's hands, proved of especial benefit.

One other adhesive plaster dressing should be mentioned, and that is Bellamy's (Figs. 3 and 4). This is easily applied and, what is of especial importance, secures its pull from the shoulder instead of from the arm. Bellamy's is one of the best of the dressings of this type. Another good feature is the fact that the forearm is not retained in the uncomfortable position in which the Sayre holds



FIG. 5.—Dr. Fayette Taylor's dressing of fractured clavicle.

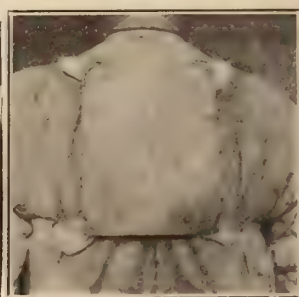


FIG. 6.—Another view of Fig. 5, showing the characteristic pad.

it, yet the upward pressure at the elbow is not lost.

The need for treating this fracture without the use of adhesive plaster has been recognized for many years. The posterior figure of eight bandage of the shoulder, using either muslin or plaster of Paris with a square pad to act as a fulcrum over the scapula region, was early tried, but with little satisfaction owing to axillary pressure. Dr. Fayette Taylor, of New York, originated, some years ago, one of the best methods for the treatment of fracture of the clavicle. This is illustrated somewhat crudely in Figs. 5 and 6 and consists of the rectangular pad posteriorly which connects anteriorly with an adjustable aluminum splint, the ends of which are on the coracoid process right and left. It is easily applied, is comfortable to wear, and is not difficult to make. The illustrations are those of an apparatus made in the surgical laboratory by



FIG. 7.—Doctor Peckham's mode of dressing in fracture of the clavicle.



FIG. 8.—The rear view of Peckham dressing.

the writer at a total expense of about one dollar. The Taylor splint bought from the instrument dealer costs twelve dollars. As it comes in two sizes, one for the child and one for the adult, the expense is considerable. These are more perfect mechanically than the one illustrated.

Peckham, of Providence, writing of this splint, says that it was only after its use that he began to get perfect results, the x ray picture showing the fragments reduced, and the measurements of the clavicles proved them to be of equal length. The slipping up of the brace and the daily attention were the objections found, accordingly this writer suggests the simple method illustrated in Figs. 7 and 8. I wish to acknowledge his kindness in sending the pattern from which the photographs were taken. It is very easily made, but must be specially fitted to each patient. As a matter of fact, a new one has been constructed for each case at the New Haven Dispensary. On this account the Taylor splint is very much more convenient.

An attempt in this article has been made to mention only really practicable methods of treatment, such as can be used in dispensary or general practice, and thus to eliminate if possible the employment of that uncomfortable dressing, adhesive plaster. The Taylor splint is the one which the writer believes best fulfils this purpose and yet really reduces the fracture, gives comfort to the patient, is easily applied, and eliminates the tendency to scoliosis in children, following the unreduced fracture with the shortened shoulder girdle on the injured side.

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1138 CHAPEL STREET.

THE INTRAVENOUS TREATMENT OF ARTHRITIC PROCESSES,

BY ALBERT COMSTOCK, M. D.,
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In presenting this article the author makes no claim to have originated the solution used, nor to the discovery of its application or value, but merely desires to state the method, believing that it is not as generally known and used as its value merits.

The intravenous method of administering medicinal agents is rightfully becoming more popular, as our appreciation of the expediency of the method in many cases is growing. By such means we are enabled, first, to get more immediate results; secondly, we can determine more accurately the doses of the drugs used; thirdly, we avoid the probability of radical changes in the drugs in their introduction to the system when given by the old method; lastly, we avoid the varied unpleasant and often detrimental action of such drugs upon the gastrointestinal tract. This last advantage is especially marked in regard to the drugs used in the solution I am about to describe.

The use of the salicylic acid derivatives and their homologues in affections of the joints, is too well known and agreed upon to require discussion. Likewise guaiacol is recommended for its diaphoretic, laxative, cholagogue, diuretic, and general circulatory stimulating action. Also we find it strongly recommended in lumbago, gout, chronic rheumatism, and sciatica. A long chain of its detrimental actions on the gastrointestinal tract is given. Sodium salicylate has a similar irritant action.

A method of exhibiting both these agents in full dose, with avoidance of all undesirable effects, and prompt therapeutic action is certainly of value. The solution I have used is the following:

℞ Sodii salicylatis, }
Guaiacolis, ... } ãã gr. 640;
Glycerini, ... }
Aque destillatis et sterilisatæ, q. s. ad.....2,000 c. c.
M. ft. mist.

N. B.: This solution must be filtered and placed in a sterile bottle, and will keep for about a week if shielded from the light.

The indications for the use of the solution are briefly these: 1. Acute articular rheumatism; 2, acute muscular rheumatism; 3, gouty arthritis, acute; 4, chronic muscular rheumatism; 5, certain cases of chronic arthritis.

The contraindications are the same as for other intravenous work: Atheromatous processes, cardiac insufficiency, nephritis, and in general acute inflammatory conditions outside of the joints. Susceptibility of the heart to salicylates is likewise a contraindication. I have used the intravenous route, however, in two cases of rheumatic endocarditis; in one the improvement was amazing, and in the other marked alleviation of the symptoms and the condition resulted. Neither patient suffered any bad results; both were suffering with joint involvement at the time.

The preparation of the patient is very simple. He omits the meal preceding the infusion, and no salicylates or aspirin are given. If pain is severe a dose of morphine may be used. I believe the effects are better when the intestinal tract is well emptied. If feasible, a soapsud enema is given about thirty minutes before the infusion, and a calomel purge, so timed as to work about three or four hours after the infusion.

Several hours before the procedure the arms are scrubbed about the elbows, in a good free space, with green soap, then with mercury bichloride, then with sterile water, and a sterile compress is applied. I have both arms prepared, as one can never be sure of getting a good vein at first.

The method of administration is that of intravenous injections in general. If the operator is sure of his technic, the ordinary Wassermann needle may be used and a direct stab made. Any seepage into the cellular tissues results in a nasty slough, therefore it is often safer to make a dissection of the vein and to use the cannula.

The usual dose for an adult is 250 c. c. After trying several different temperatures, I now use a solution warmed to 110° F. This has generally cooled down to about 100° F., the mean blood temperature, before it enters the vein. At first the solution was used somewhat cooler, with the result

that a chill occurred very often. If it is too hot, the slight delirium usually obtained is increased to quite a strong delirium.

For dissection, I generally use:

R Novocaine, ...gr. i;
Adrenaline, ...m. xl;
Salt (0.7 per cent.), ...3jss.
M. Ft. sol. Sig.: Inject m. xv as local anesthetic.

When the infusion first begins the patient reports a tingling throughout the body, and "a coal tar taste" (from the guaiacol). The face becomes congested and free perspiration begins. Then a slight delirium begins, and lasts about thirty minutes. The breath is laden with the odor of guaiacol. Chilling of the body must be rigidly avoided. The arm is dressed aseptically. If the direct stab method has been employed, a very tight bandage should be used for several hours to prevent seepage into the cellular tissues.

In acute articular rheumatism, the results are magical, relief of the pain is almost instantaneous, fever promptly subsides, and within twenty-four hours the patient generally asks to get up. In muscular rheumatism the results are not quite so prompt; sometimes a second treatment, in about two or three days, may be required. In the chronic cases, while relief is experienced in nearly all, the injection must often be repeated two or three times at intervals of three or four days before the patient can be pronounced cured.

In over fifty cases I have never seen any really bad results. The mild delirium generally lasts about fifteen minutes, after which the patient is likely to fall into a sound sleep. One or two patients experienced gastroenteritis, but recovery was prompt. Blood pressure is not markedly affected, but I have not given the treatment in cases presenting a high blood pressure.

CASE I. Young man, aged twenty-four years, gymnasium instructor, was seen March 2d. Was exposed to cold and acquired fever, with severe pain in his left ankle and right knee. When I saw him both these joints were swollen and very tender and he had a temperature of 102° F. I ordered calomel grains two in tenth grain doses, followed by Epsom salts, one ounce. The patient was given 250 c. c. of the solution and manifested the usual symptoms, the delirium lasting about thirty minutes, after which he fell into a sound sleep. He perspired very freely. Three hours later, the temperature showed a steady decrease till in twelve hours it was normal. When he awoke, in about three hours, he said the pain was very much relieved, and next day it was gone. The swelling of the joints was likewise promptly stopped. He was kept in bed for three days, on a milk and cereal diet, with no medication, after which he was discharged, cured.

CASE II. A boy, aged fifteen years, who had been subject to attacks of articular rheumatism, was first seen January 3d. He had started with his fourth attack of the trouble, and complained of cardiac palpitation and precordial pain. He had been sick five days. Examination revealed marked swelling and tenderness of the right knee and ankle, and pain in the 1st wrist. His temperature was 103° F., pulse 140. All over the heart was a rough endocardial murmur, and the action was tumultuous. Dimensions of the heart not much increased, if any. Diagnosis, acute articular rheumatism, rheumatic endocarditis.

He was given a full dose of the solution and experienced the usual symptoms. Within twelve hours the pain in the joints was practically cured; an ice cap had been applied over the precordium and the precordial pain was much relieved. The pulse rate was not markedly affected, nor was the murmur decreased. On the third day the temperature, which had been down to 100° F., rose to 104° F., and pain in the left knee was noted. The pulse

remained at about 140. A second injection was made; within twenty-four hours the temperature had fallen by lysis to 97.5° F., the pain was gone, and the pulse was down to 105. The murmur continued. The patient was kept strictly quiet in bed on a liquid diet, and the pulse gradually came down to normal, the murmur becoming less pronounced, until discharge. Six weeks after admission only a soft blowing mitral murmur was audible. Fowler's solution and protracted rest were prescribed as aftertreatment.

CASE III. Man, aged fifty years, with acute lumbago was seen January 20th. He complained of severe lumbar pain and had a temperature of 100° F. Had had numerous similar attacks every winter. He was given the usual preparatory catharsis, and a full dose of the intravenous solution. Within six hours he experienced marked relief, but complained of some pain and stiffness for two days. On the third day he was given another dose, with complete relief of all symptoms. He was discharged on the fifth day, cured.

CASE IV. Man, aged fifty years, who had suffered with chronic muscular rheumatism for six years, with exacerbations every winter, was first seen in February during such an exacerbation. He was given the usual dose, and after twelve hours was improved, but by no means cured. On the third day a second injection was made, and on the fourth day, while his pains were much improved, he felt much nauseated and vomited every hour or so for twelve hours. Then his stomach was washed, and he was given bismuth, cerium oxalate, and cocaine by mouth. This controlled his vomiting. He continued with very mild pain for about a week more, when a third injection was made. His vomiting began anew and stubbornly resisted all treatment for three days, when it gradually subsided. He reported that he felt better than he had for a long time, and was discharged much improved, but not entirely cured. His evidently was a case unable to tolerate the drugs, even by this method.

As regards the chronic rheumatic joint affections, rheumatoid arthritis, and chronic gouty arthritis, numerous patients were treated in the wards of one of our large hospitals, and while nearly all of them reported improvement, no cures can be claimed, as will be seen to be quite beyond expectation. The improvement was practically only in the subjective symptoms. Many of our cases, when treated by dietary and other eliminative procedures, plus intravenous injections, showed quite marked improvement, more in fact than I have seen from any other method.

These cases will illustrate the value of the treatment in the affections named. It does not always succeed, but I think that undoubtedly it is the most expedient and satisfactory treatment of acute articular rheumatism we have; and in muscular rheumatism, acute and chronic, properly used and combined with other therapeutic measures, it offers very marked advantages over any other one method.

I believe the cases which are best affected by the treatment are those where salicylates or aspirin have not been given. In patients who have taken these drugs, more of the intravenous solution is required, and there appears to be a tendency to gastroenteritis following the infusion. The prompt action of the remedy in combating the fever and pain, and its strong calmative action upon the endocardium recommend it for acute rheumatic endocarditis.

This solution has been used in the tuberculosis wards of one of our large city hospitals. It is given there to combat high fever and exhausting sweats, to increase hemoglobin, and to act as a general stimulant. Records show that it certainly does

all these things, as well as quiet the cough. Its antipyretic action is very marked in such cases. Unfortunately the improvement is not lasting, but it is a great boon to the patient while it does last.

The procedure is not painful to any degree, and I have not had much trouble getting the patients to undergo it. After the first injection, when they have seen how great the improvement is, they rarely manifest any unwillingness.

1169 FLATBUSH AVENUE, BROOKLYN.

LOCAL ANESTHESIA IN HERNIA OPERATIONS.*

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The field for the application of local anesthesia has been greatly broadened since the introduction of several substitutes for cocaine. This has been due to the fact that some of these substitutes have been proved, clinically and by laboratory tests, to produce less toxic effects than cocaine. The introduction of novocaine especially has been one of the greatest factors in the increased use of local anesthesia. Novocaine has the advantage of being admissible to sterilization by boiling; and being about seven times less toxic than cocaine, may be infiltrated extensively, hence its value in major operations. Aside from its advantage in all forms of minor surgery, novocaine is especially serviceable for work in the scrotal region, in operations for the radical cure of hydrocele, varicocele, etc., also orchidectomy and epididymotomy. Attention was drawn to this latter operation under novocaine in a former paper (1). I now wish to state my experience with novocaine as an anesthetic in the operation for inguinal hernia.

The radical cure of hernia outnumbers all other major operations in the marine hospitals of the Public Health Service. This probably is to be accounted for by the fact that seamen as a class, during their active service, are in the prime of life and do not come to us suffering with the various organic ills; that the strenuous occupation of the sailor acts as a factor in the production of hernia; that our hospitals care for men only; and it is known that hernia occurs more frequently among men than among women.

Until recently, inhalation anesthesia had been employed as a routine for hernia at the Marine Hospital, Stapleton, N. Y., except in cases where the physical condition of the patient was such as not to warrant the use of such anesthesia, in which case cocaine was used locally. Handicapped by the limited quantity of cocaine allowable, on account of the poisonous effects sometimes produced, other local anesthetics were employed, such as novocaine and urea and quinine hydrochloride. Following the excellent results obtained with these cocaine substitutes, the combined method of infiltration and endoneural injection anesthesia is now the procedure of choice irrespective of physical conditions.

Since Crile (2) presented to the profession his

brilliant studies in shock and anesthesia, it has been our endeavor to obtain profitable results by using some of the practical methods advanced by him, but at the same time to discard the inhalation anesthetics. In reference to local anesthesia, Crile (3) states that only in selected cases can this be used alone. "We should remember that not only the contact but the distant ceptors as well, carry the nocuous impulses to the brain, also that the preoperative psychic strain may have deleterious effects." I believe a majority of our patients represent these selected cases. We have in a great number of individuals, men whose mental and physical make-up produces the ideal for the employment of local anesthesia. Many of them are possessed of that stolidness, stoicism, and fortitude, together with excellent physiques, the characteristics of which tend to offset the usual apprehension of surgical operations. However, it has been my experience that the majority of these men show more fear of general anesthesia than of the proposed operation. With the use of suggestion and solacing drugs, and with a careful technic in infiltration anesthesia, we endeavor to eliminate harmful impressions and thus overcome psychic strain. It has been stated (4) that the injury stimuli of an operation under inhalation anesthesia exhaust the cells of the brain to nearly the same degree as an operation without an anesthetic. It seems, therefore, that the main function of inhalation anesthesia is that of an agent for the inhibition of emotional fear and for the retardation of psychic disturbances. Now if by suggestion, plus the proper preoperative environment and use of solacing drugs, we can control these psychic disturbances, we may by the proper technic in nerve blocking, cut off the impulses of traumatism and thus save the brain cells from exhaustion.

Ether has certain advantages, but where it is possible to dispense with its use, the objectionable points far outweigh the advantages. Against ether stands the production of psychic stress in the first stage of the anesthesia; the postoperative vomiting and nausea with subsequent strain on the abdominal muscles, a condition which we especially wish to avoid in hernia; the possible production of nephritis and pneumonia frequently seen in alcoholics where the quantity of ether consumed is usually excessive. Hence in our practice ether is especially objectionable, when we consider that many of our patients are thoroughly used to the effects of alcohol and not a few are chronic alcoholics.

Chloroform is objectionable owing to its production of a high mortality from the uncertainty of its action. It makes no difference whether chloroform produces death by the failure of the respiration, by failure of the heart directly, or by its action on the vasomotor system; suffice it to say that chloroform is a dangerous agent, even in the hands of the most skilled anesthetist. We know the consensus of the highest authorities in regard to chloroform. It should therefore be used only in an exigency, such as is caused by military practice, certain pathological states, and peculiar climatic conditions.

As referred to above, I have learned that the one great fear of the sailor about to undergo an operation, is the thought of general anesthesia. This fear

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is soon eliminated by informing the patient of the simplicity of the operation and its absolute painlessness under local anesthesia, which is explained in detail. We at once gain confidence. If possible, patients who have previously been operated upon are allowed to converse with the prospective operative subject, telling of their experience and thus reassuring him. To the surgeon accustomed to the sparing use of cocaine, it is surprising how simple and painless hernia operations become with the generous use of novocaine combined with epinephrine. This combination, when properly infiltrated, produces a painless and almost bloodless operation free from all toxic effects. Having had the patient properly prepared, on the following morning he is given hypodermically one quarter grain morphine sulphate one hour before the operation. About one half hour afterward, at the bedside of the patient, the area in the line of the proposed incision is infiltrated with one per cent. novocaine solution. This is used generously in the skin and subcutaneous tissue. After a wait of about twenty minutes the patient is taken to the operating room. Throughout the operation he is engaged in conversation on timely topics by an assistant, in order to divert his mind from the routine of the operating room, thereby producing a condition of contented calm and preventing the formation of noxious impressions.

Technic. In the case of an ordinary inguinal hernia, having determined the length of the incision, the anesthesia needle is applied about one half inch above the termination of the incision, and the subcutaneous tissue is then infiltrated the entire length of the proposed incision. The needle is now pushed deeply in, and the abdominal coverings are thoroughly injected with the fluid. The needle is next inserted just below the external ring and then, as it is pushed downward, the tissues around the cord with the ilioinguinal nerve are anesthetized. Some advise a wait of only a few minutes between anesthetization and operation. I believe, however, that by delaying the operation for at least twenty minutes, a much more bloodless field is produced. In fact, I have found it rarely necessary to apply hemostats to the superficial veins after making the incision. The incision can now be made directly down to the external oblique, the grooved director inserted, and the aponeurosis split with no sign or complaint of pain. After reflection of the aponeurosis, the iliohypogastric and the ilioinguinal nerves are seen lying upon the internal oblique. A few drops of the novocaine solution are now injected into these nerves as high as possible, which anesthetizes that tissue supplied by them below. The cord may now be handled with impunity, the sac stripped, transfixed, and excised. The deep sutures are now passed, the cord is transplanted, and the operation is completed. If it is necessary to excise any omentum, this may be done without pain by injecting some novocaine into the omentum after the catgut sutures have been passed and just before tying it off. I have found that the anesthetic effect of novocaine, when combined with epinephrine, will last about two hours and that there are rarely any complaints of postoperative pain.

With the technic herein described, it is noted that

with the administration of morphine before and after the operation, and the thorough infiltration of the operative field, postoperative pain is rarely complained of; rise of temperature is practically nil; retention of urine and distention of intestines are not observed as in ether administration; that vomiting and nausea with consequent strain on the abdominal muscles are absent, which perhaps exerts good influence on the end result; that there developed no postoperative pneumonia, nor nephritis. In a series of thirty-five cases of inguinal hernia, only one case was encountered in which local anesthesia failed. This patient was of that effeminate, nervous, hysterical type sometimes found in men.

In conclusion, I am led to believe that inhalation anesthesia can be eliminated in nearly all cases of hernia, and that local anesthesia combined with suggestion and solacing drugs is the procedure of choice. For the production of ideal local anesthesia, with its perfect operative results, certain requisites are necessary. The operator must have a concise knowledge of the anatomy of the region; the area of infiltration must be sufficiently large; all tissues must be cut with exceedingly sharp instruments and handled with due gentleness and care; above all, the operator should endeavor to retain patience, sympathy, and gentleness at all times.

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URINARY FINDINGS IN VARIOUS PATHOLOGICAL CONDITIONS OF THE ALIMENTARY CANAL.

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The specific gravity of the urine is of little or no diagnostic value in conditions of alimentary derangement. Frequently I have found a wide divergence in the density of the urine, where there were no pathological evidences. In a recent case of simple gastric catarrh the specific gravity was as low as 1.008, and it is not infrequent to find it as high as 1.030, with no albumin nor sugar. Many urines are so loaded with inorganic salts from medication that their density is affected.

Transitory albuminuria is very frequent in most conditions of alimentary derangement. Recently I observed eight cases in which traces of albumin were present on the primary examination, and disappeared in subsequent examinations.

To some extent the activity of the peptic digestion is reflected in the urine, that is, the urine itself presents increased by products. A diminution of these by products in the urine may be attributed to a faulty gastric secretion. Various diseases of the stomach result in a lessened acidity. This applies more particularly to those diseases which are accompanied by a diminished secretion of acid. It is found in cases of marked atony of the stomach and in advanced malignancy when the urine approaches alkalinity. In the latter condition it is due rather to the retention of the chlorides than the absence of the acid in the gastric secretion. On the other hand, in catarrhal conditions, especially where the in-

testines are affected, the acidity is increased, owing to the greater percentage of ether sulphates than staple sulphates. However, the recent ingestion of mineral salts may counteract these unsatisfied sulphates and instead we may find actual alkalinity. Epsom salts have neutralized the acidity of the urine within a half hour in a recent case.

Indican is a constant finding in all cases of alimentary disturbance. It is of little or no pathological significance, being physiological rather than pathological, except when found in excessive quantities.

Indoxyl was found in a recent case of hemorrhage of the small intestines with marked putrefaction. It disappeared readily upon the administration of alimentary disinfectants.

As a rule the urea is increased in all catarrhal affections of the alimentary canal, but with involvement of the hepatic functions this is frequently modified. Gilbert and Castaigne found in a number of the cases complicated with hepatic colic, a diminution of the urea. Castaigne cites a case of hepatic colic where he found as low as seven grams in the urine of twenty-four hours. This may account for the stupor of autointoxication found frequently in this class of cases.

Glycosuria lasting from five to seven days was observed in four of my cases, where the clinical diagnosis was made of gastric ectasia. In two of these cases the indican persisted after the glycosuria had ceased. Doctor Bergenthal reports six cases out of twenty cases of alimentary origin with gallstones in which glycosuria existed temporarily. Doctor Exner, of Vienna, declares that sugar was found in thirty-nine of his cases out of forty in which gallstones were present. There is reason to believe in cases of cirrhosis of liver with glycosuria, that the presence of the sugar is due rather to the diminished ability of the liver to assimilate the sugar than to the direct action of the alcohol upon the hepatic parenchyma. It is found that the glycosuria will persist after the indulgence in alcohol is prevented. Frequently under hepatic stimulation from massage to this organ and hydrotherapeutic agents internally, it completely disappears, proving clinically that the origin of the glycosuria was the hepatic inactivity.

Strauss, of Prague, administered to twenty-eight patients with cirrhotic conditions, and to fifty-eight with no ailment of the liver, a hundred grams of levulose, with the result that ninety per cent. of the former and only ten per cent. of the latter presented glycosuria. Landsberg, on the other hand, denies that there is any relation in these cases with the condition of the hepatic cells, and that it frequently occurs in people with healthy livers, and cites eight cases in which hepatic involvement was present, and no glycosuria was evident.

Surprisingly slight changes are found in the urine in most malignant conditions of the stomach and liver: Richter, of Berlin, found in from seventy-two to eighty-nine per cent. of cases of malignancy of the alimentary tract and of the liver, few or no abnormalities in the urine. A recent case of mine, which presented a wide infiltration of the liver, pylorus, fundus, and generally throughout the abdominal tract, presented scarcely any alteration in the urinary contents. Beyond a diminution of urea

and increased ammoniated nitrogen, nothing was found.

The diagnostic value of urinary analysis in uncomplicated cases of alimentary disease is but slight. To differentiate the assertions of the patients, however, it is of greatest value. The experiences of the sufferer in all cases of autointoxication, whether from alimentary, hepatic or renal intoxication, largely simulate one another, and it is of utmost importance that we discriminate between these diseases.

2321 CAMBRELLING AVENUE.

INTRACRANIAL DISEASES FROM THE EAR.

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The winter of 1913-14 was attended by more suffering from ear disease than any previous one in recent years. The causative factors were the continued inclemency of the weather and the unusual activity of influenza. The gripe is more inimical to the ear than any other infection of common occurrence. Scarlet fever is more destructive to the hearing than gripe, but it is not nearly so perilous.

Nearly all dangerous diseases of the ear can be traced to an infection that started weeks, or perhaps months or even years, before the condition became serious. Necrosis of the inner table of the skull is found in nearly all these cases, and this is preceded by destruction of the mucoperiosteum of the middle ear, a thing that takes time. A dormant suppuration may have been present in the ear for a long time. An attack of gripe fans the smoldering fire into an active flame and a general conflagration ensues. It is not during the height of the gripe that the cranial cavity is invaded, but during its decline, when the strength of the sufferer is spent and the virulence of the infection is greatest.

The starting point of practically all ear affections is the nose. Experiments show that bacteria in the nose cannot infect the middle ear as long as the Eustachian tubes are normal. The moment the tubes become diseased, however, they lose their protective power over the ear and bacterial invasion follows. Adenoids and diseased tonsils in children, and turbinate disorders in adults are the diseases that usually destroy the integrity of the Eustachian tubes. The nasal douche is also responsible for many infections of the middle ear.

A history of a former ear affection can be elicited in most cases of intracranial disease. In many instances suppuration is known to have existed for a long time, but frequently the discharge has been so slight that it has been overlooked. Many people have a mild aural discharge, which dries up as soon as it becomes exposed to the air, the resulting crust being mistaken for hard wax. A long continued mild discharge is often a serious condition, since like a small stream of water, its course can be readily deflected. The leak may represent the gradual destruction of an immense amount of bone. Providing the product of suppuration has a ready exit, no

harm results except as to the hearing, but as soon as its escape is impeded, trouble ensues.

The popular belief that it is perilous to check a running ear is based on the knowledge that the sudden cessation of an active discharge is often attended by dire results. It is the practice of some physicians to fill the ear with boric acid or tannic acid. The objection to the method is that the moisture is apt to convert the powder into a hard lump, which may dam back the pus with alarming results. Exuberant granulations or adhesions in the middle ear, or too small an opening in the drum head also may aid in the suppression of the discharge. In the case of a cholesteatomatous formation, the sodden epidermis is the obstructing thing. A small perforation in the upper part of the drum head is always to be feared. Its position is indicative of attic necrosis and the attic is close to the brain.

Ear disease may be the cause of death in three ways: From brain abscess, from sinus thrombosis, and from meningitis. In many instances meningitis coexists with brain abscess and with sinus thrombosis. Sometimes all three conditions are present. Meningitis is much more dangerous than either of the other conditions.

Infection may reach the interior of the skull in various ways. It may travel by direct continuity or bone destruction. It may follow preformed channels in the bone, such as afford passage for vessels and nerves. It may follow the windings of the labyrinth or be conveyed by the lymphatic or vascular channels that freely intermingle with the structures beneath.

In most long continued mastoid suppurations, the cancellous bone has been absorbed and has been replaced with deposits of lime salts, which give to the bone the hardness of ivory. Occasionally the suppuration destroys all the bone, leaving a cavity within the mastoid process. This is a common occurrence in children and is thought to be due to the presence of the tubercle bacillus. It can be readily understood that when the mastoid cortex is made up of dense bone, the suppression of a suppurative process will force it to take another route, at the point of least resistance. This may lead within the skull. The two most vulnerable parts of the skull are at the tympanic roof and at the base of the squama. The thin plate of bone that separates the middle ear from the temporosphenoidal lobe of the brain is easily eroded by an active septic infection. In young children the roof of the middle ear is separated from the brain by nothing more than a fibrous membrane. The other vulnerable point, the base of the squama, is the place where the erosion usually occurs that leads to sinus thrombosis and to cerebellar abscess.

A brain abscess may occur at any age. It is most commonly met between the ages of ten and thirty years, more rarely between thirty and sixty. There is usually but one abscess. It is encapsulated and varies in size from that of a filbert to that of a lemon. Multiple abscesses, when they occur, are smaller. Although the abscess capsule offers but scant resistance to direct pressure, it prevents the spread of the infection. A brain abscess is capable of undergoing resolution in the same way as a tuber-

culous deposit in the lungs. Autopsies sometimes reveal a brain abscess which has existed for years without giving trouble. A brain abscess may cause death in a number of ways; by infecting the meninges, by invading the ventricles, or by pressing upon and paralyzing one of the vital centres of the brain.

A pus collection within the skull is generally found near the site of infection. Thus a cerebral abscess is usually found near the roof of the middle ear. A cerebellar abscess is a rare occurrence. It may come from the labyrinth or from near the base of the squama. Sinus thrombosis is found on the right side owing to the proximity of the antrum and the sinus, much oftener than on the left. It seldom occurs before the age of ten years. In early life the squamal suture is not yet united nor are the mastoid cells, other than the antrum, developed. Consequently a mastoid infection meets no resistance as it forces its way to the outer world. The sigmoid sinus becomes infected much more readily than the lateral, because it is nearer to the antrum.

It requires a virulent infecting organism, such as the streptococcus, to produce sinus disease. Directly a sinus becomes infected, the reparative process of nature causes fibrin to be collected from the blood and deposited at the seat of disease. Often there is an epidural abscess at this point. Successive layers of fibrin finally occlude the vein and shut off the blood current. The infected thrombus is joined above and below by noninfected thrombi. The mere obliteration of a sinus is not in itself a source of peril. The danger comes when the clot disintegrates and septic particles are swept into the general circulation. Either they give rise to septic intoxication—evinced by chills and abrupt changes in the temperature—or they lead to metastatic abscesses, the seriousness of which depends upon the organ in which they lodge.

The initial symptoms of intracranial diseases are obscure and misleading. The same symptoms are sometimes observed in uncomplicated mastoiditis and even in diseases not connected with the ear. It is only by a careful analysis of the symptoms that a fairly trustworthy diagnosis can be made. In these diseases there must be quick action. To wait until typical symptoms assert themselves, is to court disaster. More than half the cases of intracranial disease improve through an operation; unoperated on, practically all end fatally.

When a diseased ear suddenly stops discharging, and there occur headache, restlessness, and fever, the assumption is that the suppuration has been diverted to the interior of the skull. The temperature chart is unreliable in the beginning. A little later, brain abscess gives a low temperature, meningitis and thrombosis a high one. When more than one disease exists at one time, the temperature chart is likely to be puzzling. Chills and sudden remissions of temperature are certainly significant of sinus thrombosis, still, these symptoms are apt to be present in other septic conditions. There is a possibility of a coexisting pulmonary affection, say acute tuberculosis or pneumonia, or there may be a general toxemia, such as typhoid or malaria. An examination of the blood and of the sputum may be required to decide this point. A blood count may

be of service at this time, not so much for the purpose of ascertaining the leucocytosis as for the determination of the polynuclear percentage. More than eighty per cent. of polynuclears is proof that sepsis is present and that relief is urgently needed.

A constant and distressing symptom of all intracranial involvements is nocturnal headache. It is more severe than the headache of mastoiditis. It is so tormenting that many patients grasp the head even when they are unconscious. When the dull pain of mastoiditis suddenly changes to a violent one sided headache, the chances are that the disease has entered the cranium. The headache is the result of the accumulating cerebrospinal fluid, which is increased in all cerebral disturbances. Rapid emaciation from disturbed metabolism is another early and constant symptom of these troubles. Mental irritability and a decided change in disposition are usually observed. Nausea and vomiting may accompany any form of intracranial disease, from disturbance of the gastric portion of the vagus. When these symptoms occur late in the disease, they point to cerebral abscess. Attacks of vertigo are common, from labyrinthine irritation. Percussion and pressure over the skull are painful, especially in cerebral abscess. These symptoms are unreliable in infants and in the aged. The former are unable to give trustworthy testimony as to pain, and the latter may not feel the pain owing to the density of the bone. Intestinal toxemia begins early, from disturbed metabolism. At first constipation is the rule, as in most febrile disorders, but when pyemia sets in, Nature tries to throw off the poison and septic diarrhea follows.

In these diseases a high temperature is usually accompanied by a rapid pulse and hurried respiration, but when the temperature falls, the pulse and respiration do not abate proportionally. The other symptoms, however, are eased and frequently during the lull we entertain hopes that the worst is over, but our hopes are dissipated with the next relapse.

At this time lumbar puncture may be useful as a means of diagnosis. Normal cerebrospinal fluid is clear and sterile and has a specific gravity of 1001. It has a pressure of six mm. Hg. and 100 mm. of water. It contains just a trace of albumin. If the fluid deviates from any of these requirements, it is pathological and is indicative of meningitis. Every diseased state of the meninges is accompanied by an augmented amount of cerebrospinal fluid, the increased pressure of which disturbs the functions of the vasomotor, the respiratory, and the cardiac centres in the brain. The withdrawal of cerebrospinal fluid for the relief of pressure symptoms is of no lasting benefit. Twenty minutes later the fluid is replenished.

Meningitis from aural disease occurs oftener than is suspected. What is often thought to be epidemic cerebrospinal meningitis and tuberculous meningitis in children is, in reality, suppurative meningitis from the ear. Fully fifty per cent. of patients with labyrinthine suppuration succumb to meningitis. As soon as the meninges become infected, the disease travels rapidly, invading the arachnoid membrane until the whole of this delicate structure is

involved, including its ramifications in the spinal canal.

The moment meningitis is added to intracranial disease, the case assumes a hopeless aspect. A new set of symptoms appears. Headache is no longer localized, but becomes general and more severe. There are signs of mental excitation, such as restlessness, photophobia, head noises, delirium, and insomnia. There are frequent attacks of retching and vomiting, not dependent upon the taking of food. There is rigidity of the neck and limbs. This stiffness belongs to the same class of symptoms as trismus, grinding of the teeth, and spastic contraction of the abdominal muscles, which gives the sunken abdomen. The surface of the body is flushed and hypersensitive. Optical disturbances are the rule, such as optic neuritis, nystagmus, and squint. The temperature is high, but not excessively so. The pulse is small and rapid, the respirations are shallow and fast. Exhaustion soon sets in, and the patient collapses and becomes dull and stupid. Convulsions are apt to follow, at first regional, then general. Paralysis of one of the vital centres finally closes the scene.

The points upon which a diagnosis of brain abscess is made, are vague and uncertain. The localization of the abscess is still more difficult. In the beginning, the temperature is high. It soon declines to normal or lower, and remains low. The pulse is rapid at first, then as the intracranial pressure is raised, it becomes slow and full—the cerebral pulse. As the patient loses strength, the pulse becomes weak and irregular. The respiration is in keeping with the pulse. Ocular disorders are usually present in the form of optic neuritis and nystagmus. Vomiting is severe and persistent, particularly in the later stage. The cerebral pressure causes drowsiness and dull cerebration. Answers to questions come slowly and in monosyllables. There is apt to be a confusion of ideas. The mental deterioration gradually passes into coma. Convulsive movements are frequently observed. Often they precede an attack of regional paralysis. When the internal capsule is invaded, hemiplegia usually terminates the picture. The symptoms of cerebellar abscess are more obscure even than those of temporo-sphenoidal abscess. They are similar to those of brain abscess. The pain, however, is greatest in the occiput and dizziness and vomiting are pronounced features.

The diagnosis of sinus thrombosis is made principally through the temperature record. Following a severe chill, the temperature suddenly drops from 105° F. or so to normal or lower. The pulse is rapid, even when the temperature is low. It gradually becomes weaker from exhaustion. The respirations are in keeping with the pulse, rapid. Although the mind may be clear in the interval of febrile quiescence, the face wears the worried and haggard look that indicates septic infection. The head is drawn to the diseased side and there is a dull, throbbing pain in the side of the head. The neck is not rigid as it is in meningitis, but sore and tender from the infected lymph nodes. Occasionally a swollen line marks the course of the jugular vein. Dysphagia and vomiting are likely to be early symptoms

of sinus thrombosis. Close inspection usually reveals some edema behind the mastoid process, at the point where the emissary vein leaves the sinus—Griesinger's symptom. Sometimes there is edema of the eyelids and of other parts of the head cared for by tributaries of the internal jugular vein.

TREATMENT.

No uniform procedure can be urged for all intracranial diseases. They are extremely grave disorders, and the only chance of recovery is through operation. Practically all the cases that are not operated in are fatal. Of those that have a timely operation more than fifty per cent. end in recovery.

Intracranial complications would be extremely rare if patients received the benefit of the three cardinal measures in aural surgery. The first is the early and free incision of the bulging drum head, under an anesthetic. The second is the removal of nasal anomalies as soon as the ear trouble has passed off. The third is the performance of the mastoid operation as soon as indications call for it. Mastoid disease is a desperate condition and it must be attacked boldly. To resort to half way measures, such as leeching or using the Wilde incision, is unjustifiable. To wait for symptoms of cerebral irritation to appear before operating is to court disaster. Inasmuch as the infecting focus is in the ear, the removal of this focus should be our first consideration, special attention being given to the regions of the mastoid bone through which infection is most likely to attack the brain or the sinus. It is common, when operating for mastoiditis, to discover an epidural and or even a subdural abscess, that gave no symptoms, but which would in time most likely have proved fatal.

Frequently a mastoid operation will remove all signs of a deeper disturbance for a time, when suddenly the symptoms reappear. At the same time the wound becomes hot and dry and the granulations become gray and edematous. A wet dressing by re-establishing drainage often causes the symptoms to disappear. If it fails to do so, further search for disease is in order. The operation for the relief of intracranial disease should be done quickly. The patients are generally prostrated and they bear anesthetics and manipulation badly. The use of the chisel should be avoided, if possible, lest the jarring increase the meningeal irritation or perhaps cause the capsule of an abscess to rupture.

Search for a brain abscess should be made by extending the mastoid incision upward and removing the bone over the temperosphenoidal lobe. This is better than following the mastoid cells up to the tympanic roof and entering the brain at this point. The open operation has the advantages of giving a clearer field and of preventing infection of healthy brain tissue. Carious bone is generally found at the place where the infection enters the skull. Occasionally a brain abscess can be located by the appearance of the dura over the point of invasion. It is deeply injected. Sometimes a fistula leads up to the lesion. If healthy granulations are seen upon the dura, it is pretty good evidence that the disease has been arrested at that point. Further search for a brain abscess may be made by means of deep incisions into the brain tissue. The incisions should

be amply drained. Search for a cerebellar abscess may be made by removing the bone in a backward direction, until the cerebellum is reached.

In the course of a mastoid operation, before proceeding to inspect the sinuses, the rest of the operation should be completed. Unless this is done, accidental injury of a sinus may flood the wound and cause further operating to be deferred. Carious bone upon a sinus should be carefully raised lest it cause injury. At least an inch of the dura should be uncovered for free inspection of the sinus. The part to be explored first is that behind the mastoid tip. The dura over a diseased sinus is dark blue. The presence of granulations is encouraging. They are not to be disturbed. They represent the barrier that Nature has thrown out between the infection and the blood current. It used to be the practice to test the fluidity of a sinus by means of an aspirating needle. The method has serious objections. It has been supplanted by the more surgical way of making a clean incision into the sinus. Profuse bleeding is probable proof that there is no thrombus. Iodoform gauze firmly pressed against the opening stops the bleeding. If a clot is found, the incision should be enlarged so that it can be removed from both directions of the sinus. It may be necessary to follow the thrombus up beyond the lateral sinus or down to the jugular bulb before the sinus is free. It is best not to pursue the thrombus further until another time; the shock is too great. Frequently the removal of a sinus thrombus is sufficient to arrest the disease in the jugular vein. That failing, the internal jugular vein should be tied as low down in the neck as possible, and with its principle branches it should be slit open if thrombosed. Copious rectal injections of saline solution should be given immediately after a sinus operation, to lessen the shock and to help replenish the fluid that has been lost.

128 EAST THIRTY-FOURTH STREET.

THE TECHNIC OF VACCINATION.

BY BURKE DIEFENDORF, M. D.,
Canajoharie, N. Y.

A procedure so simple would scarcely warrant our attention; but in view of the fact that there is always great danger of infection, and the reflection which it is apt to cast upon the medical profession, it is our duty to give our patients and ourselves the greatest possible security.

To my mind, the greatest source of infection is during the process of scarification. No matter how thoroughly the skin is prepared, it is easy to contaminate it. Our idea that vaccination is "so simple" leads to this, and we forget the ease of infection, consequently a sore arm ensues.

I will outline my method of procedure, which I have found very satisfactory. I do not trust to the quill or needle for scarification, but have perfected a little instrument, which in my hand acts admirably. I secured a small solid metal screwdriver, having an edge of about 0.4 cm. in width; then with a small file I cut several notches into it.

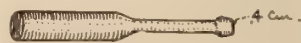


FIG.—Scarifier.

Procedure:

1. Wash arm with tincture of green soap and water.
2. Scrub with alcohol, using a sterile bit of gauze.
3. Scrub with ether, using a sterile bit of gauze.
4. Hold point of scarifier in the flame of alcohol lamp or gas burner for half a minute, allow to cool, then with a rotary motion between the index finger and the thumb, a perfectly round scarification is made at the insertion of the deltoid muscle. (I prefer the arm to the leg.)
5. Rub vaccine well into scarification with sterile instrument or quill.
6. Cover with sterile bits of gauze and fasten with adhesive plaster; this protects from dirt and allows air to permeate.

By this method a perfectly round scar is produced, the procedure is easy with scarcely any pain to the patient, and the danger of secondary infection is reduced to a minimum.

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLII.—How do you treat bedsores? (Closed.)

CLIII.—What has been your experience with condensed milk as a substitute for the mother's milk? (Answers due not later than December 31st.)

CLIV.—How do you treat prostatitis? (Answers due not later than January 15, 1915.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best essay submitted in answer to Question CLII was awarded to Dr. Maxwell S. Simpson, of Titusville, N. J., whose article appears below.

PRIZE QUESTION NO. CLII.

THE TREATMENT OF WHOOPING COUGH.

BY MAXWELL S. SIMPSON, M. D.,
Titusville, N. J.

There is no infallible remedy for whooping cough! "We can alleviate, we can palliate, and we can prevent." The treatments advocated have been founded upon the supposed nervous origin of the disease, and upon the theory of infection, with many empirical remedies added thereto. It has been considered as simply a neurosis, as a bronchial catarrh with associated nervous disturbance, as a bronchial catarrh with glandular enlargement exerting an irritating pressure upon the pneumogastric nerve due to infection, and as a germ whose habitat is the respiratory mucous membrane.

It is the purpose of the writer to base the following essay upon an analysis of 300 late consecutive cases coming under his direct observation. Of these cases it is noted that antispasmodics entered, more or less, into all internal medication. The vaccine treatment is credited with but nine cases, and these will be referred to as a separate class. In these cases, and it is always good practice, a record was kept of the number and character of the paroxysms as an index of the result of treatment.

Antipyrine was most successfully employed of all the antispasmodics used. Its value is beyond question. Children stand it surprisingly well, take it readily, and no bad results were noted, not even depression. The initial dose, in each instance, was small. One grain, increased to three grains, at three hour intervals, was given to a two year old patient.

℞ Antipyrini, ...grs. xvj;
Sodii bromidi, ...grs. xxx;
Syrupi rubri idæi, ...f5v;
Aquæ, q. s. ad.....f3ij.

Solve et ft. mist. Sig.: One teaspoonful, in water, every two hours.

For a two year old patient.

One grain to each year, with a maximum of five grains may be administered. Its value was found to be enhanced, especially if there was a tendency to convulsion, by combining it with sodium bromide. The mixture should be given with plenty of water, or on a full stomach. Digitalis may be added if there is reason to protect the heart, yet the heart suffers little through whooping cough *per se*. It is not followed by structural change. Phenacetin will act sometimes when antipyrine fails, and should be tried or used alternately.

Bromoform was used in eighty cases.

℞ Bromoformi, ...gttxvj;
Glycerini, ...f3jss;
Tincturæ cardamomi compositæ, { āā f3ij.
Alcoholis, ... }

M. Sig.: A teaspoonful every two hours until four doses are taken. Keep well stoppered, in a cool place, and shake when used.

For a two year old patient.

In thirty improvement was rapid, the severity of the paroxysm was relieved, and the number lessened. The best result was obtained when it was increased to tolerance. If toxic symptoms were suspected, caffeine citrate was added, or strong coffee given at regular intervals during its administration. Four doses of one drop each at two hour intervals were given a two year old child. This was followed by the same dose, not oftener than two hours, as needed. Larger doses produced a dull, stupid condition with no greater benefit. Several cases failed of relief, and the remedy was changed at once to antipyrine, with invariably good results.

In twenty-two cases belladonna was used, giving as an initial dose two drops of the tincture of the fresh leaf to a two year child, every two hours to physiological effect. This influence was then maintained by administering at longer intervals. A solution of the neutral sulphate of atropine—one to 1,000—may be used, beginning with two drops and increasing to six drops. Belladonna was used on account of profuse bronchial secretion, and with good effect, but in no way did it lessen the number of paroxysms or shorten the time of the disease.

Quinine does its best work in the presence of

malaria. In a malarial region it should be used with other remedies regardless of the evidence of a malarial complication. Give it suspended (syrup of yerba santa) or in a solution, but large doses disturb digestion and this must be reckoned with.

Cough from the onset does not depend upon bronchial catarrh alone, but on the peculiar nervous character of the disease, and when cough is so troublesome that wakefulness results, it becomes dangerous, and must have attention independent of other conditions. Chloral yielded best results, especially when added to the bromides, using then the bromide of ammonium. Two to four grains were given to a two year old child at bedtime. When administered during daytime it exerted an influence, but was too depressing. In a few very severe cases codeine was given in one tenth grain doses at bedtime, and repeated not oftener than twice in the night. Opium was avoided as much as possible. Heroine is more dangerous than morphine, dionin is safer, and was employed—one sixtieth grain for a two year old patient—with much satisfaction.

In severe paroxysms of coughing and vomiting where remedies, for one reason or another, did not control, the belt devised by Doctor Kilmer was used with decidedly good results. It was made of linen with elastic side insets, and eyelets at the back for lacing, and was applied over the nethermost garment and laced firmly. Children old enough to appreciate it asked for its use.

If vomiting is controlled and the patient can get the required amount of sleep, much is accomplished. A solution of cocaine (five per cent.) painted over the pharynx was of advantage, but it is dangerous sometimes and must be used carefully. At times one tenth grain cocaine or one tenth grain menthol by the stomach did well.

Hygienic care throughout the attack is of vital importance. Air laden with carbon dioxide brings on the cough paroxysm. The air of the room must undergo constant change night and day, and remain at a temperature of 68° to 70° F., and at the same time the supersensitive mucous membrane must be protected to avoid a complication of bronchopneumonia. It is well to use two rooms and to warm and ventilate one while the other is in use. In winter it is best to confine the patient to the house the greater part of the time. The pine air of the mountains and the ozone of the sea are recognized as beneficial. The child must sleep alone and use separate dishes and utensils. All expectoration must be destroyed with a one to 2,000 mercury bichloride solution.

The diet of children under two years of age should be fluid, nutritious, and frequently administered; milk with lime water, or carbonated water, or peptonized, broths, albumin or barley water, predigested liquid beef. For children over two years old, if vomiting is not severe, semifluid foods, or easily digested solid food, may be used; kumyss, custards, barley, oatmeal, junket. If the meal is vomited it may be repeated after a short interval. Alcohol is sometimes demanded, and may be given with liquid beef peptonoids, or as a panopeptic milk punch, egg nog, sherry and albumin water.

The bowel action requires attention. All mucous membranes are affected. There are indigestion,

abdominal distention, a constant tendency to emesis, a "mucous discharge." If the dejections are excessive the bowel should be washed from time to time with a warm normal salt solution, and bismuth administered.

The clothing should at all times accord with the atmospheric temperature and humidity.

The complications of whooping cough are many and largely increase its fatality. The most fatal in cold, damp seasons is bronchopneumonia; in hot weather, gastroenteritis. Complications connected with the respiratory tract are the most prominent—bronchitis, atelectasis especially in younger subjects, or bronchopneumonia as a result of the attending atelectasis is most common and dangerous. Serious epistaxis, cerebral hemorrhage, heart strain, hernias or convulsions may result from the paroxysm. Convulsions are not frequent, but often fatal when they do occur.

Whooping cough may be associated with other infectious diseases, but is especially likely to be found with measles. The atelectasis of an accompanying bronchopneumonia is best relieved by inhalations of steam. Turpentine, terpene, creosote, carbolic acid, and resorcin are added, but plain steam gives relief to the cyanotic condition just as well. Use the inhalations ten minutes each hour.

Children of tuberculous or syphilitic diathesis, or with a profound anemia or rhachitis, must receive treatment in accordance with this condition. In tuberculous cases it is well to add two to five drops of creosote carbonate in milk three times each day, or beechwood creosote may be used.

The nine cases in which pertussis vaccine was used showed a positive decrease in the number and severity of the paroxysms, and a complete cessation in vomiting, and in one case of unusual severity cyanosis disappeared rapidly and the spasmodic coughing dwindled to that of ordinary bronchitis. The disease was so modified that the course seemed shortened. In a two year old child, in the second stage, with the whoop well developed, 0.5 c. c. (50,000,000 bacilli per c. c.) was injected in the interscapular region. During the following twenty-four hours the symptoms were aggravated; in the next twenty-four hours the cough diminished. On the third and fifth days the injection was repeated with decided and continuous improvement. In ten days the cough had ceased. The whoop of habit was noticed, however, at intervals during the following six months.

In future cases the writer will use the vaccine treatment whenever available, supplementing this with symptomatic treatment when needed. All effort will be made to allay irritation, to prevent complications, to provide an equable, purified atmosphere, proper clothing, plain nourishing food; to endeavor to keep the bronchial tubes free of mucus, to be prepared to deal with patients of neurotic tendency or idiosyncrasy.

Dr. George Schuyler Bangert, of East Orange, N. J., states:

Pertussis is a self limited contagious disease caused by the bacillus of Bordet-Gengou and therefore our endeavor should be, 1, to prevent the spread; 2, diminish the amount of severity of the

symptoms; 3, prevent or treat complications; 4, observe proper hygienic rules; 5, care for the diet; 6, preserve proper mental balance; 7, judicious use of medicine.

Under 1, comes the question of prophylaxis. The disease being contagious, our first aim is to prevent a spread in the community and this is accomplished by isolation of the patient from other children. This quarantine should be observed for six weeks. If a large community is threatened with the disease, the use of vaccines is in order, the most efficacious being a polyvalent vaccine of typical Bordet-Gengou bacillus.

Under 2, our object is to make the symptoms as mild as possible. When the catarrh of the mucous membrane of the respiratory tract becomes very marked the use of inhalations of steam laden with creosote, or phenol, gives much relief. Again, when convulsions are pending, the use of chloroform is indicated. The number of paroxysms may be reduced by the use of quinine lactate in physiological salt solution and injecting 2.5 c. c. intravenously or using the neutral hydrobromide of quinine either intravenously or into the muscle; it tends to allay the spasmodic cough. The old method of painting the larynx and pharynx with a one per cent. solution of resorcin and phenol may be tried to relieve the congestion at these points. When the child is filled up with mucus the use of fluid extract of belladonna (one fourth minim for child two years old) or atropine 1/800 grain every two to four hours, is warranted. Antipyrine often controls the severe paroxysms, one grain every three hours for a child six months old. Bromoform in a mixture, two drops four times a day, often gives relief.

When the child is restless and sleep is necessary, the use of sodium bromide, chloral hydrate, trional, codeine, or even morphine is in order. The use of fairly large doses of quinine sulphate seems to reduce the number of paroxysms. For younger children euquinine may be substituted. Two other drugs which control paroxysms are heroine hydrobromide grain 1/100 to 1/20 and bimeconate of morphine one half to one drop.

Under 3, prevention or treatment of complication, come the consideration of bronchopneumonia, catarrhal enteritis, colitis, hemorrhage, purpura hæmorrhagica, lobar pneumonia, bronchitis, malnutrition, marasmus, albuminuria, hernia, prolapsus ani, ulcer of frenum linguæ, etc.

Under 4, hygiene, the patient requires fresh air, change of climate, frequently a change of rooms, change of clothing, regular bowel action, abdominal support, cleanliness, and sunlight.

Under 5, dietetics, reduce the amount, using liquid food, feed *smaller* quantities more frequently, but for a short time after a paroxysm, it may be necessary to resort to nutrient enemata.

Under 6, psychotherapy, much can be done by keeping the child in a quiet state and trying to postpone the cough. The use of an elastic band around the abdomen over the diaphragm frequently prevents an attack. Some pull the jaw forward and downward, which often aborts a spell.

Under 7, medicines should be used when indicated and not as a routine, always remembering that we are dealing with a self limited disease and that

our object is to lessen the severity of the attack and prevent or treat complication and to prevent its spread and not attempt to shorten its course.

(To be continued.)

Therapeutic Notes.

Subconjunctival Injections of Mercury Cyanide in Ophthalmology.—C. B. Meding, in the *New York State Journal of Medicine* for January, 1914, reports a series of 184 cases, including trachomatous keratitis (pannus), corneal ulcers and opacities, hypopyon, parenchymatous keratitis, episcleritis, scleritis, and sympathetic ophthalmia, in which subconjunctival injections of ten to twenty minims (0.65 to 0.13 c. c.) of a one in 4,000 solution of mercury cyanide in sterile water were administered. In addition, a large number of cases of irritable eyes, with diseased lids, scarred corneas, more or less ciliary injection, blepharospasm, and lacrymation—conditions in which the ordinary measures prove tedious and unsatisfactory—were similarly treated. In some instances preparatory cocaine anesthesia was omitted without causing much complaint on the part of the patient; applications of heat or cold, according to the patient's preference, were sometimes employed, but in any case, all discomfort passed off in about an hour after the injection.

The effects of the injections were decidedly gratifying. As a routine measure in chronic trachoma with pannus, if time and suffering are of moment, mercury cyanide injections must be given a high place. In ulcers and scleritis pain was entirely relieved, and in cases with blepharospasm and lacrymation, these symptoms also promptly disappeared. In general, cases showing the least edema were the least benefited. Recent corneal opacities were improved by the measure, and in choroidal, retinal, and neural affections, Meding holds mercury cyanide injections to be far superior to injections of salt solution. The former drug acts as a lymphagogue, eliminative, antiseptic, and obviously likewise as an antisiphilitic. While as powerful in action as mercury bichloride, it is less irritating, causes less adhesion, and does not affect instruments.

An Improved Formula for Magma bismuthi.—S. B. Müller, in the *American Journal of Pharmacy* for January, 1914, calls attention to various difficulties attending the preparation of bismuth magma according to the proposed official formula. Ammonium carbonate should be substituted for ammonia, as removal of the excess of the latter is decidedly troublesome, and one in 1,000 of sodium chloride should be added to the distilled water used, to prevent curdling of the magma and permit of washing by decantation. The formula advised is as follows:

R Bismuthi subnitrat. 5iiss (50 grams);
Acidi nitrici, ... 5iiss (50 c. c.);
Ammonii carbonatis, ... 5iiss (80 grams);
Aquæ destillatæ, q. s. ad. Oii (1000 c. c.).

Fiat magma.

The nitric acid is first diluted with an equal volume of water and the bismuth salt dissolved in it. The solution is then diluted further to ten ounces (300 c. c.) and filtered through cotton.

Next the ammonium carbonate is dissolved in three quarts (3,000 c. c.) of distilled water containing one in 1,000 of sodium chloride, and filtered. The acid solution is now poured slowly and with constant stirring into the alkaline solution. When the resulting precipitate has subsided, the supernatant liquor is decanted and the precipitate washed by decantation with the saline distilled water until the mixture is practically tasteless. The magma is then allowed to settle to one quart (1,000 c. c.). It should react alkaline to methyl orange.

Treatment of Areolar Fissures.—A writer in *Paris médical* for February 21, 1914, recommends that the following ointment be applied several times a day:

R Balsami peruviani, ...gr. lxxv (5 grams);
Balsami tolutani, ...gr. xxx (2 grams);
Phenylis salicylatis pulveris, ...gr. xv (1 gram);
Glycerini, ...5x 40 grams).
M. et ft. unguentum.

As advised by Lepage, the anterior portion of the breast may be washed after nursing with:

R Alcoholis, ...3iv (100 grams);
Aquæ sterilisatæ, ...Oi (500 grams).
Misce.

One of the following preparations should then be applied with a small pledget of cotton:

I.

R Balsami peruviani, ...gr. xxxviii (2.5 grams);
Tincturæ arnicæ, ...m℥i (2.5 grams);
Liquoris calcis, ...3ss (15 grams);
Olei amygdalæ dulcis sterilisati, ...5i (30 grams).
M. et ft. linimentum.

II.

R Tincturæ benzoini, ...āā 3ss (15 grams).
Tincturæ toluatanæ, ...āā 3ss (15 grams).
Misce.

Treatment of Mycosis fungoides.—S. E. Dore, in the *Lancet* for June 20, 1914, is said to report that effects of the x rays on the tumors of mycosis fungoides are strikingly favorable. Even after half pastille doses, reaction may begin as early as the third day, reach its height in a week, and be followed by complete disappearance of the tumor under treatment in two to three weeks. The granuloma melts away without leaving any scar, and on the scalp there may occur a regrowth of hair over the previously affected areas. The early lesions, being firmer, are less easily affected by the rays than the later ones. Although the benefit of x ray treatment is locally so marked, the rays seemingly fail to influence the cause of the disease itself, for fresh lesions continue to appear in cases under treatment, and the final outlook is not a hopeful one. Whitfield has reported a case, however, in which the x rays had apparently brought about a complete cure. The patient, a man sixty-eight years of age, was in perfect health five years after the termination of the x ray treatment.

Treatment of Contraction of the Palmar Fascia with Radium.—Cotte, Bérard, and Moutet, in *Lyon médical* for June 7, 1914, report the case of a man aged sixty years, suffering from chronic rheumatism, in whom the little and ring fingers of each hand had gradually become fixed in approximation to the palm through fascial contraction. In the right hand all of the contracted fibrous tissue was removed surgically, while in the case of the left

four applications of radium were made at monthly intervals. At the first two applications the radium was allowed to act twenty-four hours, at the last two, twelve hours. Each time the rays were filtered through 0.2 mm. of silver and 0.6 mm. of lead, the skin therefore escaping injury. The results were even more satisfactory on the side treated with radium than on the side of operation. While the fingers were straightened out on both sides, motion on the side surgically dealt with was still somewhat limited and slightly painful, whereas on the other side movements were more easily made. Palpation showed the palmar fascia to be much more supple on the radium side than on the other. One or two radium applications on the surgically treated side were contemplated, in order to complete the treatment.

A New Surgical Treatment of Epilepsy.—Momburg and Volland, in *Deutsche medizinische Wochenschrift* for April 9, 1914, state that, having found it practicable in a case of epilepsy to arrest convulsions by exerting pressure with the thumbs on the carotid arteries, they undertook to secure a more persistent beneficial effect by partial ligation of these vessels, thus overcoming the excessive irritability of the brain in epilepsy by diminishing the local blood supply. In two cases both common carotids were surrounded with a loop of one silver wire, which was then tightened until pulsation in the corresponding temporal artery had almost ceased, and fastened. The first patient, who had had one or two seizures every day, had two more brief convulsive attacks one week after the operation, but none after that. The second patient was permanently relieved of his previous fortnightly seizures and violent headaches. No untoward effects followed the operation save somnolence for one day and moderate dysphagia for two or three days.

Treatment of Wounds of the Thoracic Duct.—Dobbertin, in *Zentralblatt für Chirurgie* for February 28, 1914, refers to the difficulties often experienced in arresting the flow of chyle from the thoracic duct to the exterior when this canal is injured, generally in the course of operative removal of the supraclavicular lymph nodes. The chylorrhea, unless checked, results in rapid exhaustion of the patient. In a case of lymphosarcoma of the neck recently operated in by Dobbertin, closure of the wound, with drainage, was effected, but on the fifth day an abundant and persistent flow of chyle suddenly began, which packing and skin suturing failed to arrest. The patient being moribund, it was decided to reopen the wound. Five wads of cotton from which the normal grease had not been removed, and which was consequently nonabsorbent, were packed, after sterilization, into the cavity from which chyle was seen issuing. These wads were of walnut size, and were held in by tightly suturing the overlying fascia with Lembert sutures of catgut, and the skin with like sutures of silk. The escape of lymph ceased at once, tissue union took place without any accompanying fever, and on the tenth day the cotton wads were removed through a small incision at the lower angle of the wound. Complete recovery soon followed.

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A SELF SUPPORTING CLINIC.

We find in the *Archives of Ophthalmology* for November an interesting account of an experimental clinic which proved almost self supporting during its first year, and at the same time provided for certain needs of self respecting people at rates within their means without subjecting them to the opprobrium of receiving charity. This sounds so much like a fairy tale that we will present the facts as stated.

On April 29, 1913, the Boston Dispensary opened an evening clinic for eye diseases to provide for persons who could not afford the regular fee of an oculist, or the loss of working time consequent upon attendance at the day clinic. It was believed that this class of wage earners would prefer to come in the evening and to pay a small fee, one dollar for the first, and fifty cents for each subsequent visit. The medical men were paid, glasses were furnished at prices slightly above wholesale cost, and medicines were also provided at a small profit. The clinic was open at first only one night, later two nights a week. A surgeon and a social service worker were in attendance from the start, an assistant surgeon two thirds of the time, and a clerk when necessary. During the year, 581 patients were treated, 209 men, 361 women, and eleven children.

All were excluded who, after questioning, seemed to be able to pay an oculist's fee, but no one was refused treatment because of inability to pay the small amount asked for, so thirty-two patients received free treatment. The total income for the year was \$1,355.16, the total expenses \$1,380.05, so that during the first year the clinic came within \$24.89 of paying expenses and may reasonably be expected to be self supporting in the future.

There is much to be commended about the plan. First and foremost is the elimination of charity, in its offensive sense. Charity is something that self respecting people do not like to receive, and yet the great bulk of our population are obliged to take it if they are to have the best medical service. It has often been remarked that the very rich and the very poor are equally well provided with the best medical and surgical service, while the great middle class must either put up with inferior service, or present themselves as supplicants for medical charity. No matter how small the fee, if it is all the patient can afford and the doctor receives it, this opprobrium is removed.

Seventy-eight per cent. of the patients treated had refractive troubles, the remainder diseases of the eye of one form or another. The average "refractive" patient made two visits and paid in fees \$1.50; patients with diseases made more visits and the cost was greater, yet the total average fee was only two dollars. Investigation has shown that this class of people largely patronize opticians or optometrists, or buy glasses over the counter, with results well known to every oculist, but the patients at this clinic secured the services of an expert oculist and glasses at a total cost often probably less than they would have had to pay a business firm that prescribes and fits glasses without expert service.

The basis on which the surgeons were paid is not stated, but they received \$939, while the fees amounted to \$952.75, so it would seem practicable simply to turn these fees over to the surgeons, or to make an equitable division so as to cover any deficit in the running expense of such a clinic, for it is doubtful if the profit from sales of medicines and glasses would meet all expenses if account was taken of the overhead charges, or rent. The estimated cost of light and heat was \$119, salaries amounted to \$288.70, instruments, printing, and stationery cost \$33.85. The Boston Dispensary evidently carried the overhead charges itself, and furnished gratis most of the instruments used, two very important items in estimating the expense. It is certainly a question whether the fees were not made too small to make the clinic truly self supporting; many of the wage earners could easily pay double the amount charged, although unable to pay the oculist's usual

fee, and a sliding scale could be adopted, if needed. With an equitable division of the fees between the surgeons and the overhead charges, it seems reasonable to believe that such a clinic might really be self supporting.

This criticism is not made for the purpose of suggesting to large, well established hospitals how to add a considerable sum to their incomes, but to indicate how small communities may perhaps run self supporting clinics for the benefit of the great number who dislike to ask for medical charity, and yet are not able to pay an expert's fees. The same clinic would naturally furnish free treatment to the very poor, so two classes of people would be served at the same time.

THE ACTION OF DRUGS ON INFLAMED TISSUES.

A very serious flaw in our knowledge of the therapeutic action of drugs is that in most cases our information as to physiological effect has been derived solely from experiments on healthy animals. Digitalis, for instance, has little effect on the heart during pyrexia. Diuretics act differently on kidneys when inflamed. The absorption of drugs and consequently the rapidity of their action is greatly modified by edema and presumably also by cloudy swelling of the cells. In short, one can think of a considerable number of conditions in which the action of the therapeutic agent is modified by the pathological condition of the tissues. Yet it is only of late that attention has been directed to this phase of experimental medicine, and the contributions to the literature on the subject are meagre. In a recent communication to *Roussky Vrach* (June 7, 1914), D. A. Eskin reports experiments on the action of adrenaline, histamin, cocaine, caffeine, toxins, serums, and exudates on inflamed bloodvessels. Some of the experiments were performed on the isolated ears of rabbits, one ear having been irritated by the application of croton oil. In another experiment, peritonitis was induced in dogs, and the effect of adrenaline in this condition studied. The results seem to indicate that in most cases the effect of the drug on inflamed vessels differs from that on healthy vessels. Thus, adrenaline, blood serum, and cocaine produce less constriction of inflamed vessels; on the other hand, greater dilatation of the latter occurs after the application of weak solutions of caffeine. Exudates act as vasoconstrictors on the inflamed ear and have no action on the sound ear. A single infusion of adrenaline in peritonitis causes a rapid rise in pressure, which soon falls below normal. Prolonged administration of adrenaline produces a

rise in pressure, which is sustained during the administration and for some time after. These results are interesting, and suggestive of a line of work which could be profitably pursued.

AN ENGLISH OPINION OF ALCOHOL.

J. W. Astley Cooper, superintendent of a well known sanatorium, communicates to the *Lancet* for November 14, 1914, his highly unorthodox views on the use of alcohol, exploding a bomb in the serried ranks of the antis by a preliminary statement to the effect that his experience of many years has taught him that there are no harmful effects from the *strictly moderate* (his italics) use of alcohol by persons of sound mental and physical health, such as British soldiers supposedly are. Mr. Cooper cites approvingly the opinion of Mercier and Dr. Lyon Smith that the proper deduction from asylum statistics is that insanity produces inebriety, and not, vice versa, as is so frequently averred by the zealous champions of total abstinence. We have often expressed similar conclusions; in fact, how anyone familiar with the psyche of even a half dozen drunkards could possibly doubt their precedent mental instability, has always been a mystery to us.

Pursuing his approving comments on the thesis of Dr. Lyon Smith, Mr. Cooper believes that medicinal doses—1.5 to two ounces—of whiskey have a beneficial rather than a harmful effect on phagocytosis, and he wishes that until temperance lecturers are prepared to prove the contrary, they should cease to use this argument, except against large doses, which Mr. Cooper does not either defend or advocate. The misuse and abuse of alcohol is likely to continue until physicians and through them the public understand that alcohol is a drug, not necessary nor beneficial to the healthy individual, valuable in strictly moderate doses on occasion, and extremely harmful in large and in frequently repeated small doses, exactly as is the case with other drugs of a similar nature, namely, the stimulant-narcotic group.

There is a large number, however, of individuals of such unstable psychophysical constitution as to be extremely susceptible to the toxic action of alcohol, even in very moderate doses, and to these persons alcohol should undoubtedly be taboo. Mr. Cooper believes that the danger of issuing "emergency alcohol rations" to the troops lies in the probability that such rations would not be used with the same careful regard for proper doses as other medicinal agents. The idea of a soldier on the line of battle confining himself, in the presence of unlimited whiskey, to one or two ounces daily does

indeed possess a certain grim humor. Soldiers are undoubtedly better off where whiskey is not obtainable. That is merely one phase of the problem, however; it is not wise nor candid, says Mr. Cooper, for the duly instructed physician to lend himself to exaggerated statements concerning alcohol, simply that some supposed good may come.

ADVANCES IN THE KNOWLEDGE OF OPOTHERAPY.

At a meeting of the Italian Society of Medicine held in Rome in October, 1912, an official report was adopted to the effect that it could now be regarded as established that the endocrinous or internal secretory system exerts an influence on anomalies of growth, morphogenesis, and organic metabolism, and on nutrition and inherent excitability of the nervous system; also that it has a preponderating influence on the causation of dyscrasia and morbid temperaments. It was held that the equilibrium of the nervous system, the sympathetic in particular, is maintained by the internal secretions, and that in nervous diseases *per se* these probably act as indirect or predisposing factors. In commenting on this report the JOURNAL remarked editorially: "One cannot but be impressed by the vast field which the ductless glands have steadily invaded, in keeping with the conclusions announced nearly ten years ago in this country, that these organs were second to none in the body in their bearing upon physiology, pathology, and clinical medicine."

Much has been written concerning the histology, physiology, and pathology of the internal secretory organs. An immense interest has been aroused in their varied functions, and what the profession in general now most desires is more definite knowledge of practical opotherapy. It is true that in the past few years much has been accomplished in this direction, but the therapeutic application of the internal secretions, especially in this country, has been confined to a comparatively small proportion of practitioners. There can be no question that the ductless glands and internal secretions present one of the most promising fields for the therapeutics of the future, and it is universally recognized that their importance in this regard is steadily advancing. Harrower, in a recent work on practical hormone therapy, which has received the indorsement of Professor Biedl, a high authority in opotherapy, states that, while it is fully admitted that the activity of animal extracts is not entirely due to their hormone content, most of this activity is undoubtedly brought about by such bodies.

It may be remembered that the discovery of the

principle of hormone action was due to the experiments of Starling and Bayliss, in 1902. Starling's work may fairly be described as epoch making, and in his most recent statement (*Proceedings of the Royal Society of Medicine*, 1914), in which he remarks that hormones may either cause the increase or decrease of function, or the alteration of nutrition, or rate of growth, he divides the actions of these into two classes, the acute and the chronic; typical examples of the former being found in secretin and adrenaline, and of the latter in the thyroid, anterior pituitary, and luteal hormones.

GASEOUS GANGRENE.

In discussing gaseous gangrene, Delorme, according to correspondence from France in the *British Medical Journal* for November 14, 1914, asserts that large incisions and amputations are too often resorted to. "Experience has proved," he says, "that nothing is so toxic to the bacillus of gaseous gangrene as hydrogen peroxide." His method of treatment is as follows: Above the swollen, discolored, and emphysematous part of the limb affected, a circular row of injections of hydrogen peroxide is made into the subcutaneous cellular tissue, at intervals of about half an inch. A second circle of injections is then made an inch or so higher up the limb, the points of the second injections being opposite the intervals of those of the first injections. By this means he hopes to form a barrier against the further invasion of the bacilli. If necessary, these injections may be repeated the following day, or even on the same day, either above or below the original injections, according to whether or not the gangrene has advanced or receded. Should the tension of the limb become so great that gangrene by compression of the vessels is feared, it is necessary then to incise the aponeurotic envelopes, and the incisions should be followed by irrigation with hydrogen peroxide. The prophylaxis of gaseous gangrene may be summed up in the rapid transport of the wounded from the field of battle, the early extraction of foreign bodies, and adequate disinfection, especially with hydrogen peroxide.

Obituary.

CLINTON WAGNER, M. D.,
of Geneva, Switzerland.

Dr. Clinton Wagner, one of the most distinguished of the laryngologists of the past generation, died in Geneva, Switzerland, November 25th. He was born in Baltimore, in 1837, and graduated there in medicine in 1858, at once entering the medical corps of the United States army. On the breaking out of the Civil War he was given a position of responsibility and after several promotions, was made surgeon in chief of the Regular, or Second Division, Fifth Corps, Army of the Potomac, with the rank of lieutenant colonel. He saw much active service in the field, distinguishing himself for

bravery, surgical skill, and fine executive ability. At the close of the war he spent two years abroad, studying laryngology in Paris, London, Berlin, and Vienna. Returning home, he established himself in that specialty in New York city and soon gained wide recognition. He established the Metropolitan Throat Hospital and Dispensary of New York, in its day the best institution of its kind in the country and attracted to it large numbers of graduate students.

Doctor Wagner invented many new instruments and improved surgical methods, his unusual experience in general surgery enabling him to undertake all of the important operations in his field. He made numerous valuable contributions to the literature of laryngology. He was the first professor of laryngology in the New York Post-Graduate Medical School and Hospital. In 1873, he founded the New York Laryngological Society, now the section in laryngology of the New York Academy of Medicine. It was the first society of its kind in the world and was not followed in Europe until Sir Morell Mackenzie, in 1888, organized a similar one in London.

After a brilliant career, Doctor Wagner retired from practice several years ago, and subsequently lived mainly abroad. His last visit to this country was made in 1913, when he attended the fortieth anniversary of the society which he had created.

News Items.

Harvey Society Lectures.—The next lecture in the course will be delivered on Saturday, December 12th, by Professor L. J. Henderson, of Harvard University, on the Excretion of Acid in Health and Disease.

Pellagra in New Hampshire.—Seven deaths from pellagra have been reported in the State of New Hampshire, and there are several cases under treatment. The State Board of Health is conducting studies, especially bacteriological and pathological, in connection with the disease, which has not until recently attracted much attention in the North.

The Herter Lectures.—The faculty of the University and Bellevue Hospital Medical College has issued invitations to the medical profession of New York to attend the lectures to be given under the Herter Foundation by Professor Lafayette B. Mendel, of Yale University, on December 10th, 11th, 14th, and 15th, at four o'clock, in the Carnegie Laboratory. The subject of the lectures is Aspects of the Physiology and Pathology of Growth.

Southern Iowa Medical Association.—The following officers were elected by this society at its annual meeting held in Mount Pleasant on Thursday, November 19th: President, Dr. A. O. Williams, of Ottumwa; vice-president, Dr. C. A. Boyce, of Washington; secretary and treasurer, Dr. E. F. LaForce, of Burlington. Washington was chosen as the next place of meeting.

Changes of Address.—Dr. Charles Graef, to 1125 Boston Road, New York.

Dr. Milton J. Ballin, to 108 East Sixtieth Street, New York.

Dr. J. Washton, to 953 Simpson Street, New York.

Dr. H. Phillips, to 985 Tiffany Street, New York.

Dr. Max Nisselson, to 941 Simpson Street, New York.

Dr. A. J. Zuckerman, to 1195 Boston Road, New York.

Dr. Harry Fried, to 697 Prospect Avenue, New York.

Dr. S. H. Lanchner, of Rochester, to 1116 Jackson Avenue, New York.

Dr. Thomas E. Preston, to 287 Alexander Avenue, New York.

Dr. Lynn R. Palmer, to 414 East 141st Street, New York.

Pellagra in Mississippi.—Eight hundred and twenty-four new cases of pellagra in Mississippi were reported to the United States Public Health Service during the month of October, 1914.

Dublin Castle a Hospital.—It is reported that King George has approved the proposal to use Dublin Castle as an emergency hospital for wounded soldiers. It is planned to have the hospital ready in about three weeks. There will be accommodations for 500 patients.

Lecture on Digitalis.—The Section in General Medicine of the College of Physicians of Philadelphia invites the medical profession to attend a lecture on Monday, December 14th, by Dr. Alfred E. Cohn, of the Rockefeller Institute for Medical Research, on Clinical and Electrocardiographic Studies on the Action of Digitalis.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, December 7th, Wills Hospital Ophthalmic Society, Academy of Surgery, Philadelphia Clinical Association; Tuesday, December 8th, Pediatric Society; Wednesday, December 9th, County Medical Society; Thursday, December 10th, Polyclinic Ophthalmic Society, Pathological Society, Obstetrical Society; Friday, December 11th, Northern Medical Association.

Mortality during the Week Ending November 28th.—There were 1,389 deaths in New York with a death rate of 12.98 against 1,288 deaths and a death rate of 12.51 during the corresponding week of last year. This increase is due to the greater number of deaths from diphtheria and croup and diseases of the respiratory tract. The deaths from diarrheal diseases were slightly lower than those of last year, in spite of the fact that there were 26 more deaths of infants under one year than during the corresponding week of last year.

West Philadelphia Medical Association.—A banquet at the Rittenhouse Hotel, Philadelphia, on the evening of November 24th, celebrated the tenth anniversary of the organization of this society. About two hundred members attended. Among the speakers were: Dr. William L. Rodman, president-elect of the American Medical Association; Dr. William Duffield Robinson, president of the Philadelphia County Medical Society; Dr. E. E. Montgomery, Dr. Samuel D. Risley, Dr. William S. Wray, and Dr. A. B. Hirsh. Dr. B. F. Wentz, president of the society, acted as toastmaster.

Medical Association of the Greater City of New York.—A special meeting of the association, under the direction of the chairman for the Borough of Brooklyn, Dr. Robert E. Coughlin, will be held at the Imperial, 360 Fulton Street, Brooklyn, on Monday, December 7th, at 8:30 p. m. Dr. Henry Andrew Fisher will present a report of a case of chronic parenchymatous nephritis with myocarditis. Dr. Christian C. A. Lange will read a paper on Difficulties in Cystoscopy, and Dr. John Edward Jennings one on Chronic Perityphlitis, which can be discussed by Dr. H. Beekman Delatour, Dr. Edwin Howe Fiske, and others.

A Discussion of Retrodisplacement of the Uterus.—At a meeting of the Philadelphia County Medical Society, to be held on Wednesday, December 9th, the evening will be devoted to a discussion of the various methods of treating retrodisplacement of the uterus. Among the speakers will be Dr. David Tod Gilliam, of Columbus, Ohio; Dr. Edwin B. Cragin, of New York; Dr. John Wesley Bovee, of Washington, D. C.; Dr. J. C. Webster, of Chicago, Ill.; Dr. R. C. Coffee, of Portland, Oregon, with Dr. E. E. Montgomery, Dr. J. M. Baldy, and Dr. Barton Cooke Hirst, of Philadelphia. Discussion is to be opened by Dr. Howard A. Kelly, of Baltimore, and Dr. John G. Clark, of Philadelphia.

Pathologist Wanted for China Medical School.—A medical graduate of the University of Pennsylvania is needed to teach pathology and laboratory methods and to organize the laboratories in the University of Pennsylvania Medical School at Shanghai, China (the medical department of St. John's University). The excellent opportunity for research work presented by a large hospital, abundantly supplied with clinical material, affords a most attractive field for work. A single man is preferred, with hospital experience. He must be a sincere Christian. Applicants may apply by appointment or by letter to Dr. William H. Jefferys, Christian Association of the University of Pennsylvania, Philadelphia.

A Low Death Rate in Wisconsin.—Dr. C. A. Harper, State health officer of Wisconsin, reported that the death rate in Wisconsin for July, August, and September was the lowest for that season of the year recorded in the State since the adoption of the uniform law for the registration of deaths. In the three months the total deaths reported amounted to 5,716, corresponding to an annual death rate of 9.7 in a thousand of population. It is said that the low rate of mortality is due almost entirely to the marked decline in the number of deaths from preventable diseases.

Control of Disease in Massachusetts.—The State Board of Health of Massachusetts has issued an amended list of diseases, cases of which must be reported by physicians immediately. Included in this list are the following diseases and conditions which have been added to those previously notifiable: Dog bite (requiring antirabic treatment), dysentery (amebic and bacillary), German measles, hookworm disease, suppurative conjunctivitis, malaria, mumps, pellagra, plague, rabies, and septic sore throat. Of special interest is the inclusion in the list of cases of "dog bite requiring antirabic treatment." The State Department of Health administers antirabic treatment free of cost to persons bitten by rabid animals or by animals suspected of having rabies.

Medical Missionary Conference.—The sixth interdenominational medical missionary conference, held in Battle Creek, Mich., November 17th to 20th, was well attended, about two hundred workers from home and foreign fields being at the meeting, which was presided over by Bishop E. R. Hendrix, of Kansas City. The probable effect of the war on foreign mission work was discussed, the consensus being that a temporary withholding of mission gifts would be experienced. Among the addresses delivered were the following: Medicine in China, Reverend Isaac T. Headland, of Pekin, China; Better Organization for the Medical Work, Reverend Levi B. Salmans, of Mexico; Physiological Therapeutics on the Mission Field, Dr. J. H. Kellogg, of Battle Creek Sanitarium; Forty-five Years in Asiatic Turkey, Reverend George C. Reynolds, M.D., D.D., of Van, Turkey; The Outlook for Missions in View of the War, Bishop Eugene R. Hendrix, D.D., president. The conference will meet again in 1915 in Battle Creek, the sessions being held at the local sanitarium.

Gifts and Bequests to Hospitals.—The German Hospital, of Philadelphia, will receive \$5,000 under the will of the late William Lutz, and \$1,000 under the will of the late Jennie E. Disston.

By the will of Mrs. Emma L. Forrest, who died in Lakewood, N. J., recently, the University of Pennsylvania will receive \$10,000 for the endowment of a room in the Agnew Pavilion of the University Hospital.

It is reported that the Emperor of Japan has given \$25,000 toward the foundation of St. Luke's International Hospital in Tokio, which will be conducted under the auspices of the Episcopal Church mission.

By the will of Mrs. Harriet Lancaster Chambre, the Lowell, Mass., General Hospital will receive \$5,000.

Public bequests amounting to \$202,000 are made by the late William Endicott, whose will was filed for probate on November 16th. Bonds valued at \$50,000 are given to Beverley, Mass., Hospital, subject to the payment by the hospital of certain annuities. The Massachusetts General Hospital will receive \$25,000, the income to be used for the maintenance of free beds in the institution, and the Massachusetts Institute of Technology will also receive \$25,000. To the president and fellows of Harvard University is given \$25,000 in trust, the income only to be used for purposes of the cancer commission. The Sharon Sanatorium will receive \$10,000 and the Instructive District Nursing Association of Boston will receive \$10,000 and the North End Diet Kitchen, \$5,000. All the bequests contained in the will are to be held as permanent funds, the income only to be used for the purposes of the several institutions.

The University of Pennsylvania Hospital, Philadelphia, will receive \$10,000 under the will of Mrs. Emma L. Forrest, widow of Dr. Morton H. Forrest.

The Massachusetts Homeopathic Hospital, Boston, has received the sum of \$100,000 for the purpose of erecting a maternity department on a site already selected and upon which a lower story has already been erected. Plans have been filed and the work has already begun. The new hospital will have accommodations for eighty patients. The donor of the fund prefers for the present to remain anonymous.

Medical Society of the County of Ontario, N. Y.—The following officers were elected at the annual meeting of the society, held recently in Canandaigua: President, Dr. F. W. Spaulding, of Clifton Springs; vice-president, Dr. Barton T. McDowell, of Bristol Center; secretary and treasurer, Dr. Daniel A. Eisel, of Shortsville, who now enters on his nineteenth consecutive term. As censors, the society chose Dr. Orlando J. Hallenbeck, of Canandaigua; Dr. J. A. Saunders, of Clifton Springs, and Dr. J. J. Collie, of Geneva.

The Long Island College Hospital.—The Clinical Association of the Alumni of the Long Island College Hospital, Brooklyn, will devote the evening of Monday, December 7th, to a symposium on the cardiovascular system. Practical talks on the subject will be given as follows: Professor John A. McCorkle, Introductory Remarks Regarding the Relative Importance of Cardiovascular Conditions; Professor John C. Cardwell, Some Points in the Physiology of the Cardiovascular System; Professor Joshua M. Van Cott, Pathology of the Cardiovascular System; Professor Luther F. Warren, Modern Methods of Diagnosis; Professor F. E. West, Therapy and General Summary. Each speaker will be limited to twenty minutes and a short time may be devoted to discussion. Refreshments will be served at ten o'clock. The Committee on Clinical Meetings of the alumni is composed of the following members: Dr. R. E. Shaw, chairman; Dr. Burr Burton Mosher, Dr. Sylvester J. McNamara, and Dr. J. C. Rushmore.

Personal.—Dr. John J. Dowling has accepted the position of superintendent of Boston City Hospital, to succeed Dr. John H. McCollom, who is on a six months' leave of absence on account of sickness. Doctor McCollom's resignation will take effect on January 1st.

Dr. S. R. Klein, of New York, has been appointed pathologist and bacteriologist to the State Hospital, Norwich, Conn.

We are indebted to Dr. D. Bryson Delavan for the obituary notice of the late Dr. Clinton Wagner, which appears on page 1127.

Dr. J. R. Carnett has been appointed surgeon to the Philadelphia General Hospital, to succeed Dr. Edward Martin, who resigned recently on account of pressure of other duties. Doctor Carnett was formerly assistant to Doctor Martin.

Dr. John E. B. Buckenham has been appointed superintendent of the Philadelphia Hospital for Contagious Diseases, to succeed Dr. William H. Walsh, who resigned recently to take charge of a children's hospital.

News of the Medical Schools.—Dr. F. M. Barnes, Jr., has resigned from the medical faculty of St. Louis University and has accepted the position of associate in psychiatry at Washington University.

Dr. Roger I. Lee, of Boston, has been elected to the chair of hygiene recently established at Harvard University.

Dr. Martin E. Rehfuess, of Philadelphia, has been appointed research associate in the department of physiological chemistry of Jefferson Medical College.

Dr. Howard Thomas Karsner, assistant professor of pathology in the Harvard Medical School, has been appointed professor of pathology in the school of medicine of Western Reserve University, Cleveland, and will assume his new duties, December 1, 1914. The following additional full time instructors began service in the school of medicine of Western Reserve University in September: Henry O. Feiss, A.B., M.D. (Harvard), D.Sc. (Edinburgh), in experimental medicine. Gaius E. Harmon, M.B., M.D. (Boston University School of Medicine), C.P.H. (Massachusetts Institute of Technology), in hygiene. Bradley M. Patten, A.B., Ph.D. (Harvard), in histology and embryology. George E. Simpson, B.S. (University of Illinois), in organic chemistry and biochemistry.

Public announcement has recently been made that the medical school is to receive one sixth (less \$50,000) of the estate of Mr. Liberty E. Holden, a trustee of the university at the time of his death in 1913. This estate is in the form of a trust fund and the time when the medical school will receive its portion is not definitely set. The amount of the entire estate is variously estimated from three to six million dollars. The terms of the gift are very liberal, but in general the income is to be devoted to research on problems of the cause and cure of disease.

Pith of Progressive Literature.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

October 27, 1914.

Bromide Therapy.—K. John has used *Sasedanwürze*, prepared by Doctor Haas, where bromides were indicated. It is a prepared bouillon which contains in a concentrated form true albumin and albumoses, and, in addition, one gram of the bromide salts and 0.15 gram sodium chloride in five c. c. Given in this form, bromides can be administered over a considerable period of time, as the soup is palatable. The patient, however, must be put on a diet rather poor in salt. From the results so far, it has been noted that smaller doses produced stronger effects without symptoms of intoxication, especially in cases of genuine epilepsy. In order to make the observations of value, it must be tried in a greater number of cases. On account of the simplicity of administration and its taste, it can be used in the mentally affected; when given in the form of soup it can not be differentiated from an ordinary salty soup. It has been used with advantage in cases of neurasthenia, general irritability, neuroses the result of fear, nervous headaches, and nervous insomnia. In hysteria and psychical disorders, its action has been too mild. Its action is not improved when administered simultaneously with opium, as suggested by Bürge.

Isolated Perichondritis of the Ensiform Process.

—Edgar Ruediger reports three cases, existing independently of any other condition in the ribs or sternum. The etiological factor is obscure, although one case may have been caused by traumatism. In two cases syphilitic infection had existed; in one a few months previously, in the other, twenty-five years previously. In the third case, the history was also suspected of syphilis. It is possible that the condition has a syphilitic basis, but it has not been definitely determined. Changes in the shape of the ensiform are frequently found which are not the result of inflammation but probably of an old perichondritis.

X Rays in the Treatment of Exophthalmic Goitre.

—Richard Sielmann advises that every case of exophthalmic goitre not influenced by medicine be submitted to x ray treatment. With improved technic, the danger to the skin is very slight and conditions which might complicate a subsequent operation do not, of necessity, arise in every case. If the x ray fails, then operation is indicated. If operation does not prove successful, the x rays should again be used.

Cardiac Asthma in Children.—P. Rohmer says that cardiac asthma caused by arteriosclerosis is not seen in children as it is in adults. He reports the case of a child who died of edema of the larynx after a prolonged attack of dyspnea. The case was one of a decompensated heart which had improved somewhat under treatment. The attacks of asthma are usually brought about by an acute failure of the left heart in the presence of a powerful, overacting, right heart, which leads to engorgement of the lungs with blood.

Thirst Cure in the Treatment of Edema.—W. Nonnenbruch has observed that by restricting

fluids there is a decided improvement in edema, whether the result of cardiac failure, nephritis, or other causes. By restricting the intake of fluids, the amount excreted in the urine can be made to double the intake. He has carried out this treatment for edema in cases of pleurisy with effusion, lymphatic leucemia, and in ascites accompanying an ovarian cyst.

WIENER KLINISCHE WOCHENSCHRIFT.

October 29, 1914.

Chronic Veronalism.—Otto Glaser reviews nine cases of chronic veronalism reported since 1903 and concludes that the continued use of veronal, even if only in small doses, may lead to a severe or mild intoxication. The central nervous system is principally attacked, the parts particularly affected being the cerebellum and the vestibular apparatus. This special affinity is seen in all drugs belonging to this group. The circulatory and digestive tracts are apparently not affected. The continued administration of the drug leads to a condition of euphoria and the habit is easily acquired. It has an inhibitory effect on the activity of the bowel and kidneys, and this may help to explain the appearance of the symptoms of intoxication.

Tuberculin in Progressive Paralysis.—Albert Joachim gives the histories of ten cases of progressive paralysis which were cured by injections of tuberculin. In six cases the Wassermann reaction, which had been positive, became negative. Within six to eight months these patients were able to return to their families and take up their work. The longest time that one of the ten had been observed without a return of symptoms, was three and a half years. As these patients were restored to usefulness in a comparatively short time, this method of treatment marks an advance in the therapy of progressive paralysis.

Musculocutaneous Paralysis.—Hanns Müller describes two cases of musculocutaneous paralysis due to injury of the plexus caused by traumatism to the shoulder. In the one case there was an isolated paralysis of the musculocutaneous nerve affecting both the motor and sensory portions. Cases of isolated injury to the musculocutaneous nerve are exceptionally rare when the etiological factor is traumatism, as the neighboring nerves are usually affected. When the paralysis is due to an infectious or a toxic neuritis, isolated nerve affection is seen more frequently. The other case showed a paralysis of both the motor and sensory portions of the musculocutaneous nerve; also a paralysis of the ulnar nerve and of the motor portion of the median nerve. Of interest in the latter case is the fact that only after fourteen days the signs of a neuritis developed.

Late Tetany of Gastric Origin.—L. Erwin Wexberg cites a case of a woman who for eight years showed symptoms of gastric disturbance and who suffered from attacks of cramps similar to the type seen in true tetany. Trousseau's sign was positive and there was a decided mechanical irritability of certain nerves, which made the diagnosis quite certain. The etiological factor was, in all probability, the long continued gastric disorder. The x rays showed a stenosis at the beginning of the duodenum with only a slight dilatation of the uppermost por-

tion, proximal to the constriction. In considering the etiology of tetany, the age of the patient, forty-eight years at the beginning of her illness, represents, according to statistics, almost the limit reached by patients suffering from true gastric tetany. Whether the menopause has any influence in its production has not been definitely proved. Struma is not infrequently seen in these cases and the blood picture in the case reported showed at first a leucopenia with a lymphocytosis, later a lymphocytosis. The former finding is the one usually observed in Basedow's disease. Opacities in the lens in the form of perinuclear cataract are a frequent accompaniment of tetany. In the treatment of the case reported hydrochloric acid and pepsin were employed; the result was very satisfactory. The gastric symptoms disappeared, the constipation was relieved, the patient gained in weight, and there was a great improvement in her general condition. The symptoms of tetany also disappeared.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

October 20, 1914.

Extension Apparatus for Fracture of the Humerus.—P. Delbet remarks that ordinary splints or wire troughs fail to immobilize fracture completely, especially as they must be removed for dressing, which must be done daily in fractures by shell fragments. In the author's immobilizing device no part of the apparatus is in direct contact with the arm. All dressing, irrigations, injections, etc., can be done without moving the arm or displacing the bone fragments. The dressings are held in place, not by bandaging, but by a binder fastened with safety pins. When the apparatus is applied the patient experiences immediate relief. The fragments are better kept in position than by the ordinary devices, infection is readily controlled, recovery is more rapid, and the chances of preserving a useful limb are notably increased.

PRESSE MÉDICALE.

September 23, 1914.

Simplified Method for Obtaining X Ray Photographs.—C. Vaillant recommends the use of a special sensitive paper yielding negatives directly, without the employment of ordinary glass photographic plates. In many x ray examinations no positive is required, and in these cases the prompt production of a nonbreakable negative on paper, weighing only one thirtieth and costing one third as much as the ordinary glass negative, is advantageous. The time of exposure—four to thirty seconds, according to the part radiographed—is longer than in the case of glass negatives, and a reinforcing screen is therefore used.

September 30, 1914.

Continuous Extension in Compound Fracture of the Leg.—Chaput prefers the following method of extension in compound leg fracture to the customary adhesive plaster method: An aseptic gauze and cotton dressing is first placed round the part; it should be made even and cylindrical, and should extend from the knee to the instep. A pillow should then be wrapped tightly round the leg, forming a firm cylinder, and held together with stout muslin bands. Two additional bands, about fifty cm. long,

are finally pinned by one end to opposite sides of the pillow at its distal part, knotted together some distance below the foot, and drawn taut with a cord passed over the foot of the bed, a two to three kilogram weight being attached. The fracture is thus not only subjected to an even, easily borne traction, but is satisfactorily immobilized, even without splints.

RIFORMA MEDICA.

October 3, 1914.

Hypophysis and Pregnancy.—U. Scinicariello, after a series of experiments on animals, comes to the following conclusions: 1. Operation for removal of the gland is not accompanied by any great difficulty, does not compromise the life of the animal; nor does it produce symptoms which are likely to be confounded with those of the adjacent organs. 2. The hypophysis is not an organ which is indispensable to the life of the animal. 3. Destruction of the gland is not accompanied by psychical disturbances unless there coexist other conditions, as tumors, which are capable of producing such disturbances of themselves. 4. Its destruction does not produce either motor or sensory disturbances, nor does it cause macroscopic alterations in the epiphyses of the long bones, nor a true state of general adiposis. 5. Four months after operation for the removal of the gland, there can be not only copulation, but also fecundation, which is followed by a normal gestation and delivery. 6. The mechanism of parturition can be explained with the hypophysis absent.

Bruschettini Treatment of Tuberculosis.—Cadani and Carafoli describe this method of treatment and give a detailed report of four cases in which it was employed. Bruschettini supposed that tuberculous infection is not alone bacterial; there was also a cellular infection. He prepared a serum, which differed from those in use in that it was extremely rich in antitoxic and bactericidal substances. He asserted that with this serum there was an active immunization of the organism, rendering refractory those tissues not yet attacked by the tuberculous process, and favoring destruction and elimination of diseased tissues. To accomplish these results he combined a serum with a vaccine, thus obtaining a serovaccine. He afterward left out the serum and used a vaccine. The writers have tried the new vaccine not only in cases of phthisis, but in surgical conditions. They used the serovaccine with success in pulmonary cases; they report three of surgical tuberculosis with uniformly good results.

REVISTA DE MEDICINA Y CIRURGIA PRACTICAS

November 7, 1914.

Pott's Disease.—Manuel Arredondo describes a case with complete flaccid paraplegia, slight muscular atrophy in the lower limbs, abolition of the tendon reflexes of the lower part of the body, syringomyelic dissociation of sensation coinciding with the paralysis, obstinate constipation, retention of urine, and impotence. The spinal column presented a cyphosis of wide curvature which involved the lower five dorsal, and the first lumbar vertebrae, and which showed tenderness on pressure. Although

these symptoms are the exact opposite of those usually seen in Pott's disease, the diagnosis was verified by a lumbar puncture yielding normal fluid, and a radiograph showed fusion and thickening of the affected vertebræ. The patient was put in Sayre's suspension apparatus, a plaster of Paris jacket was applied, and general tonic treatment instituted. This was followed by functional improvement of marked degree, but there occurred a pulmonary tuberculosis which resulted fatally fifteen months later. The site of the lesion determined the peculiarities of the case which were flaccid paralysis with involvement of the sphincters and the syringomyelic dissociation of sensation.

Achondroplasia.—L. F. Ballester describes a case. Achondroplasia is characterized pathologically by an alteration of endochondral ossification of the long bones during fetal life, with normal periosteal ossification. There is also normal ossification of those cartilages which produce bone after birth. Histologically the cartilaginous lesions consist in the formation of a fibrous band or plate between the indifferent cartilage and the zone of proliferation, with irregular disposition of the cartilaginous cells, and also lack of formation of medullary spaces from rupture of bloodvessels in the cartilage tissue. This results clinically in a normal development of the trunk with an abnormal shortening of the extremities. This disproportion of the extremities to the trunk serves to distinguish the condition from ordinary nanism or dwarfing. The conditions from which achondroplasia is to be distinguished are rickets, cretinism, hereditary syphilis, mitral hypoplasia, hypophyseal hypoplasia, mongolism. The author's case was that of a young man aged eighteen years; although typical and easily differentiated from other conditions, it did not help to clear up the etiology.

Acute Zygomaticitis.—F. Rueda states that this condition, as a separate entity, was first described in 1913 by Urbantschitsch and Gatscher. It sometimes arises from an acute otitis, at other times from a mastoiditis. The author thinks that the time has come to constitute a separate group of tympano-aditoantritis, in which the external signs are those of the squamozygomatic type. In his opinion the condition arises from localization of a septic process in the superior tympanic spaces, giving rise to a periosteal resonance limited to the ramus of the zygoma, the posterior portion of the temporal fossa, and the upper wall of the external auditory canal. He describes three cases from his own experience, one of mastoid origin, the second and third arising from acute tympanitis.

BRITISH MEDICAL JOURNAL.

November 14, 1914.

Borderland of Disease.—Guthrie Rankin points out that our scholastic and hospital experience deals with diseases when they have produced organic structural changes. To neglect that phase of disease in which the process is at its beginning does not fit the physician for practice, for it is just this stage that he most often encounters in his office. Dispensary teaching is widely practised, but even here it is the rare case, or the typical one which arouses interest, while the important minor ailment is almost entirely neglected.

Our Present Knowledge of the Thyroid Gland.

—Marcus Mamourian reports the case of a seven year old boy who was a typical cretin. Treatment with thyroid extract continuously for three years from the age of four to seven years, showed no appreciable result. This was continued for a further six months, the extract being given in doses of twenty grains daily, but still without effect. The child was prepared for operation, a sheep was killed in the hospital while the child was being anesthetized, the thyroid of the sheep was excised, placed in hot salt solution, and then incised in several places, after which it was transplanted into the child's omentum, the latter being first scarified with a needle. The graft apparently was successful, for four years after the operation the child had developed exceedingly well both physically and mentally. Mamourian calls attention to previous reports of successful thyroid transplantation, none of which was, however, made into the omentum. He believes that the vascularity of the tissue makes it a peculiarly suitable site for implantations.

Vaccine Treatment of Gonorrheal Infection.

R. Donaldson reviews the claims made by Nicolle and Blaizot regarding the remarkable curative powers of their vaccine and its freedom from side actions. This vaccine is made from gonococci grown on a special medium and killed by exposure for forty-eight hours in an ice chest to the action of sodium fluoride. Both of these processes are supposed to diminish the toxicity of the vaccine. In addition to the gonococcus, which is present to the number of twenty-five million in each dose, there are also 225 million killed "synococci," as the originators have termed the Gram positive diplococcus which is said to accompany the gonococcus. Donaldson reviews the literature of cases which have been treated with this vaccine and contributes four new ones of his own. He finds that the claims of the originators are not fully substantiated regarding its phenomenal curative property. Certain cases do show prompt improvement—thus, the pain of epididymitis is relieved by only one or two injections. But of twenty-nine cases of gonococcal infection, only fifteen have been reported as definite cures, and several of the patients actually grew considerably worse under the treatment. In addition to this failure, the preparation was not found to be free from toxic action, several patients showing marked symptoms after the injections. Experiments with the use of sodium fluoride to kill other organisms for vaccines were unsatisfactory, because from two to six days' time was found to be necessary, and this method of destruction did not reduce the toxicity of the vaccine.

Blood Platelets in the Treatment of Disease.

Lyn Dimond describes the methods which he employs for the separation of these bodies from the blood of normal human beings, both before and after immunization by vaccination. He has successfully injected the platelets from healthy persons into others for the purpose of increasing their resistance to bacterial diseases. The opsonic and phagocytic indices, agglutination tests, and complement fixations all showed a beneficial effect from these injections. In other cases normal persons have been immunized by vaccination with the or-

ganism isolated from the patient and their platelets then injected into the patient with good results. Platelets have also been obtained and used in this way from patients who had recovered from various infections. The injections have also given good results in the checking of internal hemorrhages. Lastly, platelets have been found to be of value in sensitizing vaccines before injection.

Treatment of Appendix Abscess.—C. Max Page states that appendicitis should not be allowed to come to the abscess stage. Unfortunately, a considerable number of such cases are encountered. These may be divided into two groups; the first is that in which the abscess is walled off and the anterior peritoneum is involved; the second that in which the anterior peritoneal layer is not affected. In the first class of cases, incision and drainage give good results with a low mortality. In the second the mortality from ordinary methods of procedure is quite high on account of the unavoidable peritoneal soiling and the development of general peritonitis. This can be largely avoided, according to Page, by leaving the abscess intact after abdominal incision where the anterior layer of peritoneum is not adherent between the abscess and the abdominal wall. Instead of opening the abscess a cigarette drain is passed gently down to the abscess cavity and left *in situ* for a few days until adhesions have formed along its track. Then the abscess can be broken by a finger inserted through this canal, if it has not already ruptured spontaneously. It was noted that in a number of cases the abscess disappeared after the insertion of the drain although it did not rupture.

LANCET

November 14, 1914.

Glycosuria.—Nestor Tirard has devised a means of plotting the daily sugar output, together with the weekly changes in weight, and the daily urea content of the urine. This enabled him to make observations on the influence of diet and drugs. His observations with regard to the influence of diet confirm those of others, and he adds that at times, a change in diet, in which the form but not the constituents is altered, may lead to an increase in the sugar output if the new diet is distasteful to the patient. By keeping the diet constant, after reducing the sugar output to a fairly uniform quantity, it was found that the administration of codeine or other opium preparations usually had no effect in further reducing the sugar in the urine, but that they often led to ominous depression which necessitated their discontinuance. Sodium salicylate gave better results than any other single drug tried, both in mild and comparatively severe cases, often materially reducing the sugar output, or even causing it to cease entirely. Continued administration of the salicylate at times so raised the sugar tolerance that small amounts of carbohydrate could be taken without the return of glycosuria. The use of sodium bicarbonate, either alone or together with the sodium salicylate, failed to have any lasting effect on the reaction of the urine, and in cases of hyperacidity, it was found exceedingly hard to give enough of the bicarbonate to render the urine even faintly alkaline. No favorable effects were observed from the use of

diastase, contrary to the experience of others; its administration seemed to give rise to an increase in the amount of sugar excreted. Trypsogen also increased the glycosuria. Calcium iodide seemed variable in its effect, but in some cases it also caused an increase in sugar output. Saline laxatives were found to have a beneficial effect, both on the general condition of the patient and on the amount of sugar eliminated. No relation of value could be determined between the output of sugar and of urea, the latter varying from day to day without regard to the glycosuria. Valuable prognostic data were obtained from a correlation of the daily sugar output and the change in weight of the patient. When the sugar fell and the patient gained in weight the prognosis was found to be good; when there was a gain in weight with a constant sugar output, it was also favorable, but when the weight fell the prognosis was bad even with a stationary or falling glycosuria. The interesting observation was made that patients with gangrene, although apparently of bad prognosis, recovered very rapidly when the local infection was treated and checked. This, together with the favorable action of sodium salicylate, which is associated with the idea of a destructive action on bacteria, suggests that some cases of diabetes may have a toxic origin, the pancreas being affected by circulating bacterial toxins.

Incidence of Plague in Europe.—C. Strickland concludes that it was the black rat which was responsible for epidemics in the past. This rat has been largely supplanted by the brown rat. The brown rat is not a means of the spread of plague for it stays as far from man as possible, it keeps away from the centres of population to a great extent; it leaves the cities and spreads throughout the country in the summer months. Measures should be directed against these rats, and consist in proper construction of the foundations of houses and removal of all sources of food.

BOSTON MEDICAL AND SURGICAL JOURNAL.

November 19, 1914.

Chlorophyll Test of Gastric Motility.—Franklin W. White says that this method is simpler than most of the older ones, makes little demand on the appetite, and is very easy on the stomach. It is readily used in patients who are vomiting, or who are on a very simple light diet, where a big meal is uncomfortable or impossible. The sources of error are few and probably unimportant, and no considerable disturbance of motility escapes detection. It is an easy method of following results of treatment of gastric stasis. It is probably not superior in accuracy, and not likely to replace the best of the older tests, but it is simpler and easier for both doctor and patient.

Radium in Cancer and Allied Conditions at the Huntington Hospital.—Thomas Ordway says that the best, apparently curative results from radium therapy are obtained in certain types of skin and other localized forms of cancer. In myelogenous and lymphatic leucemia, the blood picture becomes almost normal, the spleen is reduced markedly in size, and certain symptoms may be relieved without toxemia resulting. In many cases of true cancer which have advanced beyond the operable

stage, or those recurring after operation, improvement from radium therapy may follow not only subjectively, but in the local condition. This improvement may include relief from discharge, hemorrhage, and pain; cleansing or healing of ulceration; diminution in size, or disappearance of growth. Such cases however are rarely cured. Even large growths sometimes disappear under the influence of radium, but metastasis or spreading of the growth to other parts is not prevented, or the patient may succumb to the rapid disintegration of the original growth. Newer methods may improve these results of radium therapy; at present its proved value is limited, but occasionally cases beyond these well recognized limits are distinctly benefited.

Intraabdominal Hemorrhage Complicating Normal Pregnancy.—Franklin G. Balch and Robert M. Green report a case of this nature and refer to another reported by Hamilton and Balch in 1907, the only ones known by them to be on record. They conclude that intraabdominal hemorrhage complicating normal pregnancy is exceedingly rare, but, apart from trauma, may arise from various unusual causes. In the presence of classical signs of concealed internal bleeding during the later months of pregnancy, a diagnosis of such hemorrhage from unknown cause should unhesitatingly be made, and appropriate treatment instituted. Among the possible, rare causes of intraabdominal hemorrhage complicating normal pregnancy, may be congenital angioma or varix of the uterus. The presence of such a varix may be a cause of habitual antecedent dysmenorrhea for which no other evident anatomical or physiological cause can be found, and which is unaffected by treatment. In the grave exsanguination following intraabdominal hemorrhage associated with normal pregnancy, transfusion is a life saving procedure of proved value, and should be employed promptly as soon as the source of bleeding has been checked.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

November 21, 1914.

The Wet Nurse in Hospital Practice, by F. S. Churchill.—This paper was abstracted in our issue for June 27th, page 1312.

Urinary Analysis in the Diagnosis of Diseases of Infancy and Childhood, by R. G. Freeman.—This paper was abstracted in our issue for July 4th, page 48.

Amebic Dysentery in Childhood, by L. R. DeBuys.—This paper was abstracted in our issue for July 4th, page 48.

The Reconstruction of the Nasal Septum after the Submucous Operation, by J. A. Babbitt.—This paper was abstracted in our issue for July 4th, page 53.

End Results in Cases of Gastric and Duodenal Ulcer, by E. P. Joslin.—This paper was abstracted in our issue for July 4th, page 42.

Gastric Cancer in the Young, by F. Smithies.—This paper was abstracted in our issue for July 4th, page 42.

Landry's Paralysis; Report of a Case, with Necropsy, by E. D. Fisher.—This paper was abstracted in our issue for July 4th, page 50.

Morbidity Reports and Statistics, by J. W. Trask.—This paper was abstracted in our issue for July 4th, page 48.

Cerebellar Symptoms and Cerebellar Localization.—C. K. Mills and T. H. Weisenburg, in applying the known facts of cerebellar localization in neurological diagnosis, remark that when trunk movements, and movements of the limbs which must act with them to preserve static and dynamic equilibrium, are affected, the vermis must be involved, in whole or in part. The associated involvement of one lateral lobe in the vermal lesion will be largely determined by unilateral dysmetric phenomena, the extent of the anteroposterior involvement of the inferior vermis by the preponderance of asynergy in either the lower or the upper limbs. In the authors' cinematographic studies, the presence of abnormal pelvic girdle movements in one case, and of abnormal shoulder girdle movements in another (these symptoms being sometimes more marked on one side than on the other), seem to them to give the key to the localization of the lesions, both as regards their anteroposterior and lateral positions.

Carcinoma, Syphilis, and Tuberculosis Coexistent in the Same Patient.—E. Kellert, who reports this case, states that it and other cases reported bring up the question of the occurrence of two or more active diseases in the same patient. He is inclined to think that it is to be found much more frequently than is commonly supposed. Thus, typhoid fever and tuberculosis in combination are not infrequently observed, while yellow fever, dengue, malaria, and amebiasis often coexist.

Value of Röntgenography in Diagnosis of Diseases of Larynx and Trachea.—S. Iglauer concludes: Satisfactory diagnoses of diseases of the larynx and trachea can usually be made by the ordinary method of examination, but our observations for the most part are limited to a study of the changes in the lining mucous membrane, and give no certain information concerning the changes in its underlying and adjacent structures. The Röntgen examination gives additional information concerning the pathological changes in the cartilages, which are more or less involved whenever the laryngeal mucous membrane is the seat of a chronic disease process, such as tuberculosis or syphilis. In stenosis or distortion of the lumen of the larynx or trachea röntgenography usually reveals the seat, the nature, and the extent of the lesion. The knowledge thus gained before operative procedures are undertaken is of great value. Röntgenography also enables us to study the effects of operation and the position of tubes, etc. Owing to the ease with which it is carried out, it is of special value in the examination of children or nervous patients.

Bacteriology of Cholecystitis and its Production by Injection of Streptococci.—E. C. Rosenow expresses the opinion that the common presence of streptococci in the wall of the infected gallbladder and in the centre of gallstones, often in pure culture, while absent from the bile, and their affinity for the gallbladder in animals, are strong evidence that streptococci are the cause of cholelithiasis in man far more frequently than is believed, and serve to explain the good results, reported by some, fol-

lowing cholecystotomy in cases of myocarditis, arthritis, and other conditions.

Application of Radium in the Bladder for Carcinoma.—F. J. Schoenenberger and S. W. Schapira report two cases, and among the conclusions reached by them are the following: We may without danger, and even without discomfort to the patient, place in the bladder as much as fifteen mg. of radium, and allow it to remain as long as twelve hours. They believe they have shown that radium has the power to remove a tumor of the bladder (carcinoma) and of the prostate within a period of two months.

MEDICAL RECORD.

November 21, 1914.

Possibility of the Cure of Dementia præcox with Serum Containing Defensive Ferment.—Bayard Holmes remarks that in a passive animal, such as the horse, a stock of ferment bearing serum against the hypothetical toxic albumin α might be produced. He would propose to remove from patients' blood sufficient for a complete Abderhalden study, and serum necessary for the injection of one or two animals. The first portion of the serum would be tested in the dialyzers against various albumins, or substrate in the laboratory; the second portion should be injected into the horse, and the third into the goat or sheep, or some other animal. According to analogy, these animals would in a short time furnish blood in which we could recognize defensive ferments, found by previous examination, in the blood of the recovered patient.

The Relation of Gynecology and Urology to General Surgery.—H. Lilienthal concludes: 1. Operative gynecology should not be undertaken as a specialty except by those fully trained in general surgery. 2. All general surgeons should be trained in gynecology. 3. Major urology is only for the fully trained surgeon.

Follicular Tonsillitis and Acute Gastric Fever.—Louis Fischer says that follicular tonsillitis and gastric fever are seen in the infant, as well as in the older child, as a sequence to a deranged stomach, following overfeeding. Too much importance cannot be placed on the necessity for throat inspection in every child who refuses to eat. An excess of hydrochloric acid is usually one of the causes of this complication. The throat trouble is noncontagious, and prognosis is good. An alkaline laxative such as compound jalap powder, in doses of from three to five grains, should be repeated every three hours until a thorough evacuation has been produced; water should be given freely, but no food. To the throat, tincture of iodine, diluted with an equal quantity of water, should be applied once, by means of a cotton swab. After the bowels have been thoroughly moved chicken soup, skimmed milk, or weak tea may be permitted. Afterward one or two drops, depending on the age, of tincture of nuxvomica may be given before meals.

Sexual Significance of Recent Fashions.—E. H. Williams refers to the change which has taken place in mode of life and mental attitude in both sexes. The men of today are absorbed by strenuous business transactions; they have gradually discarded garments the chief asset of which was display, for

those of sombre, unattractive comfort and utility. Meanwhile the change in women has been in many ways directly opposite. Although some of these changes correspond with those in men, there has been no corresponding tendency to sobriety in dress. Possibly the present fashions are simply signals of distress—protests against the discrimination which modern customs and the double standard have instituted against the entire sex. With this thought in mind, one is led to wonder whether, after all, the sudden wave of desire among certain women for political equality is not really a mistaken interpretation of a desire for sexual equality, and whether the basis of all the recent movements and fashions is not the element of sexual unbalance asserting itself in one way or another, according to the temperamental peculiarities of the individual.

LANCET-CLINIC.

November 21, 1914.

Purpura rheumatica with Genitourinary Lesions.—A. W. Nelson considers purpura rheumatica accompanied by hematuria quite a rare condition. In studying hematuria, the following points are worthy of consideration: If the escape of blood is independent of the act of urination, the bleeding is somewhere in the anterior portion of the canal; if it appears with the first jet of urine, and the remainder of the urine is clear, the bleeding is in the urethra itself; if the prostatic portion is involved, terminal hematuria is noted. Terminal hematuria denotes that the bleeding is caused by some disturbance behind the bulbomembranous junction. When all the urine is tinged with blood and the last few drops are almost pure blood, the hemorrhage is prostatic or vesicular in origin. The location of the hemorrhage does not solve the diagnosis. If in the bladder, or urethra, the cystoscope and the urethroscope are of great aid, as we can see the appearance of the bladder and the urethra and locate the exact site of the bleeding. The author reports a case of purpura rheumatica in which hematuria was a prominent symptom. Examination with the urethroscope and cystoscope showed a congestion of the mucous membrane of the urethra and hyperemia of the trigonum of the bladder. Treatment consisted in the regulation of the diet and the administration of fluid extract of ergot, and salol. The patient improved under this treatment. The author considers that purpura rheumatica and Schoenlein's disease may be considered as one and the same affection. The etiological factors causing this condition are variously regarded as: Microorganisms and their toxins, nervous exhaustion, excessive venery, vasomotor disturbances, and poisoning due to faulty metabolism. Rheumatism is possibly only a part of the symptom complex seen in this condition.

Surgical Authority.—Frank Fee is of the opinion that there should be an authority in surgery representing the up to date surgical profession of America. The American College of Surgeons should fill this position, which would be similar to the Supreme Court in legal matters. In this way surgery could be standardized so that students, surgeons, and teachers would know where to look for wisdom and could find it without expenditure of time and money. Committees of men best fitted to the various

branches of surgery could pass upon the latest and best surgical opinions of the day, and these could be presented to a quarterly or semiannual meeting composed of almost all the members for discussion and vote. This method would do away with individualism as it exists today.

AMERICAN JOURNAL OF OPHTHALMOLOGY

October, 1914.

Ocular Tuberculosis in Relation to the Nose and Throat.—W. H. Luedde reports four cases of as many forms of eye disease apparently dependent on tuberculosis, to judge from the effects produced by tuberculin; these forms were associated with nasal disease that was latent until after tuberculin had been used. An interesting detail is that the von Pirquet test was negative at first in two of the four patients; one was aged thirty-one years, the other seventeen years. A careful study of the reports of these two cases leaves us very much in doubt whether either had tuberculosis, even though the secretion from the nose and sinuses was augmented by the injections of tuberculin.

AMERICAN JOURNAL OF TROPICAL DISEASES AND PREVENTIVE MEDICINE.

October, 1914.

Spirochætæ and Fusiform Bacilli in Various Lesions.—Weston P. Chamberlain, in 106 patients with various lesions of the mouth and throat, found spirochetes and fusiform bacilli in no less than fifty-three per cent. The number of positive findings was highest in ulcers of the throat and gums, and out of twenty-seven lesions considered to be syphilitic, eleven yielded the organisms of Vincent. There was no uniformity of symptoms or signs in the cases with heavy Vincent organism infections. Such infection among white men is apparently more common in the Philippines than in temperate climates. Numerous spirochetes and fusiform bacilli similar to those seen in Vincent's angina were also met with in the sputum of a patient with typhoid fever and in an ulcer of the skin in another case. On the whole, the finding of spirochetes and fusiform bacilli in a throat lesion or elsewhere does not justify a diagnosis of Vincent's angina. They may be associated with syphilis, diphtheria, carcinoma, and mercurial poisoning. These, and probably other etiological factors, must be carefully ruled out before diagnosing Vincent's angina.

Bubonic Plague.—H. Windsor Wade and H. L. Staring urge that, in the future, more attention be paid to plague than heretofore. They present a complete clinical and laboratory study of a case recently under their observation in New Orleans. The possibility of *Bacillus pestis* infection should always be considered in a case of sudden marked prostration, with severe headache, vomiting, fever, early delirium, and a focus of lymphatic enlargement and tenderness. The diagnosis cannot, however, as a rule be made positively without a bacteriological study. This should be carried out with material secured by gland aspiration, smears of which usually show numerous typical bacilli. The characteristic growth of the organism on various media and certain peculiarities of behavior in cultures render the diagnosis so certain that the death of guineapigs

inoculated with gland material is merely confirmatory.

Tuberculosis in Tropical Countries.—Isaac W. Bewer maintains, from a study of various statistics and his own observations in the Philippines, that residents in the tropics are afflicted with tuberculosis to an even greater extent than people of temperate regions. The percentage of tuberculous cattle in the tropics is, however, very small. The cause of this discrepancy seems to be the fact that human beings sleep in buildings in which no ventilation is permitted, the natives dreading malaria and having learned that upon keeping their houses closed up tightly after dark, their families suffer less from fever.

Tropical Infectious Stomatitis.—Nathan Barlow describes a condition popularly known in Central America and Northern Mexico as *mal de boca*. The disease is transmitted by direct or indirect contact. All persons are susceptible, but the more severe forms usually occur in those already debilitated. A delicate spirochete is regarded by the author as the probable cause. The process usually involves first the gums, which become swollen and very tender and are soon covered with a white pellicle. The cheeks, lips, and palate are then frequently involved. An eroded surface remains, the erosion very gradually becoming deeper. In advanced cases there is great debility from pain and disinclination to eat. The milder forms yield readily to cleanliness and antiseptic mouth washes, or to the application of tincture of iodine, but in severe cases the only measure found effective was to paint the entire infected area at hourly intervals with a strong solution of one of the organic silver preparations.

ANNALS OF SURGERY.

October, 1914.

Diseases of the Large Intestine.—W. A. Oppel, discussing the operative technic in the treatment of carcinoma of the large intestine, says that he has always been making use of the lateral anastomosis, when uniting the ends of the colon. In dividing the gut, he first separates a portion from the mesocolon, and then carries out two circular incisions as far as the muscular coat. Just outside these incisions and on either side of them, a pursestring suture is applied, a ligature is put around each of the incisions, and the gut is divided between them. After that the end of the intestine, swabbed with pure carbolic acid, is immediately pushed into the gut, and the pursestring suture tightened up. On top of that one or two layers of serous sutures are placed. He does not use any special enterotribes nor particular types of clamps except that of Doyen, and no buttons whatever are necessary.

Injury of the Great Toe Sesamoids.—Kellogg Reed states that the upper surface of these bones being faceted and covered with a synovial surface, after sustaining trauma, may suffer an inflammation which results in sharply localized pain when weight is put on the ball of the foot or when the great toe is moved. This pain is caused by the flexor tendons which are attached to the bones and their contraction or movement causes a rubbing of the inflamed surface. Trauma may not result in this inflammation, but the small bone may be

split, with little separation of the fragments. Its fibrous investment or periosteum, which is the tendon fibre, becomes the subject of an irritative and proliferative reaction, an irritative periostitis. This is aggravated by weight bearing pressure and movements of the metatarsophalangeal joint, as in walking, until a permanent thickening of the injured and irritated bone follows. Nothing distinctly can be found on examination. When the skiagraph gives undisputed evidence of fracture in the anteroposterior view, or the lateral view shows the thickening of the bone, the best and lasting treatment is removal by open operation.

Treatment of Fracture of Neck of Femur.—Royal Whitman describes the treatment as follows: The patient, usually anesthetized, is lifted to a pelvic support, preferably furnished with a perineal bar for counter pressure, the extended limbs being supported by assistants. The assistant holding the uninjured limb abducts it to the normal limit in order that it may serve as a guide, and incidentally to fix the pelvis. The injured limb is first flexed and rotated sufficiently to disengage soft parts that may be interposed between the fragments. It is then completely extended, and the assistant, by direct manual traction, overcomes the shortening, as demonstrated by measurement and by the relation of the trochanter to Nelaton's line, at the same time correcting the outward rotation. Still maintaining steady traction, he then abducts the limb to correspond with its fellow, the operator meanwhile supporting the joint and lifting the thigh upward. The pelvis should now be level and the extended limbs in exact correspondence in every particular. A plaster spica is then applied from the axilla to the toes. This should be carefully adjusted about the pelvis and trochanter. It should completely cover the buttock and be heavily reenforced beneath the joint and thigh, that it may be unyielding to pressure and therefore effective as a posterior splint to hold the limb at its proper plane.

Laminectomy for Spinal Tumor.—Charles A. Elsberg believes that the best results will be obtained by those who are careful not to handle the cord and who consider that every time the cord is touched, harm is done to it. The cord should never be grasped with the fingers or an instrument. It has to be lifted up or drawn to one side, it is advisable to grasp a slip of the dentate ligament with a mosquito artery forceps, cut the slip at its dural end, and make traction on the forceps. It is sometimes necessary to cut one posterior root and use it for traction purposes. The entire procedure should be accomplished without causing any hemorrhage. If the growth is intimately connected with the pia mater or with the cord itself, it is better to stop the operation for the time being, rather than to attempt to peel out the growth. Some subpial tumors are closely connected with the cord, and their attachments cannot be divided without causing considerable trauma to the cord tissue. If the actual removal of the tumor is delayed for a few days or a week, the relations of the tumor to the cord will be found to have become much less intimate. In such a case it is advisable to leave the dura open, to close the muscles, fascia, and skin carefully, and

to wait for four to seven days before the second operation is done.

PAN-AMERICAN SURGICAL AND MEDICAL JOURNAL.

October, 1914.

Unique Urological Case.—G. Shearman Peterkin reports the case of a young man aged twenty-four years who complained of constant frequency of micturition, and of pain in the right kidney at times. These symptoms had been present for the past fifteen years, varying in intensity from time to time. Cystoscopic and radiographic examination revealed a calculus deeply imbedded in the right side of the bladder near the ureteral orifice. The right ureter could be catheterized for only one inch, the left normally, and the urine from this side showed colon bacilli. There was a history of the patient's having swallowed a pin in childhood. Laparotomy revealed an abscess of the appendix which was adherent to the right side of the bladder. It was found that the appendix contained a large endolith which was continuous with the bladder calculus and that both concretions had formed about the pin which had been swallowed many years before. The pin had made its way, point foremost, into the appendix and had perforated the bladder to the extent of half an inch. Resection of the appendix and the adherent portion of the bladder was followed by recovery from all symptoms, but the urine continued to contain large amounts of pus and colon bacilli, although there was no longer any frequency of micturition. At present the infection is limited to the bladder and is expected to yield to proper treatment.

Proceedings of Societies.

BROOKLYN PEDIATRIC SOCIETY.

Stated Meeting, Held October 28, 1914.

The President, Dr. GEORGE F. LITTLE, in the Chair.

Tonsillotomy versus Tonsillectomy. The Importance of Differential Diagnosis in Enlarged Tonsils in Children.—Dr. THOMAS R. FRENCH's paper appears on page 1097 of this issue of the JOURNAL.

Dr. D. BRYSON DELAVAN, of New York, felt that all would recognize the importance of the ideas presented by Doctor French, whose pioneer work marked an epoch in the recognition and treatment of tonsillar disease. Not that the removal of the tonsil was a new problem, for it had been practised from time immemorial and possibly had been one of the earliest of surgical procedures. It was most interesting as well as good for them, as Americans, to recall that the first really serious steps forward in the technic of tonsillotomy were made in this country. The celebrated Doctor Physick, at Philadelphia, in 1828, invented an instrument which, slightly modified by Sir Morell Mackenzie and later by numerous others, had been widely used, especially in England and the United States. In 1832, Doctor Fahnestock, of Lancaster, Pa., devised another form of tonsillotome, familiar under the name of an instrument maker of Paris,

Matthieu, and extensively used in this country and in Europe. Again, Horace Green, of New York, in 1850, had given great impetus to the subject by directing attention to diseased conditions of the tonsils other than simple hypertrophy and by advocating their removal by dissection. The scientific treatment of the tonsil had received most attention in this country. The example of these early contributors had been ably followed, and by no one more brilliantly than Doctor French, whose admirable studies and experiments had again brought the subject to the front. While operations the world over had been performed upon the tonsil, in the hands of countless operators exhibiting every grade of skill and wisdom, and covering a period of many generations, practically no records of these operations had been kept and little systematic effort had been made to prove which of many methods was the best. Cases were operated in and dismissed, no effort being made to learn ultimate results. Moreover, there was a tendency to look upon all enlarged tonsils as diseased and requiring removal. Discrimination must be made between the various forms of tonsillar enlargement and disease, and the means of cure or of operation best suited to the type of trouble represented in the given case must be applied. Although some of the older operators had been remarkably expert, the knowledge which they had gained through long and extensive experience had been lost. Again, notwithstanding the larger numbers of operators engaged in the work at the present day, there existed wide differences of opinion as to what methods were the best and almost no cooperation in investigation.

Doctor French had recognized that little had been done thus far in the application of modern methods of investigation to this department, and had seen the need of the study of large numbers of cases operated in under different good methods and observed until the results of the operation could be definitely determined. The clinic at the Long Island College Hospital was to all intents a research laboratory. In it he had aimed to acquaint himself with all good methods, to study and test each practically, and to make comparison with the methods so investigated for the purpose of determining, if possible, which were superior. Meanwhile, he had devised many valuable and ingenious methods of his own. His clinic and methods were a credit to American surgery, and were of unequalled excellence. He had clearly shown that not all conditions of the tonsil requiring surgical treatment were the same. Too much emphasis could not be laid upon the necessity of recognizing the differences which existed. The ruthless extirpation of all affected tonsils in children was not only unnecessary, but fraught with the possibilities of present and future harm. In certain cases a cure might be expected by the proper cleansing of the crypts, the free opening of such as were not sufficiently patent, and the obliteration of the large sinus which often existed between the anterior pillar at the palate and the adjacent surface of the tonsil. Among the men who had been their instructors, such as Sir Morell Mackenzie, Solis Cohen, Lefferts, and the like, the removal with the tonsillotome of certain types of tonsils was accomplished with surgical success and

with entirely satisfactory results as to the final relief of troublesome conditions. Other types required other means of removal, for example, the submerged tonsil, concerning which so much had been said and done of late.

Doctor French respected the capsule of the tonsil; the speaker believed that under ordinary circumstances the capsule should not be removed. Enucleation, with removal at the capsule, was in many cases quite unnecessary. No one had yet made it clear in just what cases removal of the capsule was actually demanded. He believed the capsule to be a valuable anatomical unit, exercising important functions and necessary to the proper physiological activities of the pharynx. Even in the case of a diseased tonsil careful removal of the lymphoid tissue would be sufficient radically to do away with the sources of infection sometimes present in such cases. A few shallow remnants of crypts left at or near the inferior part of the tonsil were not likely to do harm, as the mouths of such were usually wide or might easily be made so. It was after attempted reduction of enlarged tonsils by means of the cautery and caustics that closure of the mouths of the crypts was likely. Treatment by caustic methods could not be too strongly deprecated. The superior tonsillar crypts must be obliterated. The time had arrived when slovenly, unscientific methods were no longer justifiable; wholesale destruction should not be encouraged. Doctor French had rightly proved with much emphasis the possibility of differentiating several distinct forms of tonsillar disease, the importance of correct diagnosis, and the necessity of deciding correctly the proper form of treatment. He had also insisted that operations should be performed with such intelligence and skill as to preserve the proper function of the gland and the integrity of the pharynx and of the voice. The means suggested by him for securing a correct diagnosis were original and ingenious and were worthy of respectful consideration. The lantern slide specimens of diseased tonsils so splendidly rendered by color photography were, he understood, the first of their kind and for their wonderful fidelity to nature were deserving of especial commendation.

Vague as was their knowledge of the actual function of the tonsil, no doubt it exercised some useful physiological function. A better understanding of the real office of the organ would enable them to institute methods of prevention against its becoming diseased, or when already affected to restore it to normal condition by other than surgical means.

Dr. G. HUDSON MAKUEN, of Philadelphia, exhibited some pictures illustrating damaged palates resulting from tonsillectomies. He had had unusual opportunities for observing these deformities of the pharynx during his more or less protracted work in the treatment of defects of speech, and he found it was only after several weeks or months that the results of tonsil operations could be accurately determined. A pharynx might appear to be in good condition immediately after operation and yet be badly deformed when healing had taken place.

The speaker explained how when the levator muscles of the palate were in strong contraction, the

palate was held high up in a fixed position and the palatopharyngeal muscles, being fixed above at this point and having certain of their fibres attached below to the superior cornu of the thyroid cartilage, tended to tilt the thyroid cartilages upon the cricoid and thus became important cord stretching muscles in the production of voice. The speaker described the normal palate in relaxation and in strong contraction, as it was in the emission of the higher notes in singing; also how hypertrophied tonsils, not only projecting beyond the pillars of the palate on both sides, but also deeply submerged between the pillars and causing them to bulge markedly in an anteroposterior direction, necessarily interfered with the action of the palatopharyngeal muscles in singing and speaking. Greatly deformed palates after extracapsular tonsillectomies, rendered it impossible for the important palatal and pharyngeal muscles to perform their normal functions. Deformities had followed an operation by a distinguished colleague; there was now no uvula and all the pillars of the palate were grown together. Even the most skillful operator might get bad results in difficult cases. There were only two good reasons for any kind of tonsillar surgery, first, to improve or conserve the general health of the individual; and, second, to improve or conserve his voice. These two reasons might be combined into one when they considered that the improvement or conservation of the general health tended also to improve and conserve the voice because the general health and the voice were intimately related. The converse of this proposition was also true, namely, no tonsillar surgery should be performed when there was a chance of injuring the health and voice. They should at least try to know whether or not the tonsils were a menace to the health and voice of the individual before proceeding to destroy them root and branch. It had been their custom for the most part to operate and then investigate, but this was assuredly unjustifiable, and it had suggested to him the one and only form of vivisection that he would strongly deprecate.

Having decided that an operation was necessary for the improvement of either the general health or the voice, or both, the next question should take into consideration the kind of operation to be performed, and this should be decided for each individual patient. The easy mode of procedure was to do a complete tonsillectomy in all cases. It was so easy that it came to them in a form of actual temptation. If it was true that an extracapsular tonsillectomized pharynx was always a more or less damaged pharynx, then it followed that they should "stop, look, and listen" before proceeding. As much of the tonsil as was actually diseased might be removed, but that which was not actually diseased should not be removed, except for the purpose of doing away with obstructions to respiration, phonation, and articulation. Good drainage was the important thing in tonsillar surgery as it was in all surgery, and when they had secured good drainage in certain important portions of the palatal and other tonsils, and removed obstructing portions of them, they had probably done about all that surgery and the best interests of their patients demanded of them.

The speaker asked What is the capsule? or Is there a tonsillar capsule? These were questions that were now agitating the pharyngological mind. Dr. D. R. Patterson, surgeon to the throat and ear department of King Edward VII Hospital, Cardiff, had come to the conclusion that the tonsil had no capsule in the sense that other glandular bodies, for example the kidneys, had capsules. He held that, originally at least, the capsule was no essential part of the tonsil, but it was a portion of the intrapharyngeal aponeurosis to which the tonsil attached itself during its development. In a private letter to the speaker, Doctor Patterson had quoted from the last edition of *Cunningham's Anatomy*, as follows: "The lateral or attached surface (of the tonsil) is enclosed in a distinct fibrous capsule, connected with the pharyngobasilar fascia, and this capsule separates the tonsil from the superior constrictor muscles of the pharynx." In this description, the pharyngobasilar fascia, or, as Doctor Patterson preferred to call it, the intrapharyngeal fascia, and the capsule were regarded as one and the same structure, and there appeared to be no disposition on the part of either the French or German schools of anatomists to distinguish between the two. Doctor Makuen had as yet had no opportunity to make any dissections or histological studies of the tonsil in an effort to verify these conclusions, but all his clinical experiences led him to accept them as being at least more nearly accurate than other views.

The fact that the tonsil might be drawn from its bed or peeled out of its fossa by no means disproved this theory, but actually confirmed it, because the intrapharyngeal aponeurosis, as it reflected over the palatopharyngeus, the palatoglossus, and the superior constrictor muscles, was composed of several thin layers of fascia, and when the tonsil was peeled out, as might easily be done in children, it came out with only the adjacent thin layer of fascia attached, and, when finally it was enucleated by means of the snare, for example, the wire simply cut through the fascia after it had been drawn tightly together, leaving the edges puckered, somewhat like the opening of a bag which was drawn together by a string.

In the young subject, this operation was comparatively simple, and if properly performed it would do little or no damage to the pharyngeal structures, because it still left a smooth, fibrous covering for all the muscles referred to, and the traumatism was not necessarily great; but in the course of the development of the tonsil and of the intrapharyngeal aponeurosis, and especially after severe, repeated, inflammatory attacks of the tonsil, whether these attacks were physiological or pathological, the tonsil became more and more closely adherent to the intrapharyngeal aponeurosis, and the layers of this fascia became more and more amalgamated as it were by means of the development of the capillary vessels and fibres from the various muscular tissues which it enveloped, until it was a practical impossibility to separate the layers of the fascia, as was done in the young subject, and it became necessary, therefore, in doing a so called extracapsular tonsillectomy, to remove the gland and all the several layers of fascia attached to it *en masse* down to the very muscles themselves and, except when the operation was very carefully and

skillfully performed, a considerable portion also of these important muscles was removed, leaving the various deformities which had been described. A so called extracapsular tonsillectomy, therefore, though rarely indicated in young children, might be done with impunity because of its comparative simplicity and its little traumatism, but in the adult subject the question assumed an entirely different aspect and must be a study in itself, and there could be no rule of thumb in the matter and no routine measures. Tonsillar surgery was not easy, but it was infinitely easier to know how to do it than it was to know when it should be done, and what particular operation was indicated in any given case.

The suggestion of Doctor French that a portion of the tonsil be removed in order to determine whether or not the gland was diseased and required further or complete removal, was ingenious. The principle was not new as applied to tumors in efforts to make a diagnosis of their condition, but the tonsil, strictly speaking, was not a tumor, and there might be some doubt as to the value of the suggestion as a means of diagnosis, especially when it was possible that the tonsil might be diseased in part only, and the health or disease of one part did not necessarily imply the health or disease of the whole. This appeared to be the only objection to the procedure, and there was hope that some purely clinical diagnostic indications for the removal of the tonsils might be discovered. The speaker's plan was to study the pharynx carefully during a period of two or three weeks, or even longer, in an effort to ascertain the exact physical conditions. During these studies a complete history of the patient's condition was taken and studied with a view to determining whether the tonsils were really doing good or whether they were harmful to the individual. His contention was purely for a more thorough investigation before deciding upon operation, and for conservative measures when possible, and for radical measures when absolutely necessary, or as Doctor French so well put it, "Let us be conservative when we may, and radical when we must."

Dr. HENRY L. SWAIN, of New Haven, said that they were there as laryngologists. It was evident that there had been a change in sentiment in regard to this matter. Everything had an evolutionary development and the subject under discussion was no exception. It seemed that in their treatment of the tonsils, their sins had been as scarlet, and in the slaughter one had arisen who cautioned. The pediatricists in their efforts to keep children well had aided and abetted in this sacrifice often of innocent tissues. In doing what seemed best for the greater number, they often sent children to the hospitals with instructions that the tonsils should be removed. The inspector went through the schools and picked out every enlarged tonsil and advised the child's parents to have an operation performed. The parents decided to have the operation done and the children came fifteen and twenty at a time to the clinic. The question as to the advisability of operation was, indeed, not left to the laryngologist to decide; often the child was brought in already etherized and ready for operation, and there was nothing left but to take out adenoids and tonsils. If in a few cases the operation was not sufficiently thor-

ough, the operator was thought not to be well fitted to do his work, so to be on the safe side he did a thorough operation and took out both tonsils.

It might be asked why the function of the tonsil had not been more considered. It was probably because the patients grew up, fulfilled their part in life, and did not seem to be in any way abnormal, and so the operators had got into a slipshod way of removing the tonsils without much question, thinking that they had done the child good because the tonsils might later do harm. They failed to appreciate that it was no argument that they did not yet know whether the tonsil had a definite function. If one so long graduated as the speaker went back to his student days, he would recall that at that time they knew nothing of the function of the thymus, the thyroid, the pituitary, or the spleen. Who had even heard of the parathyroids and who in the wildest flights of imagination would have thought of attributing a function to bone marrow? Even now the function of the pineal gland, Peyer's patches, or the solitary nodes of the large intestine was not understood. They knew little of the lymph nodes and their ultimate processes of protection, yet every one of them hesitated to take them out without good reason. It was illogical not to apply the same argument to the tonsils as to tissues in the body with which they were nearest allied, namely the lymph nodes. For years he had taken out adenoids thoroughly, but he did not now know whether it was from indifference or habit that he first had grown accustomed to leaving the tonsils in young children unless they were large or diseased. Such children often later had a normal enlargement of the tonsils. Why? Because the system needed something which they could produce and so they enlarged to do the work. If this was true, then if one removed lymphoid tissue, he was removing something that had a function and some other part had to perform that work. Thus it might happen that after the removal of the tonsils, there might be enlargement of the lateral columns of the pharynx or the lingual tonsil, and thus the pathological processes of later life would go to those parts. What great good could the removal of a perfectly normal faucial tonsil accomplish? In children under six years of age he did not believe it was advisable to remove all tonsillar tissue, as by enucleation. In them there was not a well defined capsule, especially behind toward the posterior pillar, and radical operation was likely to result in deformity or actual destruction of the posterior pillars. Eventually there was often extensive adhesion of the pillars to the posterior pharyngeal wall, even resulting in marked narrowing of the nasopharyngeal opening.

If they removed a lymph node from the neck and found that it contained the germs of tuberculosis they were tempted to think that they had accomplished the removal of a great danger which threatened the life of the patient. They sometimes concluded the same when they found tubercle germs in the tonsils. But might not that be wrong? One did not know how often a tubercle bacillus was held up in the tonsil until it could be attacked by the phagocytes and destroyed. Sometimes when one found germs there, the tonsil would have taken care of them if only let alone. He would rather have tubercle

bacilli held up in the tonsil than deep down in the mediastinum. Furthermore, the tonsil was not in the throat just to absorb things from the mouth and nose, but might get infections through the lymphatics of surrounding parts of nose and throat. An infection of the gum of an erupting wisdom tooth often caused infection of the adjacent tonsil. So it seemed that in every sense the tonsil was a lymph node, and if taken out something else must do the work that it would have done if left in place. Therefore, by all rules of logic they should not lightly or carelessly root out the tonsils in young children. Still further to prove this theory, one English observer took thirty children whose tonsils were healthy but much enlarged, and whose blood was found, curiously enough, to be poor in lymphocytes, and fed them with the extract of lymph node elements. In practically every case there was a notable diminution in the tonsils and adenoids because their work was not as much needed, and apparently he established the relation of the tonsils to the physiological need of the system for lymphocytes. Doctor French actually did what he had proposed in the paper of the evening. He had been behind the scenes and had seen him practically demonstrate the whole method as described, saving the capsule whenever he found a tonsil healthy; when diseased, enucleation was done. Thus a step of great importance had been made toward conserving the capsules whenever possible, a point which was of vital importance if one would insure the integrity of the voice. He hoped that God would speed the day when, knowing more, they would seek to further their knowledge and prove their skill by other means than through the gory circlet of the guillotine.

Dr. HUBERT ARROWSMITH, of Brooklyn, New York, was glad that a Brooklyn audience had heard from four of the county's representative laryngologists an endorsement of the doctrine that he had been preaching for many years; a doctrine against which many of his colleagues in laryngology had protested, and which had been received by many of his internist friends with commiserative toleration. Even the pediatricists and internists were beginning to modify their attitude of repudiation of any possibility of useful function in the tonsil and their uncompromising demand for its universal extermination. Dr. J. M. Comroe, of York, Pa., in a most admirable paper in the *Journal A. M. A.* for October 17th, discussed in a judicial spirit the question of the tonsil's culpability in the etiology of general disease from the pediatricist's point of view. From faulty interpretation of laboratory findings, the internists had reasoned on *ad infinitum*, apparently ignoring the possibility that tonsillar disease might be induced by infection from other focal points, and that the tonsil flora, so numerous and apparently so potentially threatening, might be only surface contaminations, and without clinical import. A striking instance was afforded in the frequent occurrence of tonsillar inflammations resulting from nasal infections, traumatic or operative, where the tonsil seemed to display evidence of a real protective or eliminative function. The sequence of events was here perfectly plain. Was it not reasonable to suppose that the same order obtained in focal infections even more remote? The question involved

was after all only the relative positions of the cart and the horse. Certainly if it could be shown that a given tonsil was itself diseased, or that it was actually or potentially a probable source of systemic infection, it should be enucleated. If the symptoms were only those of mechanical obstruction, tonsillectomy alone was justified. If it was merely esthetically disproportionate, it should be left alone. He would go further than Doctor French and say that of those tonsils which needed surgery at all before puberty, ninety, not seventy-five per cent., might be satisfactorily dealt with by tonsillectomy; ten per cent. might require enucleation, but each case must be decided on its own merits and not on general principles, and here the method of immediate examination of an excised part of the gland, as demonstrated by Doctor French, might prove of sterling worth.

It was notoriously difficult to follow up hospital or clinic patients, but in his private work covering more than a quarter of a century and not a few cases, he had been able to keep track of those patients on whom he had done tonsillectomies and in not many instances had he seen cause to regret his conservatism. Clinical experience taught them some things that were beyond demonstration by the precise methods of laboratory investigation. They sometimes defeated their efforts to do the best for their patients by their scientific overenthusiasm. Observation had convinced him that the tonsil had been more sinned against than sinning in its relation to other organs of the body and their diseases. Certainly it had been shown no mercy by the laryngologists.

Doctor FRENCH, in closing, was gratified that so much had been authoritatively spoken by men of eminence in the laryngological world in the discussion of the paper of the evening, and wished to assure the guests that their hosts were deeply appreciative of their having come so far and given so generously of their time in order that the members of the representative audience might be better informed about this important but apparently misunderstood subject. He would have been glad to reply to each of the speakers, but at that late hour he doubted if the audience would wish him to do so. He would close the discussion, therefore, by emphasizing the main thought of the paper, which was the need of better means of making differential diagnoses in order that many tonsils might be saved which it was now the fashion to sacrifice.

Letters to the Editors.

POSTGRADUATE STUDY IN NEW YORK.

ELYRIA, OHIO, November 24, 1914.

To the Editors:

The following letter, published in a recent number of the *Ohio State Medical Journal*, evoked a remarkable response from fellow physicians:

POSTGRADUATE STUDY.

To the Editor—While in New York city last August and September I saw the steadily increasing number of physicians arriving there for clinical and postgraduate study, many of whom could not go abroad on account of the European war. One thing in particular which I noticed was the loss of time the stranger in the metropolis suffers before he is able to arrange courses of study. It seems to me that it would be a most advisable step in the proper direction if the local medical society in New York city would place itself in the position

of advisory council to those physicians who visit New York for the purpose of postgraduate instruction. Some plan should be worked out whereby the visitor might be directed into the proper channels; where he might find the material and instruction and association. As it is now men go from one hospital or school to another, either seeking their own fields at the expense of time or accepting courses which they learn later they do not care to pursue. Most of the hospitals and dispensaries are open in the afternoon, leaving the entire morning to be filled in as best one might. With the vast amount of material in the New York clinics and the high standard of the men in charge, I believe there is no better place anywhere, even in Europe, for this postgraduate work. The visiting physicians come in direct contact with the cases, and opportunities are certainly unequalled for study. One of the greatest needs of the stranger in New York is some few guiding points which would assist him in quickly becoming oriented for the successful carrying out of the work and study he desires to take up. There is no doubt that some one might be so placed that visiting physicians could obtain the much desired information. Until such a condition is created and properly advertised to the physicians of the United States and Canada, the best thing for a doctor deciding on postgraduate work in New York, to do, is to get as much information and direction as he can from those who have been in New York, before he goes there. Several New York physicians in the various specialties, so called, give most excellent private courses of instruction. To successfully obtain this work it is absolutely necessary to arrange in advance, as usually classes formed are limited in number and these are rapidly filled by those waiting to get into them. I believe you will aid many a prospective student for postgraduate work if you will publish this. I know I should have appreciated such advice if I might have had the same before reaching the big city.

The foregoing letter is in no wise a criticism of the present situation, but, rather a suggestion, out of which might develop a practical system, which with proper advertising might assist in the more practical distribution of clinical workers, students, and for their good. The abundant material of the wonderful clinics would be better divided. I am sure the physicians who give special courses of instruction would eventually appreciate the advantages, as such a bureau of medical information would be a sort of clearing house from which each would receive such students as could be accommodated, thereby saving time to both instructors and student.

To cover the cost of the necessary advertising I suggest a small registration fee to be paid by the visitor on arrival in New York, for which he would receive information as to study desired, proper places for rooming, etc. Such a bureau might be combined with your Chamber of Commerce, which no doubt has a medical committee, and this service might be added to the office service maintained at present.

On behalf of those physicians who arrive as strangers in New York and who, I am sure, would appreciate such service, I wish to ask your consideration.

C. O. JASTER, M.D.

[The writer will perhaps note that the Society for the Advancement of Clinical Study has been formed. At the Academy of Medicine, 17 West Forty-third Street, the hours of the clinics and the names of the professors are posted. Physicians should apply there for information.—Eps.]

ANOTHER SAFETY PIN IN THE ESOPHAGUS.

NEW YORK, November 24, 1914.

To the Editors:

Referring to the article by Dr. G. W. Mackenzie on an open safety pin in the esophagus, in your issue for November 21, 1914, I beg to report the following case:

A child, aged seven months, was brought to me in haste by its mother, who stated that the infant had swallowed a safety pin, and that she did not know whether it was open or closed. The little patient was crying and struggling and appeared to be slightly cyanosed.

On examining the throat, nothing could be seen. I then took a metal bougie depressor, and pushing the dorsum of tongue forward, was able to see a portion of the shining arm of the pin, stuck in the esophagus, down quite a fair distance. This was easily grasped with a pair of long beaked, curved nasal dressing forceps and extracted.

It appears that the pin entered the esophagus point down and therefore stuck in the tissues before it had traveled too far to be seen and extracted as above described. Also owing to the "springy" character of the safety pin, it kept the esophagus open, making it easily visible and its extraction possible.

LOUIS R. BRAGER, M.D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Diseases of the Nervous System. For the General Practitioner and Student. By ALFRED GORDON, A.M., M.D. (Paris), Late Associate in Nervous and Mental Diseases, Jefferson Medical College, Late Examiner of the Insane, Philadelphia General Hospital, Neurologist to Mount Sinai Hospital, to Northwestern General Hospital, and to the Douglass Memorial Hospital, etc. Second Edition, Revised and Enlarged, with One Hundred and Sixty-nine Illustrations. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. xiv-618. (Price, \$4.)

In this textbook on nervous diseases we have the usual arrangement of subject matter presented in a concise form, as the size of the work does not permit of enlargement in the way of illustrated cases nor explanatory detail. The second edition differs from the first mainly in the fact that certain chapters have been enlarged, and additions made dealing with fractures of the skull, concussion of the brain, lumbar puncture, the Wassermann reaction, and psych-analysis.

Modern Medicine, Its Theory and Practice, In Original Contributions by American and Foreign Authors. Edited by Sir WILLIAM OSLER, Bart., M.D., F.R.S., Regius Professor of Medicine in Oxford University, England, etc., and THOMAS McCRAE, M.D., Professor of Medicine in the Jefferson Medical College, Philadelphia, etc. Volume III. Diseases of the Digestive System—Diseases of the Urinary System. Second Edition, thoroughly revised. Illustrated. Philadelphia and New York: Lea & Febiger, 1914. Pp. 1087.

The third volume of the new edition of this work is fully equal to the others in completeness. Most of the articles which cover the diseases of the digestive and urinary systems appear to have been carefully brought up to date, those by contributors who have died since the first edition appeared, having been revised by men of equal competence. The contribution of Friedenwald on the functional diseases of the stomach and of Charles F. Martin on the organic diseases of the stomach, are noteworthy for their wealth in details; they do not suffer, moreover, from a defect which is quite noticeable in several other departments, viz., too few therapeutic measures to meet the needs of the practitioner. This is doubtless due to the well known therapeutic nihilism of the senior editor. Diseases of the pancreas, by Eugene L. Opie, may also be cited as a comprehensive study, a subject which in most instances is too cursorily treated in textbooks. On the whole, the volume is a most satisfactory one.

Ambidexterity and Mental Culture. By H. MACNAUGHTON-JONES, M.D., M.CH., Q.U.I., M.A.O.R.U.I. (Hon. Cau.), F.R.C.S.I. and Ed., Ex-University Professor, Queen's University, Ireland; Honorary Member of the Societies of Obstetrics and Gynecology, Leipzig, Munich, and Rome; Ex-President of the Obstetric and Gynecological Section of the Royal Society of Medicine, The British Gynecological Society, and the Irish Medical Schools and Graduates Association. New York: Rebman Company, 1914. Pp. 102. (Price, 75 cents.)

This small volume is less a medical than a pedagogical work, and the references to anatomical and physiological facts are superficial and at times erroneous. The main purpose of the work is to emphasize the value of manual training, particularly of ambidexterity, not only for its own sake but for the coincidental mental benefits obtained. The various theories as to the source of right handedness are reviewed, and the author takes the stand that, while heredity is a considerable factor in determining the use of the right or of the left hand, it is largely individual training which determines the result.

Accepting the fact that the language centres in the brain are situated predominantly in the cerebral hemisphere op-

posite to the hand most highly trained, the author adopts the view, which has been often advanced, to the effect that with perfect ambidexterity we should have language centres developed in both hemispheres, to the decided advantage of the individual in the case of disease on one side. While questioning the accuracy of this and similar statements, there can be no doubt as to the benefit accruing to those who in childhood are systematically instructed and trained to use both hands with equal facility.

An Elementary Study of the Brain. Based on the Dissection of the Brain of the Sheep. By EBEN W. FISKE, A. M., M. D. Illustrated with Photographs and Diagrams by the Author. New York: The Macmillan Company, 1913. Pp. vii-133. (Price, \$1.25.)

It is axiomatic that dissection by the student is essential for the acquirement of a practical knowledge of anatomy. As an aid to the study of the structure of the human brain, the author proposes the use of the sheep's brain which possesses many advantages, among which may be mentioned fundamental similarity in structural arrangement, comparative simplicity of formation, availability and cheapness of material, etc. The author has therefore prepared the present volume, which is intended for use as an aid to dissection. Numerous excellent photographic reproductions and charts serve admirably to illustrate the description and the directions for making serial sections. Although essentially an elementary work intended for use in academic schools, it might be adopted with advantage in the medical course as a comparative study as well as a means of developing fundamental knowledge of the anatomy of the human brain.

Interclinical Notes.

Among the good things in the *Dial* for November 16th is a review by F. B. R. Hellemis, of *Impressions and Comments*, by Havelock Ellis. Many of our colleagues have identified Ellis with his writings on sex matters and are not aware of his mastery of English and his sane views on various subjects of common concern. Mr. Hellemis has only the highest praise for Ellis's striking and beautifully written essays. A capital editorial article maintains that there is nothing the matter with our American stage save a lack of dramatists.

* * *

The *Outlook* for November 25th is the 100 page monthly issue. The war takes up its necessarily large proportion of space. Captain W. E. Parker writes of the United States Marine Corps, the American equivalent of 'Er Majesty's Jollies—Soldier and Sailor Too, known to readers of Kipling. Among the pictures which this periodical manages cleverly to keep to itself, is one showing the visit of a French military surgeon, a prisoner of war, to the Reserve Hospital of Berlin in company with the chief German physician of that institution. It is gratifying to find a conspicuous gleam of sanity during the war radiating from our profession.

* * *

That socialism is a most attractive philosophy is borne out by the editorial comment and the article by Morris Hillquit in the beautiful December issue of the *Metropolitan*. Like other utopias, however, it seems to take little account of human nature and its frailties. It will abolish poverty, crime, etc., *ipso facto*. But poverty, crime, and the rest are not mere abstractions, but the results of individual human weakness, which is likely to persist in the face of any kind of government. Will socialism abolish jealousy, selfishness, indifference, or is it the theory that such passions will be rendered inert by socialistic methods? We are anxious to know, because, as already stated, socialism is extraordinarily attractive to our mind.

* * *

To return to the December *Metropolitan*, we find a story by Eleanor Hallowell Abbott, who is fond of doctors, nurses, and invalids in her fiction, entitled *Tinsel Toes*. It is a distinct improvement on the confused and cuttlefishy style of former tales by Miss Abbott. "Unctiousness" is one of the gems of *Tinsel Toes*; "luxuriant" for luxurious is another; and the characters smile and dimple words instead of saying or speaking them; but the meaning is not often obscure.

Meetings of Local Medical Societies.

MONDAY, December 7th.—Clinical Society of the New York Throat, Nose, and Lung Hospital; German Medical Society of the City of New York (annual); Utica Medical Library Association; Niagara Falls Academy of Medicine; Brooklyn Hospital Club; Hornell Medical and Surgical Association; Clinical Society of the New York Polyclinic Medical School and Hospital.

TUESDAY, December 8th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Associated Physicians' Economic League of New York; Medical Society of the County of Wyoming; Medical Society of the County of Schenectady (annual); Medical Society of the County of Rensselaer (annual); Buffalo Academy of Medicine (Section in Medicine); New York Obstetrical Society; Onondaga Medical Society (annual).

WEDNESDAY, December 9th.—New York Pathological Society; New York Surgical Society; Alumni Association of Norwegian Hospital, Brooklyn (annual); Schenectady Academy of Medicine; Medical Society of the Borough of the Bronx; Richmond County Medical Society (annual); Dunkirk and Fredonia Medical Society (annual); Rochester Academy of Medicine; Medical Society of the County of Montgomery (annual).

THURSDAY, December 10th.—New York Academy of Medicine (Section in Pediatrics); Gloversville and Johnstown Medical Association; Physicians' Club of Middletown; West Side Clinical Society, New York (annual); Brooklyn Pathological Society; Blackwell Medical Society of Rochester; Jenkins Medical Association, Yonkers; Society of Sanitary and Moral Prophylaxis, New York; Buffalo Ophthalmological Club; Jamestown Medical Society; Society of Physicians of Village of Canandaigua.

FRIDAY, December 11th.—New York Academy of Medicine (Section in Otology); Society of Ex-Interns of the German Hospital in Brooklyn; Flatbush Medical Society, Brooklyn; Eastern Medical Society of the City of New York (annual); Society of Alumni of St. Luke's Hospital.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending November 25, 1914:

Anderson, J. F., Surgeon. Detailed to attend the meeting of the American Public Health Association, held at Jacksonville, Fla., November 30 to December 4, 1914; leave of absence for twelve days from November 2, 1914, amended to read "ten days leave of absence from November 3, 1914." Bailey, C. A., Acting Assistant Surgeon. Directed to proceed, on or about November 24, 1914, to St. John, N. B., for the medical examination of aliens during the winter months. Beale, F. S., Acting Assistant Surgeon. Directed to proceed to Seattle, Washington, for instruction in the procedure to be followed in the medical examination of arriving aliens. Cody, H. C., Assistant Surgeon. Granted one month's leave of absence from November 20, 1914. Frost, W. H., Passed Assistant Surgeon. Detailed to attend the meeting of the American Public Health Association, held at Jacksonville, Fla., November 30 to December 4, 1914. Hughes, T. E., Assistant Surgeon. Directed to proceed to the Mobile Quarantine Station and assume temporary charge during the absence of the medical officer in charge. McKinnis, C. E., Acting Assistant Surgeon. Directed to proceed to Seattle, Wash., for instruction in the procedure to be followed in the medical examination of arriving aliens. Trask, J. W., Assistant Surgeon General. Detailed to attend the meeting of the American Public Health Association, held at Jacksonville, Fla.,

November 30 to December 4, 1914. **Whillans**, H. E., Acting Assistant Surgeon. Directed to proceed to Seattle, Wash., for instructions in the procedure to be followed in the medical examination of arriving aliens. **Wilson**, J. G., Assistant Surgeon. Directed to proceed to Cincinnati, Ohio, and report to Surgeon D. E. Robinson for special temporary duty.

Boards Convened.

Boards of medical officers convened for the physical examination of certain officers of the Revenue Cutter Service, to determine their physical fitness for promotion, to meet December 7, 1914, as follows:

Marine Hospital, San Francisco, Cal. Detail for board: Surgeon R. M. Woodward, chairman; Surgeon J. M. Holt, recorder.

Marine Hospital, Key West, Fla. Detail for board: Surgeon G. M. Guiteras, chairman; Acting Assistant Surgeon S. D. W. Light, recorder.

Custom House, New York, N. Y. Detail for board: Surgeon C. P. Wertenbaker, chairman; Passed Assistant Surgeon C. P. Knight, recorder.

Quarantine Station, Honolulu, Hawaii. Detail for board: Surgeon F. E. Trotter, chairman; Passed Assistant Surgeon C. N. Fauntleroy, recorder.

221 Central Building, Seattle, Wash. Surgeon B. J. Lloyd, chairman; Assistant Surgeon D. S. Baughman, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending November 28, 1914:

Baker, F. C., Major, Medical Corps. Arrived in the United States on November 13th, and has departed for two months' leave of absence. **Chamberlain**, Weston P., Major, Medical Corps. On leave of absence for one month and seven days. **Cook**, George W., Captain, Medical Corps. Arrived in the United States on November 13th, and on November 14th departed from San Francisco, Cal., on three months' leave of absence. **Edie**, Guy L., Colonel, Medical Corps. Arrived in San Francisco, Cal., on November 13th, and departed on November 14th for one month's leave of absence. **Fletcher**, J. P., Captain, Medical Corps. Left San Francisco, Cal., on November 17th, and arrived in Janesville, Wis., November 20th; on leave of absence for three months and fifteen days. **Gapen**, Nelson, Captain, Medical Corps. Granted two months' leave of absence, effective about December 5, 1914. **Hughes**, Leonard S., Captain, Medical Corps. Granted leave of absence for three months on arrival in the United States. **Meehan**, John W., Lieutenant, Medical Corps. Relieved from duty at Fort Bliss, Texas, and will proceed to Empire, Canal Zone, for duty. **Murray**, Alexander, Captain, Medical Corps. Ordered to leave Fort McDowell, Cal., on November 17th on leave of absence for one month.

Births, Marriages, and Deaths.

Married.

Bess—Macfarlane.—In Cumberland, Md., on Thursday, November 26th, Dr. Thomas E. Bess and Miss Mary Banks Macfarlane. **Bilger—Barber.**—In Du Bois, Pa., on Tuesday, November 17th, Dr. Fred Beber Bilger, of Maybury, W. Va., and Miss Nina Elaine Barber. **Blake—Duer.**—In Paris, France, on Saturday, November 28th, Dr. Joseph A. Blake, formerly of New York, and Mrs. Katherine Alexander Duer. **Crossan—Reid.**—In Somerville, Mass., on Wednesday, November 18th, Dr. Charles L. Crossan and Miss Alice Louise Reid. **Dickerson—Martin.**—In Conway, Ark., on Wednesday, November 25th, Dr. Cecil Harrod Dickerson and Miss Nina Martin. **Dixon—Daisy.**—In Cumberland, Md., on Wednesday, November 18th, Dr. Arthur Pue Dixon and Miss Ellen May Daisy. **Draper—Frantz.**—In Lancaster, Pa., on Wednesday, November 25th, Dr. Dexter W. Draper, of Williamsburg, Va., and Miss Maud H. Frantz. **Drummond—Gow.**—In Fitchburg, Mass., on Saturday, November 21st, Dr. Augustus B. Drummond, of Freeport, Me., and Miss Mildred L. Gow. **Grady—**

Moobs.—In West Linn, Mass., on Thursday, November 19th, Dr. Thomas D. Grady and Miss Alfreda V. Moobs. **Graves—Holmes.**—In Lexington, Tenn., on Monday, November 16th, Dr. John F. Graves and Miss Lula Holmes. **Hance—Fisher.**—In New York, on Wednesday, November 18th, Dr. Burtis Magie Hance and Miss Dorothy E. Fisher. **Henry—Ogden.**—In New York, on Friday, November 20th, Dr. Frederick Henry and Miss Sarah Devereux Ogden. **Hynson—Sibel.**—In Portland, Ore., on Wednesday, November 25th, Dr. Garrett Lee Hynson and Miss Helen R. Sibel. **Kusmin—Sedwitz.**—In Pittsburgh, Pa., on Tuesday, November 10th, Dr. Harry Kusmin and Miss Sadie Sedwitz. **Lindahl—Schmidt.**—In New Orleans, La., on Wednesday, November 11th, Dr. Frank Emil Lindahl, of San Antonio, Texas, and Miss Amy Elise Schmidt. **Lowrie—Lilley.**—In Philadelphia, Pa., on Wednesday, November 18th, Dr. Walter J. Lowrie, of Braddock, and Miss Anna Lilley. **Moskowitz—Israels.**—In Yonkers, N. Y., on Sunday, November 22nd, Dr. Henry Moskowitz and Mrs. Belle Lindner Israels. **Newman—Hopkins.**—In Philadelphia, Pa., on Thursday, November 26th, Dr. J. E. Newman and Miss Lillian Frances Hopkins.

Died.

Ames.—In Port Barrios, Guatemala, on Saturday, November 14th, Dr. Roger P. Ames, aged forty-four years. **Bettis.**—In Livonia, N. Y., on Sunday, November 22nd, Dr. J. T. Bettis, aged sixty-nine years. **Botkin.**—In Farmland, Ind., on Tuesday, November 17th, Dr. T. W. Botkin, aged seventy years. **Boyd.**—In Washington, D. C., on Saturday, November 21st, Dr. George W. Boyd, aged fifty-five years. **Campbell.**—In St. Joseph, Mo., on Wednesday, November 11th, Dr. Osman Beverly Campbell, aged fifty-four years. **Carden.**—In Oil City, Ky., on Tuesday, November 24th, Dr. Charles E. Carden, aged seventy-eight years. **Carolin.**—In Lowell, Mass., on Saturday, November 21st, Dr. William T. Carolin, aged sixty-two years. **Cocke.**—In Moscow, Tenn., on Thursday, November 19th, Dr. James H. Cocke. **Coombs.**—In Bowling Green, Ky., on Friday, November 20th, Dr. Samuel W. Coombs. **Covert.**—In Youngstown, Ohio, on Sunday, November 15th, Dr. Milton Covert. **Dorman.**—In Winthrop, Mass., on Sunday, November 22nd, Dr. Albert B. Dorman, aged fifty-eight years. **Dougherty.**—In Philadelphia, Pa., on Monday, November 23rd, Dr. Sherborne W. Dougherty, aged forty-five years. **Gavin.**—In Mobile, Ala., on Sunday, November 15th, Dr. George E. Gavin, aged forty-three years. **Hartwell.**—In St. Louis, Mo., on Tuesday, November 17th, Dr. H. W. Hartwell, aged fifty years. **Howe.**—In Boston, Mass., on Sunday, November 22nd, Dr. James S. Howe, aged fifty-six years. **Jones.**—In Harrisburg, Va., on Sunday, November 22nd, Dr. T. O. Jones, aged sixty-three years. **Lacey.**—In Peru, Ind., on Saturday, November 21st, Dr. John D. Lacey. **McMurtry.**—In New York, on Thursday, November 26th, Dr. Charles Wood McMurtry. **McNeilly.**—In New York, on Thursday, November 26th, Dr. Robert McNeilly, aged eighty-three years. **Mangum.**—In Atlanta, Ga., on Tuesday, November 17th, Dr. William Wightman Mangum, aged forty-seven years. **Mathews.**—In Chicago, Ill., on Thursday, November 19th, Dr. Allan A. Mathews. **Moody.**—In Hillsboro, Texas, on Sunday, November 15th, Dr. M. F. Moody. **Moore.**—In St. Louis, Mo., on Thursday, November 19th, Dr. Isaac Moore, aged seventy-four years. **Mordoff.**—In Genoa, Ill., on Monday, November 16th, Dr. Charles H. Mordoff. **Rand.**—In Burlington, Vt., on Friday, November 20th, Dr. Hannibal W. Rand, of Keene, aged sixty years. **Reed.**—In Philadelphia, Pa., on Monday, November 23rd, Dr. Charles H. Reed, aged sixty-two years. **Seitz.**—In Philadelphia, Pa., on Monday, November 23rd, Dr. Frederick G. Seitz, aged sixty-three years. **Shively.**—In Marion, Ind., on Monday, November 23rd, Dr. Marshall P. Shively, aged sixty-five years. **Simcoe.**—In Nevada, Mo., on Friday, November 20th, Dr. C. B. Simcoe. **Thompson.**—In Liverpool, Pa., on Thursday, November 26th, Dr. James F. Thompson, aged seventy years. **Thornton.**—In Versailles, Ky., on Tuesday, November 24th, Dr. James M. Thornton. **Webb.**—In St. Paul, Minn., on Sunday, November 15th, Dr. Ella Webb. **Wendel.**—In Johnstown, Pa., on Friday, November 20th, Dr. B. F. Wendel.

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Original Communications.

ABNORMAL MENTAL STATES.

Some General Remarks.

BY HENRY M. FRIEDMAN, M. D., LL. M.,

New York,

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General considerations. There is probably no other branch of the medical sciences that has been so religiously avoided by medical men as psychiatry. It may be because therapeutic successes are not very prolific, but more likely because everything associated with the mind is considered particularly complicated and difficult, with such wide latitude and with so few limitations. Yet the subject as presently understood is no more difficult of approach than other branches, except in so much as the science is still in its infancy, with facts few and with possibilities very large. In spite of this, however, psychiatrists are already stating that mental conditions are as comprehensible as bodily ills. This is hopeful, though a little too optimistic. The comparative simplicity of the latter is due to the fact that we deal with a rather definite number of organs, and the symptomatology is relatively little influenced by the personality or the previous environment of the patient. Indeed, it is usual to refer to, and to think of an individual with disease as a "case" and entirely to overlook the patient himself as a factor. In diseases or disorders of the mind, on the other hand, we not only deal with the many diseases and the many symptoms, but we must consider numberless personal factors, infinite degrees of mental development, difficult psychological mechanisms, contents and mental conceptions almost as numerous as the people themselves, and ever increasing to keep pace with human development. These are the elements that make of psychiatry a difficult subject. Every one of these mental factors exercises an influence on the disease or disorder, and causes to be presented different clinical pictures in identical mental conditions. Clinical features vary from positive disorders to conditions so hazy that a determination resolves itself into a mere viewpoint, changing with the viewpoint of the examiner. Furthermore, diagnoses must be made from what the patient says and does, rather than from what he presents. Little aid can be expected from the patient, either voluntarily, because he is detained against his will, because the patient has no insight into his condition, or because he is mentally incapable of rendering any assistance. So often the pa-

tient resists the examiner both mentally and physically.

Scope. The total range of mental symptoms, considering the very great range of mental contents, is not very large. While in bodily ills we look for pulse, temperature, sounds, murmurs, tenderness, etc., in mental ills we look for depression, excitation, confusion, disorientation, delusions, illusions, hallucinations, deterioration of personality, dulling of the intellect, disturbances of attention, exaggerated ego, disorganization of the many mental contents, etc. The mental symptoms bear the same relation to mental ills as physical signs and symptoms bear to bodily ills.

If the abnormal mentally were to be drawn only from individuals irrational in action or speech, and for that reason also under restraint or scrutiny, the difficulties would be materially lessened. But under modern conceptions the abnormal must also include the criminals—the morally defective, the intellectually defective—that is, the feeble-minded, the drug habitués, prostitutes, the hysterical, the neurasthenic, the emotionally unstable, the constitutionally inferior, the erratic, the eccentric, etc., almost *ad infinitum*. From these many types must the psychiatrist differentiate those who are actually abnormal according to general standards. When to these recognized types are added the great number of abnormal individuals who have thus far managed to escape scrutiny, but of whom there must be, as they say of criminals, more at large than under surveillance, one begins to wonder whether there are any normals. The French do not seem to have any doubt, for they say, "Half the world is off, and the other half is not quite on."

Classification. The difficulty of formulating a comprehensible classification out of this array of mental conditions, symptoms, classes, and types is at once apparent. Yet the first step in the elucidation of any complex subject is the classification of component elements. Classification narrows a subject down so that it can the more easily be studied. Classification is to medicine what codification is to law. Quite remarkably the number of classified mental conditions is small and quite simple. It embraces paranoia, manic depressive insanity, dementia præcox, paresis, involution melancholia, senile dementia, psychoses accompanying other diseases, toxic psychoses, infective and exhaustive psychoses, and finally the many borderline cases which, however, are little understood and still poorly differentiated. To these may be added the congenital (sometimes acquired) mental deficiencies—the morons or the feeble-minded, the imbeciles and the idiots, and the

criminals or morally defective. This classification can be further narrowed by grouping paranoia, manic depressive insanity, and dementia præcox together as the idiopathic mental states. These three mental diseases form the bulk of conditions discussed under the term insanity. Paresis, involution melancholia, and senile dementia may be grouped as organic because there are discoverable organic tissue changes associated with the psychoses. The infective, the exhaustive, the toxic, and the associated conditions can be grouped together. This leaves the borderline cases and the congenital mental defects in classes by themselves. There is a continual tendency, as the subject is better understood, to carve out and to differentiate new mental entities.

DIAGNOSIS.

The separation of the various symptom complexes—the diagnosis—is dependent, as in all pathological conditions, upon close study and upon accurate correlation and analysis of symptoms, for the symptoms themselves, all or only some of them, may occur in all conditions. They may occur in various degrees or combinations. Yet there are certain features which help to differentiate the various conditions from each other. For example:

Paranoia has systematized, intrinsically consistent delusions, hallucinations, and illusions, along set lines and only along the particular set lines. All other mental conceptions outside of the affected ones are apparently normal. The personality of the patient is intact. There is no deterioration or dementia, and the intellect is not dulled. The disease is, however, incurable.

Manic depressive insanity is characterized by alternating periods of depression and manic excitation. Between the attacks there is apparently an absolute recovery. During convalescence and thereafter, there is insight into the fact of the previous mental aberration. It is the history of previous attacks in this alternating or circular manner that aids the diagnosis. Subsequent attacks are of longer duration, and the period of recovery, the so called *lucid interval*, becomes shorter until it is finally obliterated, whereupon the disease loses its circular character and its lucid interval. There is no deterioration or dementia of the personality until senescence sets in. The outlook for recovery from single attacks is good, but the ultimate outlook is bad.

Dementia præcox is a disease of puberty and adolescence. A history of hereditary mental affection is usually obtainable. During childhood most of the patients are found to have been bright and even overbright. They are found, however, to have belonged to the neurotic, to the exceptional, or the atypical class—the precocious. Associated with delusions and like symptoms, there seems at times to be paranoid symptoms, but on close study they are found not to be systematic. On the other hand, there is a dulling of the intellect, deterioration of personality, that is, dementia. The constant attempt to separate new mental entities from older ones has differentiated from the ordinary dementia præcox a condition known as *hebephrenia*, in which the onset begins at an earlier age and the deterioration is much more rapid. The question of recovery in dementia præcox is still much mooted. So many who have apparently recovered have been found in the

ranks of the feeble-minded, the perverts, the criminals, the prostitutes, and like classes entering among the social outlaws.

Involution melancholia, while perhaps not entirely of hereditary origin, is yet centred upon a foundation lacking in mental stamina, and which is unable to stand the pressure incident to the involution period. The symptom complex alone is not distinctive. Nearly all the cases are associated with arteriosclerosis. It can be said that the many conditions that bring on early arterial changes contribute to the causation of the disease. It is estimated that as much as forty per cent. of these cases terminate favorably.

Senile dementia is likewise the result of profound general tissue changes. Arterial changes are the rule in senile dementia. Even in normal old people there are certain mental peculiarities, as slow cerebration, the ability vividly to recall remote events, and the inability to remember recent events, supersensitiveness, etc. Rapid aging, associated with stress, brings on rapid tissue and arterial changes, accentuates existing mental peculiarities, causes new ones to develop, and finally there is mental deterioration, that is, senile dementia. Perhaps more careful study of geriatrics and greater care of the aged will lessen this factor in them.

General paresis, commonly known as “softening of the brain,” is distinctly an organic disease of the brain accompanied by marked mental symptoms of various types, and by certain physical signs such as pupillary changes, reflex disturbances, speech difficulties, paralyses, etc. It is fatal in a maximum of four years. The onset is insidious. It is characterized by a complete change in the personality, the characteristics, the morals, and the habits of the patient. It is of syphilitic origin.

The *infective*, the *toxic*, the *exhaustive* conditions, and the psychoses associated with other diseases are embraced in the mental involvement in simple fevers, in the various drug habits, in such diseases as uremia, diabetes, pellagra, goitre, myxedema, and so on. While these are so apparently the causative factors in the accompanying psychoses, it is yet a question whether they would occur at all but for a basic mental infirmity. Even the delirium of ordinary fevers is viewed as an expression of mental instability and weakness. Indeed, a certain type of patient—the neurotic type—is constantly having delirium and like mental disturbances, with nearly every illness. The delirium tremens of acute alcoholism is the best example of mental aberration accompanying drug intoxication. The so called *Korsakoff's psychosis* marks the chronic delirium tremens of alcoholic intoxication.

Borderline cases include by far the largest and the least understood of the psychoses. There can be no limit to the number of the conditions they may embrace. They range from the slightly doubtful mental disturbances to the variations in the normal. They include hysteria, neurasthenia, psychasthenia, hypochondria, neuroses, and so on. There is no wandering from the normal that cannot be here included. There is no sharp line of demarcation between the normal and the abnormal. By far the larger class lies on the borderline between the normal and the abnormal. In many, the *quantity* of the disturbance is so slight that it is for this

reason that no definite determination can be made. Further knowledge may see every one of the borderline cases relegated to some definite place in this scheme.

Congenital mental deficiencies include the idiot, the imbecile, and the feeble-minded or moron. The psychopathic tendency, while a congenital deficiency, is not in itself a clinical entity. The criminal and the prostitute are congenital moral defectives. A great many of them are actual mental defectives. The criminal lacks the moral composition which guides the normal in distinguishing right from wrong, irrespective of legal restrictions.

There is no difficulty in recognizing the idiot and the imbecile. Their defect is usually apparent physically. Their intellects are so far below the average as to leave no room for doubt. The problem of determining the moron, however, is a very difficult one. Various puzzles, questions, and tests, the so called confirmation tests, are used in the solution of this question. These tests are fashioned after the ones used by Binet and Simon. They ascertained the mental capacities of children at various ages, and standardized them. With these they compared the child under examination. If a ten year old child was able to solve the problems or do the tests of a six year old average normal child, he was only six years old mentally and in proportion a moron.

Yet, after all, feeble-mindedness seems to be relative. As the intellectual requirements grow, more and more individuals fail to measure up to standards. In lower strata of civilization the moron's mental capacity might just be sufficient to bring him within the average requirement. Compared with the profoundly intellectual, many normals are feeble. Moreover, the mental deficiency need not be universal—embracing all the mental factors. Only some of them may be subnormal; others may be very much above the average. Perhaps geniuses belong to this class. All the possibilities for their mental development have been crowded into one "path"; in the others, they may be woefully deficient. Defects in single mental faculties have their counterparts in certain physical conditions. The tone deaf are defective in that they may be deaf to either high or low tones. Their hearing may be otherwise very acute. Likewise there may be color blindness for one or more colors, while vision itself is acute.

In feeble-mindedness one has to deal with so many borderline cases. Some have only defective memory, some have only defective judgment, others are defective in simple mathematical comprehension, and so on for many single or plural faculties. Under this conception morons are not limited to the lower strata. They may be found in every walk of life, even in the higher, perhaps even among physicians, lawyers, jurists, etc. But even the mild cases, like mild infections, may transmit severe cases to the future. Refined methods in diagnosis must bring out more of these partial defectives. Feeble-mindedness is a lack of intellectual quantity, while insanity is a lack of intellectual quality. The feeble-minded are limited in the amount of mental development by the limited amount of gray matter.

Etiology. Etiology is preeminently the most important consideration in this branch from the standpoint of prophylaxis and from the standpoint of treatment. The mechanism of causation—the mental pathological changes—are of course unknown. In general it can be said that the abnormality is the result of hereditary predisposition brought into activity by some exciting factor. About ninety per cent. of the cases are attributed to hereditary predisposition; there is a tendency to attribute 100 per cent. This would mean that, no matter how great the exciting factor, there could be no active abnormality without the underlying hereditary predisposition. Certainly both elements ought to be present. Even the toxic and allied conditions would have no effect to produce disorder or disease without this weak mental constitution. This is particularly brought out in the puerperal insanities, in which, while the puerperium is so apparently at the bottom of the psychosis, the condition does not disappear after involution. Indeed, there are few cases with so dark an outlook as the puerperal insanities. The puerperium is merely a weak irritant to a feeble mental constitution.

The hereditary basis in the causation of mental conditions provokes the question of how much stress the admittedly normal mind, the mind without a heredity, can withstand without becoming upset or exhausted. Is it beyond the realm of the normal mind to be thus affected? Given a poor heredity, is the unfortunate lost unless he lives forever in a padded environment? There is no definite answer to these questions, and there must be a strong suspicion in the minds of laymen that such reasoning is deductive rather than inductive.

Hereditary predisposition is a cerebral weakness, the gift of remote or recent ancestry. As a general proposition it can be stated that an ancestor can transmit no better constitution, mentally or physically, than he possesses. In fact, however, not all of such a line need be defective, because the so called cell determiners in the germinating cell may be so grouped as to exclude all but dominant determiners from becoming factors in the formation of the character of the future being. In other offspring it may be the recessive that crowd out the dominant determiners. The determiners thus crowded out remain cell elements, but are dormant, perhaps to become active factors in some future progeny. Under this theory "tainted" parentage can yet beget dominant children. This explains the presence of a genius in a defective line. On the other hand, geniuses themselves often beget defective children, probably because the dominant determiners will not again group themselves favorably. The abnormality of the genius lies in the fact that he is atypical or exceptional. Continual crossing between dominant individuals and those with some ancestral recessive character, but who have themselves not added some acquired recessive characteristics, has a tendency to wipe out the recessive features, because according to all doctrines of evolution the dominant or fittest elements always prevail—the doctrine of the survival of the fittest. Inbreeding, however, whether racial or familial, tends to accentuate weaknesses. Jews, Quakers, and other sects are notable examples of inbreeders. In

the former the percentage of abnormal mental states has been considered high. More recent investigators are, however, unable to confirm this statistically.

The hereditary predispositions are, essentially, the psychopathic tendencies, emotional instability and constitutional inferiority. In a manner these are tangible pathological factors, and are frequently classed as congenital deficiencies, yet they have no clinical significance except when found associated with the actual mental states of which they are the precursors.

Psychopathic tendencies refer to the cerebral infirmity transmitted from ancestry to progeny. They may have been passed to the immediate ancestor by a remote one, or been first acquired by the immediate ancestor through his own disease or his own excesses. The latter need not be continuous. Conception during one alcoholic debauch has been found sufficient to transmit the tendency. It is on the psychopathic tendency that the future psychoses are founded. The psychopathic tendencies are not objective signs or symptoms. They are discovered only after diligent search into the personal and family histories of the subject for the discovery of some significant mental factors. These need not be a definite psychosis. A history of hysteria, neurasthenia, hypochondria, migraine, and the lesser like neurotic conditions, is sufficient.

Emotional instability does give some objective signs and symptoms. Yet the condition is in a manner relative. It is a comparison of the individual's stability with those of his own environment. A whole race may be unstable when compared with another. In the emotionally unstable the slightest stimulus produces an undue reaction, manifested in excitation, depression, laughter, crying, etc. They have a very poorly controlled vasomotor system. Every incident is given a larger significance than it deserves. They are very sensitive; one must ever be on the alert not to injure them. They are easily impressed or influenced. These are the neurotic individuals, known in every walk of life. They react to stimuli to which others would not react at all.

Constitutional inferiority is an inferiority which, while it is apparent physically, is also mental, as it affects the body so universally. The term includes those of generally poor physique, the delicate and the anemic, but refers particularly to certain general constitutional defects, as eunuchoidism, the hermaphrodites, the albinos, the hemophiliacs, as well as to those with various stigmata of degeneration. The eunuchoids have arrested sexual development accompanied by certain feminine characteristics, as absence of beard, large breasts, changed voice, and characteristic facial expression. The hermaphrodites are dual sexually, but are more definitely one sex or the other. Hermaphroditism is probably caused by the more or less equal development, side by side, of the Wolffian and Müllerian ducts, instead of the atrophy of one of them during early embryonic life. There are also mental hermaphrodites, that is, individuals who, while physically monosexual, lean to their own sex rather than to the opposite. The homosexual is a well known example of this condition. The albinos lack body pigmentation; they have very fair hair and skin. The lack of

pigmentation in the choroid prevents the absorption of light rays, and as a result albinos have very defective vision, often accompanied by nystagmus. Stigmata of degeneration include the primatoid or oxycephalic skull, saddle shaped palate, voluminous ears with the Darwinian tubercles, and various teratomata. Physical inferiority often runs hand in hand with apparent mental inferiority.

The *exciting factors* in the causation of psychopathic conditions are the general stress or pressure of life, shock, emotion, struggle, disease, injury, or other adversity. These are outside factors in contradistinction to the psychopathic tendencies, which are inside factors, from which the patient might more easily be removed, or they removed from him. The discovery of the particular exciting factor in each case and the ability to remove it, ought to change the previously dark outlook to a more hopeful one. In so much as to the particular exciting factor can be traced the origin, the genesis of the psychopathic condition, that factor is psychogenic in relation to the psychosis. The psychogenesis of mental diseases is now receiving a great deal of attention. In order to learn to separate from the psychopathic conditions, the psychogenic factors operating, a mental analysis—a psychanalysis—is made.

Psychanalysis brings out from the patient, by adroit questioning and applied psychological methods, his life history, his emotions—especially the hidden ones—his moods, his stresses, and his dreams. This analysis brings to light the particular psychic cloud hovering over the patient's mind. In these individuals, dreams, which are subconscious distortions of some conscious idea, also act as a cloud. The demonstration of the actual lightness of these clouds—their triviality—serves to relieve the pressure on the mind and allows a rebound to the original state. These in effect are the theories of psychogenesis, psychanalysis, and psychotherapy.

Freudism is a more recent elaboration of these theories. Freud and his school place the genesis of psychopathic conditions at the door of a sexual shock, received during early life and imposed on a weak mental constitution. The sex complex or libido of Freud is, however, a much broader term than sex, as a generative organization, would imply. It refers to the entire human organism as it is bound up with or tied to the sex complex. In this sense the sex phase dominates all other phases of human existence, although there are many who take the sex shock theory very literally. Here also psychanalysis brings out this factor and demonstrates the relationship between it and the obsessions. The Freudian theory is not by any means universally accepted.

The toxic, organic, and like conditions are more truly psychogenic than other causes, because they are so apparently the geneses of the psychoses they accompany. Yet removal of these causes, when possible, does not always spell cure, because there is an underlying mental weakness which remains permanently damaged.

PROGNOSIS.

Prognosis, here as everywhere, depends upon accuracy of diagnosis, discovery of causation,

amenability to, and skill in treatment. The prognosis for life, except in paresis which is a rapidly fatal disease, is unaltered. The mortality is somewhat higher, however, because of the lack of personal care, the effects of confinement and of exhaustion. Sudden outbreaks are of better prognosis than gradual ones. In the former the exciting causes are probably sudden and accidental, whereas in the latter there may have been a series of exciting factors which caused a gradual but substantial deterioration.

Moreover, when the percentage of cures is studied, one cannot help feeling that the number of ultimate cures is woefully small. This is likely when it is considered that the basic hereditary infirmity is irremovable, and the psychogenic factors are hard to find; and even when found, difficult to remove; or if removable, the damage done is beyond hope of retrieval. In proportion as heredity plays a dominant part, so is the outlook less bright.

This question of prognosis is not thoroughly considered unless it also includes a discussion of the outlook for healthy offspring. There may be recovery to the basic mental weakness, as during the lucid interval in manic depressive insanity, but without doubt the constitutional infirmity must yet be transmitted during that period. Thus, in the lucid interval of manic depressive insanity, the period of recovery is merely an interval, as is the interval between acute attacks of appendicitis. In both conditions, though it is the acute exacerbation which gives so much concern, the underlying condition or inflammation is present all the time.

It is important on medicolegal grounds to be able to tell how long a certain psychopathic condition has been in development or in being. In will cases, for example, bequests are void if at the making of the will the deceased was mentally incompetent, but valid even if he was insane shortly thereafter or at death. The question then arises: If apparently sane at the publication of the will, but insane thereafter, was the deceased in fact sane at the publication? How long was there aberration before it became apparent? It is known that many people are insane for a long time before the fact becomes apparent. A consideration of the nature of the disease and the stage of its development at the time of apprehension, would help solve the questions. It would be interesting to find out how long the patient had been on the downward path. In paresis, for example, the patient may attend to large business interests, engage in vast speculations and speculations, long before the disease is recognized. Yet when the diagnosis is made some time later, the disease is placed at the door of these disastrous engagements, rather than at that of the disease.

Likewise, an individual may be under restraint for the commission of some criminal act. Sometime later he becomes actually insane. Under the most enlightened conception, all criminal acts are the results of morbid mentality and morality. Ordinarily, however, it is reasonable to inquire how long the disease has been in progress before discovery, in order that the criminal act may be brought within the actual period of insanity, and thus prevent further punishment after apparent recovery—perhaps during the next lucid interval.

The probable time of origin of a psychopathic condition in a recently arrived alien, is another important medicolegal question. The solution of this problem depends upon the consideration of the nature of the psychosis, whether brought on after a short or long period of contact with the new environment, a study of the personal and ancestral history for the discovery of mental or constitutional inferiority or instability, as well as a study of the constitutional composition of the individual himself.

These questions cannot, of course, be answered with any degree of certainty. We may venture the opinion that even sudden outbreaks are merely acute onsets after long periods of incubation, even months and years. In this way can be accounted for the late onset of such gradually deteriorative conditions as dementia præcox, which may first become apparent late in life rather than in adolescence. In involution melancholia and senile dementia, the periods of development are at least as long and as gradual as the periods of involution or senile deterioration. In the toxic and allied conditions, however, admitting that the mental symptoms are the results purely of these conditions, the psychoses must have lasted a somewhat shorter period than the intoxications.

Where there is discoverable a psychopathic complex in an individual suffering from an abnormal mental condition developed later in life, the time of origin may be set at the time when the patient first came into contact with new, unusual, or adverse environmental pressure. These may be purely mundane difficulties, puberty, the puerperium, involution, the climacteric either in the male or in the female, senility, disease, or some mental or physical trauma. On Freudian principles, it may be at the time of the receipt of the sex shock, which may be at a very early age.

Medical experts have their sphere of activities in the determination of the probable nature of certain actions or words—their rationality, or the probable duration of certain mental conditions, whether in criminal cases, in will cases, or in allied matters. Legal procedure requires that these opinions be given in the form of hypothetications and prognostications and in other manners of verbal refinements. The confusions caused have brought the science into some disrepute. Judges and juries are inclined to disregard these opinions as merely speculations in psychology. Yet since legal procedure requires these opinions, it may be observed that those of alienists are far better than those of laymen.

TREATMENT.

The treatment of mental conditions is far from satisfactory. Progress has been rather in custodial care than in positive therapeutic measures. Better physical care of the patients has prolonged their lives. For the present, prophylaxis holds out the largest hopes. Hereditary transmission, which is the largest factor in the lives of these conditions, must be reduced. Merely preventing the mating of known defectives is not sufficient, since the acquisition of a transmissible "taint" through excesses and preventable disease, is the largest element in keeping mental abnormalities alive in future gen-

erations. The whole field of preventive medicine must be utilized in the anticipation of defective heredity. Offspring have a right to good heredity. Parents are always the debtors of their children, particularly of children whom they have not properly endowed. To this realization parents and future parents must be educated. When the difficulties of educating parents is considered, the problem of the education of children sinks into insignificance.

While hereditary infirmity is irremovable, the environmental conditions which excite the psychoses are amenable to influence. Were it possible to remove the mentally delicate to an environment of their own, the problem would be solved. In low pressure communities, as in farming sections, they might do very well, but when they are transferred to the high pressure of urban communities, many of them go under. This is so often illustrated in immigrants, who have lived long on a farm without mental reverse, but soon succumb in the rapid city currents of this country. There should be a selection of climate for the mind as for the body. While not every individual with a hereditary mental weakness must succumb, there is such a liability under extraordinary or even ordinary pressure, and prevention can often be attained by a life of subnormal mental pressure, in a salubrious "mental climate." The fact is, however, that it is impossible to create an environment of sufficiently low pressure to suit these persons, hence they should be taught to guard against injurious social conditions. Social medicine will find a great field among the mentally delicate. Proper efforts might perhaps prolong and even make permanent the lucid interval.

Eugenics may be said properly to include the anticipation of hereditary psychopathic tendencies by preventing propagation by the unfit, and especially the nurture of good racial qualities by the prevention of diseases and excesses.

Mental hygiene includes also every endeavor to remove the usual exciting causes. This means right living and right thinking, which should be urged on everybody. Right thinking is especially important to those with psychopathic predispositions. These individuals usually live through with more realism the things they imagine than the things that actually happen. They are inclined to stimulate their imaginations vigorously and to get a great deal of pleasure out of these mental debauches, in which they soar unchecked into the heights of imagination. Later the overstimulated imaginations become obsessions. In effect, this amounts to mental masturbation, which is just as baneful as excessive physical masturbation. A little effort will succeed in substituting healthful and useful for the objectionable thoughts.

With eugenic principles carried out in an ideal way, that is, in the nurture of desirable qualities through the prevention of disease, with the application of the principles of mental hygiene, and lastly with the hope offered by recent studies in psychotherapy, results must soon show. Yet even with the indefiniteness of the whole subject of mental diseases and defects, and with their practical incurability after inception, there are no more preventable pathological conditions than these.

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CHANGING TENDENCIES IN DISEASE.*

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This is an age of change. Marvelous transformations take place about us in such rapid succession that we finally get into a state of mind where we cease to wonder at anything and accept, as matters of course, things bordering on the miraculous. In this era of ceaseless motion how many of us have ever thought that the very maladies which make us ill likewise have their periods of change? Not only do differences occur in the character of certain diseases, but often enormous variations take place in the frequency with which they afflict mankind. Diseases which in past ages have swept over large areas of the earth's surface and have claimed their victims in tens of thousands, are actually unknown by name to many of the present generation. So, in turn, we today suffer from certain affections which, as far as can be ascertained, were entirely unknown to our forbears. As mankind changes, so do the diseases change from which mankind suffers.

No disease has so shaken the foundations of human society as the plague, which in the sixth century and again in the fourteenth, showed a capacity for wholesale destruction not manifested by any other. It swept like a tornado over the earth, leaving it desolate and almost uninhabited. The world has many times suffered severely from plague, but the great Justinian epidemic of the sixth century, and the Black Death of the fourteenth century stand out conspicuously as scourges of a particularly devastating character, the effects of which were felt for many years after the epidemics themselves had ceased. While the Black Death raged, England and Wales lost 2,500,000 lives, or half the total population, and in Asia alone it is estimated that 25,000,000 people were carried away. At the present day it is hard for us even to imagine the existence of so widespread and deadly an epidemic. In recent centuries plague has progressively waned. It has been practically absent from Europe for sixty years, and from Western Europe for nearly 200 years. Up to 1896 Bombay, India, had been free for 184 years. Plague as an epidemic disease came to be regarded as a thing of antiquity, the few remaining cases scattered throughout various lands were considered as of little importance, and the possibility that this dragon of old might again raise its head, was hardly entertained. Yet the world's history of plague shows a remarkable tendency for it to disappear for long periods of time from regions where it has once been rampant, perhaps to reappear after the lapse of centuries. True to its old traditions, after a long period of quiescence, plague broke out in Hong Kong, China, in 1894. From here it rapidly spread over most of the globe and up to the present time has invaded over fifty different countries. Save in India, the disease has been held fairly well in check, but "when one considers the dynamic energy of the plague, its powers of resistance, its terrible killing capacity, exceeding all known vital forces, who can

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doubt that had its advent been in the middle instead of at the end of the last century, civilization might have had to face again the prospect of destruction?"

In India, however, plague has lately raged with all its ancient fury. Starting in 1896, it carried off its victims at the rate of half a million to a million a year, and in the past eighteen years has caused the stupendous total of over 8,000,000 deaths. It is difficult for us here in America to conceive that in these times of improved sanitation such conditions can prevail in any part of the earth. What a different picture has our own country presented! The eternal vigilance of our Public Health Service has so far effectively throttled every outbreak of plague in its incipency. Splendid as is this record, it should not lull us into a false sense of security. Plague still smoulders near us, particularly along the coast of South America. Its recent appearance in New Orleans shows how real the danger is, and unless all possible precautions continue to be taken, the United States may some time have to reckon in earnest with this dread invader.

Typhus is unknown by name to most Americans today, yet it easily ranks as one of the world's most formidable diseases. In the early part of the eighteenth century it was so common that special hospitals were built for it, and the estimate of the thousands who died from typhus is appalling. From 1812 to 1813 the greatest known epidemic occurred in Napoleon's army in Russia. "The history of typhus is written in those dark pages of the world's story which tell of the grievous visitations of mankind by war, famine, and misery of every kind." It was considered exceedingly contagious and no disease has claimed so many victims among both nurses and physicians. At the present time typhus is no longer to be found over a large part of the earth's surface, and its gradual disappearance is one of the great triumphs of modern medicine.

In 1896, Brill, of New York, began making observations upon certain peculiar cases of fever which occurred in the wards of Mt. Sinai Hospital. He believed that these cases were different from any forms of fever that had hitherto been described, and thought that he might possibly be dealing with an entirely new disease. Brill realized that his cases bore some resemblance to typhus, but because of their mildness and noncontagious character, he doubted the identity. Anderson and Goldberger of the Public Health Service became interested in this problem, and by a series of experiments upon monkeys showed conclusively that so called Brill's disease and typhus are one and the same. After further investigation they demonstrated that the disease is transmitted solely by the bite of the common louse, thereby explaining its tendency to occur in unsanitary surroundings and crowded quarters, as well as its apparent contagiousness.

The fact that typhus is still constantly present in New York city, even though in an apparently new guise, came as a great surprise to most of the medical profession. Brill deserves great praise for his clear cut descriptions and for the way in which he has drawn attention to an entirely unsuspected con-

dition. In America we have the picture of a notoriously contagious and fatal disease converted by the conditions of modern hygiene and sanitation into a mild illness with few dangerous characteristics. Europe has of late been less fortunate. Amid the terrible conditions which existed during the Balkan wars, typhus reappeared with much of its former severity and contagiousness, numbering among its victims many nurses and physicians.

The most striking example of the transformation in disease conditions brought about by modern methods intelligently applied, is the regeneration of the Isthmus of Panama. For over 400 years this small neck of land had borne an evil repute as the white man's grave. By common consent it was considered one of the unhealthiest regions of the globe. Uninhabitable by any but the few natives who dwelt there, thousands upon thousands of white men lost their lives upon the isthmus from fever and tropical diseases. The quest for gold in California in 1849 brought to Panama many adventurers who sought to avoid the longer, tedious route about Cape Horn. "On foot, on mule, and in vehicles of various design they fought their way through the almost impenetrable jungle in torrid heat, under blistering sun rays, and in torrential rains. Overcome by climatic conditions, and exhausted by fatigue, they fell easy victims to the fierce onslaught of the native mosquitoes, which in swarming myriads welcomed the invasion of new blood. Many lay down to die to find an uninviting grave in the desolate morass and in the tangled jungle." In 1855 a railroad was completed across the isthmus, but at such a fearful cost that every tie is said to have represented a human life. When the French under Ferdinand de Lesseps started the Panama canal in 1881, the mechanical difficulties encountered were as nothing to the terrible obstacles interposed by disease. The isthmus became a veritable pest hole. The death rate rose to the enormous maximum of 177 per mille, and although the number of the tens of thousands who died has never been accurately estimated, their total would exceed the population of many of our large cities. Dysentery and mosquito carried diseases, such as yellow fever and malaria, were responsible for most of the deaths, and in five years the French lost nearly three quarters of their working force. Corrupt methods and graft undoubtedly played an important part in the failure of the French, but it is believed that diseases, now preventable, bore the chief responsibility.

In 1904, when the United States Government took charge of the Panama canal, it appointed as chief sanitary officer Colonel Gorgas, fresh from victories over disease won in Cuba. Here he had accomplished a feat which appeared little short of miraculous. The city of Havana had been scourged by yellow fever for over a hundred and fifty years, yet in the incredibly short time of nine months every vestige of the disease had been completely eradicated. At Panama he was confronted with the stupendous task of purifying an area of 322 square miles which was literally surcharged with disease producing causes. So thoroughly have Colonel Gorgas and his associates done their work that they have converted the pest hole of centuries into a

region as free from disease as the healthful cities of their own country. In 1913 the death rate for the Canal Zone with a population of nearly 57,000, reached the surprisingly low level of 8.35 deaths per mille, less than half the mortality rate of many of our most prominent cities. Osler truly says that there have been a great many brilliant illustrations of the practical application of science in preserving the health of a community, and in saving life, but it is safe to say, considering the circumstances, the past history, and the extraordinary difficulties to be overcome, that the work accomplished by the Isthmian Canal Commission is unique.

In marked contrast to the brilliant achievements at Panama stands the typhoid situation of the United States, which has often been called a national disgrace. It would be unfair to say that nothing in the way of typhoid fever prevention has been accomplished, for in the last twenty-three years the amount of typhoid fever present in the United States has been reduced nearly three fourths. A death rate of forty-six per 100,000 in 1890 fell to 12.7 in 1913. At a superficial glance this would appear to indicate satisfactory progress, but when we compare our cities with those of Europe, it becomes immediately evident that much has been left undone.

*The Typhoid Fever Death Rate in European and American Cities.**

European cities.	Estimated population.	Typhoid death rate per 100,000.	American cities.	Population 1910.	Typhoid death rate per 100,000.
Edinburgh ...	321,000	1.3	Washington...	331,069	16.4
Munich	600,000	1.4	St. Louis.....	687,029	16.9
Stockholm ...	340,000	1.8	Milwaukee ..	373,857	11.2
Dresden	550,000	2.2	Cleveland ...	560,663	13.5
Antwerp	316,000	2.3	Newark	347,469	7.9
Berlin	2,000,000	2.9	Chicago	2,185,283	10.5
London	7,250,000	3.2	New York.....	4,766,883	7.
Copenhagen...	465,000	3.6	Detroit	465,766	27.5
Vienna	2,000,000	3.8	Philadelphia..	1,549,008	15.7
Belfast	385,000	3.9	Cincinnati ...	363,591	6.4
Lyons	525,000	4.4	Pittsburgh ...	533,905	18.1

*Modified from McLoughlin.

This table speaks for itself. A death rate of only 3.2 for the largest city in the world with over 7,000,000 population should make us blush with shame to admit that Detroit shows a corresponding mortality rate of 27.5 per 100,000. Washington and Edinburgh are cities of equal size, yet nearly thirteen times as many deaths from typhoid fever occur each year in the one as in the other.

What makes the situation even worse is that typhoid fever is without doubt a preventable and therefore an unnecessary disease. Unlike certain other maladies which have baffled the researches of scientists and physicians, typhoid fever is fairly well understood. The organism which causes the disease has been known and studied for over thirty years, the manner in which it infects man is sufficiently clear, and most important of all, the means which may be taken to *prevent* the existence and spread of the disease are matters of certain knowledge. Two single items—safe water and safe milk—will cause nine tenths of the typhoid fever in any community to disappear. The city of Naples, Italy, is an excellent illustration. Naples has the reputation for being the city of filth *par excellence*. Excrement from man and beast is deposited in the very streets, and the habits of many of the people are unspeakable. American tourists are shocked at every turn. Flies are numerous and together with

the abundance of dirt and filth seem to furnish ideal conditions for the widespread prevalence of typhoid fever. Yet in 1908 the typhoid death rate of Naples was only 6.5. What is the explanation of this anomalous condition? Naples has no water problem. The water is pure and is furnished free to all the inhabitants. Naples has no milk problem. The poor Neapolitans use goats' milk which is drawn from the animal direct into the pail of the consumer. For those able to afford cows' milk, the cow is driven through the streets and milked immediately at the door of the householder. Those procedures greatly reduce the chance for contamination of the milk. In addition it appears to be the custom of the inhabitants to boil all the milk, which renders still more remote the possibility that it may convey disease.

In a little German town named Trier, typhoid fever was unduly prevalent. Despite the best efforts of the local authorities, the disease remained firmly intrenched and carried off its victims year after year. It was decided to make Trier the subject of a novel experiment. In order to test the possibility of completely exterminating typhoid fever after it had once obtained a strong foothold in a community, Professor Koch and a corps of able assistants were sent to Trier. They fitted up a laboratory and applied all the methods known to science in the detection of unsuspected cases, the cure of those already ill, and the prevention of new cases. *In three months' time not a vestige of typhoid fever remained.* What was accomplished at Trier can be duplicated in any region where proper control is given the health officers and similar methods can be intelligently applied.

Not long ago Wilbur Wright, the genius of aviation, breathed his last. He died of typhoid fever, an unnecessary disease, at the age of thirty-five years, probably before the height of his brilliant career had even been reached. What the world lost when he was taken away can never be known. It is ever so with typhoid fever, which seems to spare the weakly and the aged, but strikes down our young adults in the flower of early manhood and womanhood. Wilbur Wright died of a preventable disease and his death was due to negligence.

It would take us too far afield to tell of all the changes in disease that the science of medicine has rendered possible. Vaccination has made smallpox a rarity. The knowledge that malaria and yellow fever are conveyed only by the bite of certain species of mosquitoes has led to the conquest of these fevers. Diphtheria is a mild disease where antitoxin is used early in sufficient doses. Although tuberculosis still causes one tenth of all deaths, the death rate per 100,000 has fallen in twenty-two years from 245 to 149.5, a decrease of nearly one half. The discovery in our own country of an antitoxin for cerebrospinal meningitis has robbed this terrible malady of much of its danger. Popular education and cleaner milk have done a great deal to reduce the high mortality of infant life.

Has the picture no other side? Is man slowly but certainly conquering all of the maladies to which he is heir? This ideal, unfortunately, is still far from attainment. Diabetes, cancer, and diseases of a degenerative nature are rapidly increasing in

America, and despite the progress in prevention made in other directions, continue to advance with great strides.

Since 1890, diabetes in the United States has nearly tripled itself. Fortunately the actual number of cases occurring each year is small in comparison with many other diseases, but the death rate has risen from 5.5 to fifteen.

Cancer is without doubt making rapid advances in many civilized countries. In San Francisco the relative number of deaths from cancer increased sevenfold in thirty-two years.

In Boston the mortality rate trebled in twenty-four years. For England and Wales the cancer rate increased 150 per cent. in thirty years. The hospitals of Germany show an increase of 266 per cent. in nineteen years. Some importance must be attached to the fact that improved hygiene and care of infants and children favor the survival of the weakly and even bring them to middle age where they may become victims of cancer. Thus many individuals who would formerly have fallen by the wayside, stricken by diseases of early life, are now protected from these diseases and are enabled to reach the cancer age. Nevertheless, the increase in cancer is much greater than can possibly be explained along these lines. Cancer is likewise displaying certain changed tendencies—it is attacking its victims at an earlier age and seems to be affecting men with proportionately greater frequency than women.

The most important fact which confronts the health of America today is the tremendous increase which has occurred in degenerative diseases which include apoplexy, paralysis, and diseases of the heart, circulatory system, kidneys, and liver. The place which tuberculosis held for years as the "Captain of the Men of Death" is now taken by this new leader which causes many more deaths than any other disease or group of diseases. In Massachusetts, deaths from degenerative diseases have increased eighty-six per cent. in thirty years. One of our great life insurance companies has recently issued a pamphlet stating that the proportion of deaths from obscure diseases of the heart, brain, and kidneys has increased 131 per cent. since 1880. In sixteen of our largest cities the mortality rate from apoplexy, organic heart affections, and kidney disease has increased ninety-four per cent. in thirty years. In New Jersey, from 1880 to 1910, it increased 108 per cent. These ailments prevail chiefly in men of middle or advanced age. The death rate of the total population, aged forty years and over, in Massachusetts and New Jersey has increased twenty-one per cent. from 1880 to 1910; in sixteen cities twenty-five per cent. Despite the tremendous, persistent increase in these diseases which has gone on year after year in the United States, the mortality rate from the same group of diseases in England and Wales has actually remained stationary—a fact of remarkable interest and importance.

These degenerative diseases have many fundamental differences from the acute infectious disorders mentioned in the early part of our paper. There we were dealing with foreign bacteria which gained entrance to the human body and caused a definite illness ending soon either in death or in recovery.

Here we have to do with ailments of a most insidious kind, whose onset is so gradual that years usually pass before they fully manifest themselves. Even then progress is apt to be slow. The patients may live in happiness and comfort for many years, even to an advanced old age, but full recovery can never take place, for the changes that have occurred in the heart, arteries, or nervous system are the result of stress and strain and represent the wearing out of the human machine. The familiar saying that "a man is as old as his arteries" still rings true. Some men at thirty years have the arteries of an average man of seventy, and their life expectancy ought really to be computed from the latter age. Others at seventy are really young old men—good for many years to come.

The life and habits of the average American of today are largely to blame for the high mortality in this group of diseases. The strenuous life makes possible wonderful advances in civilization, but the associated wear and tear undermine health and vigor. Men work their body machines at high pressure and often take less care of them than of their motors. The best locomotive run day by day at maximum speed will not last one tenth of the time that might have been expected if it had not been so pushed. Nowadays with the human engine it is top speed or nothing, and we cannot wonder that it early shows signs of bad usage. With the modern business man competition is so keen and the environment so stimulating that even without social or political ambitions, high pressure seems a necessity. Living quieter lives with less stress and strain, women are not so frequently affected. By twentieth century methods we do things with a great deal less physical effort and in a much shorter time, but this saving of labor and time, instead of making our lives easier and more peaceful, often has exactly the opposite effect. Where a man formerly accomplished two or three things, he can now finish ten. The actual physical exertion may be no greater, but the mental effort required is tremendously increased. Before the telephone was used, it took considerable time to send a messenger to another part of the town and to await his return. Now it is possible to send a score of telephone messages in the same number of hours. Who does the additional brain work? In place of half a dozen letters laboriously written in long hand, the employer of today dictates to his stenographer twenty-five. Does not this represent a much greater expenditure of nervous energy? The increased facilities at our disposal for communication and transportation have rendered gigantic achievements possible, but by just so much have they added to the complexity of modern life.

The man of affairs who once thought himself fully occupied with an interest in five or six different enterprises, now becomes a moving spirit in twenty or twenty-five. Innumerable examples could be adduced to show how time and labor are saved, but in nearly every case the greatly increased expenditure of nervous force which replaces them is bound to have its effect. The heart, the arteries, or the kidneys are only too frequently the sufferers.

It must not be thought that the strenuous life

alone does the mischief. The habits of the American people are largely responsible. Many men of middle age not only lead a very strenuous business or professional life, but in addition are good feeders, heavy smokers, and perhaps moderate but steady drinkers. They spend many hours each day for many years sitting at their desks, and are often compelled by business or social conditions to attend banquets at which they eat, drink, and smoke more than is needful. Convenient trolley cars or automobiles deprive them of all exercise. They persistently take a surplus of nourishment over the needs of the system, and in particular consume a great deal more meat than they require. What is the result? The digestive organs are overtaxed, the blood becomes surcharged with poisonous waste products, the kidneys are overworked in their efforts to rid the body of these toxins, and are denied the assistance in elimination which healthful exercise would give. Degeneration of heart, arteries, or kidneys followed by premature old age is the termination.

What remedies have we at hand with which to combat this tremendous problem? First, provision must be made for the periodical, systematic examination of all inhabitants, with investigation of habits and general manner of living. In other words, men and women are going to consult physicians not because they are ill, but because they believe themselves well and wish to remain so. By this means disease will be detected in its incipency, and methods of prevention and cure applied before a firm foothold has been obtained. Steam boilers, elevators, life preservers, and the like are now subjected to periodical inspection, but that most important and most highly complex machine of all, the human body, is allowed to shift for itself. The time is coming when the man who boasts that he has not consulted a physician for twenty years or more, will be considered as foolish as the doctor who declares that he has not been obliged to look into a textbook since graduating. The work along these lines inaugurated by the Life Extension Institute of New York is of the greatest importance for the health of America, and the results already obtained fully justify the expectations with which the institute was founded. The life insurance companies are in a position of remarkable potential influence. Millions of policyholders are within easy reach, and the lengthening of life that will inevitably result would be an actual gain to the companies in dollars and cents. They have been slow to appreciate their responsibilities and opportunities, but are now beginning to understand the possibilities of this work.

Secondly, moderation must be preached and practised everywhere. A few grains of common sense injected into the strenuousness of today will do much to relieve the nervous tension under which we live. The busy man who learns the difficult lesson that the weight of the world does not rest upon his shoulders, and that the earth does not revolve in an orbit of which he is the centre, will feel happier and live longer.

A man who has been racing like the *Mauretania*, and in constant hazard of a breakdown, may be

able to keep up indefinitely when the speed is reduced to ten knots an hour. Systematic exercise is needed to take men and women away from the monotony of daily routine, to bring them out into the fresh air and sunshine where they may forget their cares and feel themselves refreshed and rejuvenated. Above all, moderation at the table must be practised. Osler has well said that overeating kills more people than excess in drinking. The average American eats entirely too much, particularly in the way of meat. After one has turned the corner at forty years, the system no longer needs the same quantity of foods as required in early manhood, but actually does its work better on smaller amounts.

George Cheyne's thirteenth aphorism contains a volume of dietetic wisdom: "Every wise man, after Fifty, ought to begin and lessen at least the quantity of his *Aliment*, and if he would continue free of great and dangerous Distempers and preserve his Senses and Faculties clear to the last, he ought every seven years to go on abating gradually and sensibly, and at last descend out of Life as he ascended into it, even into a Child's Diet."

705 EAST GENESEE STREET.

THE TREATMENT OF PECTUS EXCAVATUM (FUNNEL BREAST).

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The deformity known as funnel breast is relatively common and, in its more pronounced degrees, so impairs respiratory competence that it may be of interest to describe a method of relief or cure evolved from personal experience. The subject seems to get less attention in literature than it deserves.

Orthopedic problems, such as are presented to any busy clinician, have always interested me deeply. For many years, while professor of diseases of childhood at the Polyclinic College, it was my pleasure to call the special attention of the graduate students to minor deformities and emphasize the duty of searching all contours and correcting deviations in their incipency.

In passing, let me remark how helpless or indifferent these practitioners appeared. Doubtless recent graduates are better instructed, but the fact remains that the medical tyro requires constant urging to employ his hands and appraise the mechanistic factors.

The particular problem under consideration is common to all acquired deformities of the chest in which the front has become contracted, whether from a diseased condition, such as early rickets, or the manifold factors of weakened erector spinæ muscles, impaired excursus of the ribs from whatever causes.

It is my custom to examine critically the shape, pliability, and relative diameters of the thorax, in all who present themselves. My work being largely in the line of reconstructive personal hygiene, I now

meet with a variegated group of impairments, many of which are defects of development and acquired structural faults, which have escaped the attention of other clinicians or results at their hands. Hence, among the cases, are many showing degrees of funnel breast.

In the young, so long as there is fair mobility of the ribs or plasticity of collateral structures, the deformity is readily overcome. Age is not alone a hindrance; in some persons, especially women, of past middle years, rather extraordinary readjustability remains. The greatest obstacles are two: 1, Indifference and apathy, and, 2, lack of motor intelligence—inability of efficient self help.

The cure of funnel breast depends wholly on the individual, his or her willingness or ability to co-operate. Briefly, the problem is to force the chest to expand and the ribs to rise to a normal level; and to do so often enough to overcome the rigidities, and allow the posterior muscles of the back and shoulder girdle to attain sufficient strength to maintain the heretofore dropped and collapsed chest in a normal position.

I direct the patient to clasp hands behind and place them just below the shoulder blades, then to pull apart one against the other, extending both steadily downward, as far as possible, maintaining both traction and extension with increasing force, and to hold them at the end of full downward extension an appreciable time—a few seconds.

This manoeuvre involves full action of the erector spinæ muscles; as they pull down, the thorax is lifted up in front; indeed, all the ribs are elevated and likewise full traction is exerted on the ribs at their insertions into the manubrium.

As an important detail, first the right hand clasps the metacarpal bones of the left hand, the fingers of the left hand remaining extended. The thumb of the clasping hand is *not* used; encircling the left hand twists the right and impairs the direction of pull. The movements are repeated, using alternate hands, one to clasp and one to extend; both being thrust down and pulled apart; also holding the back vertical, i. e., not protruding the belly. It is sufficient to make ten extensions at a time—five with each hand—and daily at least for two or three months; then two or three times a week.

Whatever ultimate results can be obtained will depend, of course, on the degree of contraction, state of tissues, and the energy used in the motions. A further detail of importance is that the chin shall be extended directly upward with each downward thrust of the hand. The chin moves up as the hands go down and greatly adds to the uplift of the ribs and the emphasis in downward pull of the vertical muscles of the back.

The treatment of this condition in the literature comprises mainly vague references to the value of "exercises," which is about as helpful as to recommend "nourishing food" in dietetics. Rightfully selected and wisely applied exercises are of enormous assistance in treating deformities and the effects of disease; but they require exactly the same precision, intelligent selection, and application as any other remedy.

1504 PINE STREET.

RADIUM AND MESOTHORIUM IN CONJUNCTION WITH RÖNTGEN THERAPY.*

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All röntgenologists realize the value of radium, but there is much difference of opinion in regard to its exact uses and limitations. Some will say they are unable to see any difference between radium and Röntgen therapy reaction, while others will say that there are certain things that can be done with radium that cannot be done, or at least duplicated, with the Röntgen ray. Nearly all agree that certain lesions can be treated just as well with one agent as with the other. There is no question among physicians that the radium and the Röntgen rays have certain differences, but that each contains certain rays which are analogous.

Wickham and Degrais state that, "if a current of electric sparks be passed into and splits up in a glass vacuum tube (Crookes tube), it is filled with special fluorescence," and "that certain rays, such as the anode, cathode and x ray are produced respectively analogous, but not identical with the alpha, beta and gamma rays of radium." It is not my purpose to attempt to describe the physical properties of radium, mesothorium, or the x ray, because my paper pertains to the clinical side of the subject.

It is generally admitted that the action of radium and mesothorium is the same. Most authorities who have worked with both believe that they have observed practically no difference in the results accomplished. They all agree that the radioactive substances should be as highly concentrated and used in as small containers as possible, as the penetration is deeper.

From a clinical standpoint, I believe the penetration, method of filtration, and accessibility of application, more than the agent employed, determine the results in nearly all diseases which have been treated by the Röntgen ray and radium. Of course, radium and mesothorium are supposed to have about ten times greater penetration than even the Coolidge tube. There are only a few lesions where such high penetration is needed or used; because, even when treating with radium, most lesions are so situated that authorities advise using filters, which allow the high beta rays to pass, and then the reaction is produced by the high beta and low gamma rays.

Harnaman-Johnson, in the *British Medical Journal* for May 9, 1914, in speaking of the x ray and radium, considers the terms convenient but arbitrary, and is of the opinion that both are ether impulses, being identical except in power of penetration.

In reviewing the literature of the reaction produced on tissue by contact with radium, I find that it is certainly very similar to that produced by the x ray, which is well known to us all. It is more nearly identical than the physical description of radium or the Röntgen ray. When either agent is

*Read before the American Röntgen Ray Society, Cleveland, Ohio, September 10, 1914.

applied, no organ is unaffected, provided the intensity is sufficiently great and the exposure sufficiently long. This does not mean that the intensity must be strong or that even a visible reaction be produced. In connection herewith allow me to quote a few paragraphs from Finzi:

In general, radium rays, in small doses, have a stimulating, and, in large doses, a destructive action. The dose required to destroy every type of cells varies greatly, for instance, gland cells may be destroyed by the small doses, which do not harm the cells of the connective tissue or the skin. In other words, the sensitiveness to the action of the rays varies with the type of the cells and this is what we mean by selective action of the rays. . . . The lymphatic organs are very sensitive to the rays, the action being characterized by a destruction of the lymphoid cells. This behavior is also shown in the spleen and bone marrow, but in the latter with the destruction of the leucocytic cells there occurs an increase of the erythrocytic series. Muscle tissue degenerates under the action of the rays. Cartilage is very little influenced and even under the large doses shows increased growth. Endothelium of bloodvessels is extremely sensitive to the rays, and with small doses swells up enormously and may completely obliterate the lumen of the vessel, while large doses cause its destruction.

So from Finzi's conclusions, it is clear that we should only have to refer to the physiological action of the Röntgen rays, which has been described by almost every member of this society, to see that the x ray produces almost identical reaction. From the results produced by radium on angiomas and conditions closely allied to these tumors, such as flat naevi or port wine stains, it appears that the endothelium of the bloodvessels is more sensitive to radium than to the Röntgen ray; although Pusey states that he can even duplicate the results of those which obtained in the treatment of vascular naevi by the Röntgen rays.

An advantage of radium frequently mentioned is that a dermatitis of the same degree heals up much more quickly, when produced by radium than by the x rays. In one or two cases in which I applied mesothorium, a dermatitis with a marked vesiculation occurred, and I was greatly surprised how promptly each healed without leaving a scar. I was rather inclined to think that it might be due to the small area involved, instead of the different quality of radiation. This is a point I cannot decide at the present time, for we all know that we have produced dermatitis of a marked degree with the x ray and were surprised at how promptly it healed. It has been pointed out that when the gamma rays (filtered through two mm. of platinum) produced a marked reaction, less fibrous tissue seems to be subsequently formed than when a reaction of the same degree is produced by rays filtered through one half mm. of platinum. It is generally conceded that, when the rays pass through one half mm. of platinum, the high penetrating beta rays predominate over the gamma. I believe for the last few years that most of us have been treating keloids with as high a penetrating x ray as possible, because results can be produced more quickly with less amount of radiation. Then would this indicate that the high penetrating rays have a more marked effect on fibrous tissue than the low penetrating rays? Newcomet mentions that "the absorption of fibrous tissue is one of the most marked features of the radioactive elements," but he does not state what quality of ray is the most effective.

The therapeutic value of radium cannot be right-

fully appreciated if it has not been studied with a sufficiently complete and varied range of filtration. It is very necessary to study secondary radiation produced by the various filters and the best methods of avoiding the deleterious effects of these rays.

In treating a case either by radium, mesothorium, or the x ray, we always face a series of problems. Given a case with a certain lesion, its position, its extent, its susceptibility to the influence of this or that radiation, then we must determine the agent or agents to use. The duration and method of application can be varied almost to infinity. This enables us to realize how rich radiotherapy should be in its results when properly selected and employed.

There have been so many ridiculous statements made by men of high standing about radium, for and against it, that the general medical profession has no clear conception of its real value. Some radium advocates have been greatly elated over the apparent cure of possibly fifty or even a hundred cases of epithelioma. They do not seem to know that five or ten years ago there were röntgenologists who had produced similar results with the x ray. In fact we were all proud of our art galleries of photographs before and after treatment, but at present the cure of an epithelioma is as common as that of a Colles's fracture.

In 1907, Pusey reported, at the Sixth International Dermatological Society, 111 unselected cases which had been treated more than three years before, and whose histories up to the time of the meeting were known. He showed a large number of photographs of epitheliomas before and after treatment. The following are Pusey's exact words: "Counting the thirty-one cases which were not radically cured as failures, there remain eighty successful ones in a list of 111 successive case of epithelioma treated more than three years ago, showing seventy-two per cent. of successful results." These results are even better than those reported by Pinch, of the Radium Institute, London, during the year 1913, in which he reported 111 cases of rodent ulcer, forty cases apparently cured, thirty-four improved, twenty-one results not yet noted, two prophylactic treatment only, four examined but not treated, and seven not improved.

The comparison in the results in the treatment of many other superficial lesions where radium has been used, would be similar. It means nothing when some enthusiastic advocate of either radium or the x ray states that there is no doubt that one agent has destroyed cancer whereas the other completely failed. Most likely the one applying the agent failed to recognize the limitations of his therapeutic agent. No one should expect to obtain the same results in cavities with x ray alone as with radium or mesothorium, either alone or in conjunction with the x ray.

I have seen cases made worse by destructive doses of radium, a result which probably would have been avoided if the aftertreatment had been just as radical as the first. Many advanced cases often warrant massive radiation, but the aftertreatment must be carefully carried out. Here is a case to illustrate:

CASE. Mr. C., referred after having consulted three of the best surgeons in the country, had an epithelioma situated back of the ear, about the size of a half dollar, with

some glandular involvement. He had been told by the surgeons whom he had seen, that on account of his age (but in reality on account of the advanced condition of the disease) they would advise either x ray or radium. Before he returned home he was given a massive dose of radium over the lesion. In three weeks there was a violent reaction which later became necrotic. I gave him x ray treatment over the adjacent metastatic glands, covering the lesion with tin foil, which reduced them rapidly. As soon as the lesion became necrotic, I strongly advised the removal of the necrotic area, as the man was still in excellent health. But the surgeon objected to any such procedure, and said that the radium had only made it worse, and that, as the x ray had some effect on the glands, they wanted the original lesion treated with x ray. This I did not do, as it would only have been like giving more radium. If the necrotic area and the unhealthy surrounding tissue had been removed and a flap turned in, the man's life would have been made comfortable at least.

In consultation, I saw two similar cases in which x ray treatment had produced the same result; one in which the necrotic and degenerative area was removed and a flap turned in, and the other frozen with carbon dioxide. Both are apparently cured at the present time. We must be able to differentiate between an epithelioma and degenerate and x ray tissue. I have frequently been called in consultation to see why the x ray was not effective in the treatment, when perhaps the physician was treating degenerated x ray tissue, while the removal of all this tissue and the turning in of a flap often effected a cure. Experienced röntgenologists today are not producing such conditions, but are seeing the condition after it is produced.

Hearing Charles Allen Porter's talk before the American Röntgen Ray Society, in New York, made me realize that often the failure of an epithelioma to heal up was due to treating x ray degeneration instead of an epithelioma. This fact has been very valuable to me in advanced cases of epithelioma. What has been said in regard to x ray degeneration, I am sure, from what I have seen will apply to radium. I do not believe, however, that we shall have so much radium degeneration, as there are not many radium or mesothorium tubes scattered around as there are x ray machines.

All types of epithelioma of the skin, I believe, can be treated just as well with the x ray as with radium. Certainly superficial epitheliomata are in most instances promptly relieved by both forms of radiation. Those who have had the most experience with radium think most of it, and the same holds true of the x ray. It is only necessary for the operator to be familiar with his agent.

But where the epithelioma is situated on mucous membranes in cavities, the same does not hold true, on account of inaccessibility with the x ray and the ease with which the radium can be applied. Pinch states that "epitheliomas of the buccal, lingual, and pharyngeal mucous membranes still prove both refractory and disappointing in their response to radium, but a new method of treatment has recently been devised, which in instances of cancer of the tongue has given distinctly encouraging results; it consists in the burying within the carcinomatous nodule of a very small but intensely powerful radium tube. A fairly severe reaction follows," he says, "and in some cases the nodules cease to grow and become replaced by dense fibrous tissue."

I have seen Abbe carry out this method, but I do not believe we could expect much from it. An

advanced case of cancer of the tongue is not a local disease, and what we need is a homogeneous ray to check and obliterate the disease in the glands. In the advanced cases I have been able to check the progress and make the patient comfortable, but have only one case which has been apparently cured for any length of time. On account of the patient's remaining apparently cured, I question the diagnosis. I believe he has not taken any treatment of any kind, however, for over three years. If epithelioma of the tongue is seen early when the diagnosis is hard to make, there are a number of methods which will effect a cure, particularly so if the adjacent glands are treated by some effective form of radiation; but when the patient comes late, it is probably the most hopeless form of carcinoma and the one for which we can do the least.

Leucoplakia is usually a forerunner of epithelioma, and responds more readily to radium than to any other method I have tried or seen. I have one case of tuberculosis of the palate under treatment that responded to radium promptly. The x ray, on account of inaccessibility, would not have been effective. I treated the external glands with x ray, a procedure which I have adopted since I have been using mesothorium in diseases of the mouth and the throat. This is just as important as the removal of the glands and raying, after operation for carcinoma of the breast.

Carcinoma of the breast is one of the most common forms seen by the radiotherapist, and one over which there has been more discussion, for and against, than any other form of cancer treated. When patients of carcinoma of the breast are told the truth (so that too much is not expected), I believe that this is the most grateful class of patients we have treated by radiotherapy, because so much can be done, and in the hopeless cases so much relief is afforded.

Pinch's report of the Radium Institute shows that 128 patients with mammary carcinoma applied for treatment in 1913, which far exceeded that of any other malignant condition. His policy is still rigidly adhered to in declining to treat operable cases just the same as the röntgenologist. In speaking of carcinoma of the breast, he states that "many patients exhibit a great susceptibility to radium; the primary growth becomes smaller, infected glands and subcutaneous nodules lessened or perhaps even disappeared, and that little or no effect appears to be exerted in prevention of metastatic deposits, though the treatment, has not, at any rate, hastened their dissemination." This is one place, I believe, where the Röntgen rays are superior to radium, and I am sure that the x ray does check metastases, while Pinch in the foregoing quotation avers that radium does not. Even if radium had a greater therapeutic effect than the x ray, the latter is preferred in any form of carcinoma of the breast, on account of the great mass of rays that can be poured into the body, giving large doses to more distant parts. In the future, this statement may have to be modified, provided radium is available in sufficient quantities. On account of the lymphatic supply being so great and so widely distributed, it is necessary to radiate the whole chest and mediastinum with high penetrating rays, using the

cross fire method, that is, applying the rays from the front, back, and side at different angles.

Radium or mesothorium is a very useful and at times a necessary adjunct to Röntgen therapy, in treating carcinoma of the breast, as a radium tube can be placed in the axilla, where x ray is difficult or impossible to apply in many cases, particularly after operation. During the past eight months I have adopted this method whenever possible and, without going into detail, it acted like a massive dose of the Röntgen rays. In some cases I have applied a tube of mesothorium over the supraclavicular glands, because it is often difficult to keep a nervous patient still in the proper position while giving Röntgen therapy. This was before I used the Coolidge tube.

The treatment of fibroid of the uterus and cancer of the uterus and rectum by radium and the Röntgen ray is a large and very important subject, and my experience is so limited compared to that of some of our members and of many European authorities, that I shall only mention this subject here. Every one here is familiar, at least to a certain extent, with the work done in the clinics of Krönig and Gauss, Albert Schoenberg, Bumm, Döderlein, and others. The symposium of Pfahler and Kelly at the last meeting of the American Medical Association in Atlantic City will do much toward enlightening, not only the general medical profession, but many of the röntgenologists who have neglected this very important subject.

In the treatment of fibroid of the uterus, I have used the Röntgen rays alone up to the present time, while in carcinoma of the uterus, as a prophylactic measure, and in inoperable carcinoma of the rectum, I have been using mesothorium locally and the Röntgen rays by the cross fire method externally. The general opinion of rectal carcinoma is that the disease displays great variation to ray therapy; often a proctitis occurs, which is usually transient, but sometimes persists and adds greatly to the discomfort of the patient. In one case in which this occurred, the symptoms were relieved by a suppository containing five grains of iodoform. It has been noted that when the growths are situated low down, there is always more tenesmus than when in the upper half of the rectum. In some instances before inserting the tube, I have found it necessary to give the patient an injection of morphine. I have a case now where the surgeon intends to make an artificial anus so that irritation from the feces will be avoided. He feels sure that much better results can be obtained. Temporary results have been marked; that is, pain has been relieved and the mass has been reduced. Two cases that improved, in which the distressing symptoms disappeared and the mass became smaller and more freely movable, were operated in. One patient is in good conditions and expects to continue the treatment, the other acquired a rectal abscess and was unable to return for treatment.

The results in inoperable and recurrent carcinoma of the uterus have been gratifying, in that the local manifestation of the disease has been benefited in a striking manner. Checking of hemorrhage and discharge, relief from pain and the healing of ulceration with a reduction in the size of the

mass in a large percentage of cases have been observed. In some patients the relief of these symptoms is only temporary, while many authorities have shown, by using radium locally and x ray externally, a certain percentage of apparent cures has been obtained. I treated a case four months ago where there was a recurrence after hysterectomy. Upon examination, three weeks ago, no evidence of the disease could be found. We expect to give more treatment. The results which have been accomplished in deep seated malignant growths have been the means of inducing a few surgeons to refer patients for radiation after hysterectomy.

In conclusion, it should be stated that there is some confusion in the minds of many in regard to the limitations of radium and Röntgen therapy. It is generally conceded that certain lesions can be just as well treated with one agent as with the other. Many authorities conclude that the only places where radium is superior to the Röntgen rays, are in cavities and on account of its greater penetrating power. Most lesions are so situated that rays so penetrating as those of the high gamma rays are not necessary for the best possible therapeutic results. We know that the high x ray gives, in a majority of cases, results quite as good as those obtained from radium.

The reason why the x ray has maintained its place in the treatment of cancer, is not merely the difficulty of obtaining sufficient radium; but it has the advantage of being administered in a fairly uniform dose over considerable area and depth, whereas the radiation from radium is effective only within comparatively short distances. Thus, in carcinoma of the mouth, esophagus, rectum, cervix, etc., radium should be preferred for the treatment of the primary growth, although x ray is necessary in the treatment of the lymphatics draining the part. In other words, it is impossible to treat large areas homogeneously with radium.

If radiotherapy was employed only as a prophylactic routine measure, many lives would be lengthened and many recurrences prevented. Rapidity of development of the growth is no contraindication to ray treatment, although the dissemination of the disease is more rapid, and even when the local growth disappears recurrence in distant parts is more common. At the stage at which malignant growths are referred for radiotherapy, it is true that only a small proportion of the cases improve, but no other method even offers any hope of relief. Experience of a number of years has taught röntgenologists to look for temporary improvement in the treatment of malignant growths as a matter of course. For instance, from one to three years' prolongation of life is usual and is almost the rule in hopeless and recurrent cases. We are accustomed to see recurrent growths disappear in a few weeks, with complete restoration of health. When such results are produced by radium, they are looked upon as marvelous, chiefly because they are now seen for the first time by physicians who had no previous belief in the efficiency of ray therapy in any form, but now progress is coming about by co-operation of the surgeon and the professional radiotherapist, when the proper ray is selected for each case.

Finally, radium therapy is the method of choice in carcinoma of the rectum, vagina, uterus, axilla, etc., but even here the x ray forms a useful adjunct so far as the adjacent parts are concerned. The rays from both radium and the x ray affect certain cells more than others, lymphoid tissue and the endothelium of the bloodvessels being first affected. All cells that are undergoing rapid reproduction are more readily affected than where reproduction is normal. Tumors, rich in bloodvessels and spreading by the lymphatics, are checked in three ways:

First, by the action on the epithelial cells; second, the endothelium of the bloodvessels undergoes proliferation until the lumen is almost obliterated, and, third, the channels or lymphatic glands are blocked, preventing metastases.

315 EMPIRE BUILDING.

SOME NEW POTENTIALITIES ASSOCIATED WITH ELECTRICAL ENERGIES.*

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The American Electrotherapeutic Association has met annually for the past twenty-four years. At the meetings a large number of studies have been presented, on electrical energy, its remedial power and the mechanics of its use. These transactions and papers cover several thousand pages, and indicate that nearly every author has combined his observations on the technic and the mechanical perfection of the machines, and the possible physiological action of the currents.

Studies of the different currents and methods of intensifying and concentrating them, have produced a nomenclature of the following terms: Continuous, interrupted, sinusoidal, high frequency, galvanic, faradic, and other words used to designate the kinds of electric energy and the various ways of using it.

The conclusions, theories, and statements of results obtained are not uniform, hence the literature is somewhat confused and unsatisfactory. Many able men report opposite results from the same current. Assertions of exact results from certain potentialities and methods of using them are not always confirmed by other equally expert men. The ignorant critic assumes from this conflict of conclusions that the effect of electricity as a therapeutic agent, is more mental than physical, and doubts the statements of its general value in medicine. There are clear intimations of its specific value in many of the papers read, and yet the real physiology of its action is subordinated to exact description of the instruments, the technic, and the way in which electricity is applied. Evidently much of the work done by this society has been very closely allied to that of the inventor, trying to find the different powers and different ways in which electricity can be made available. Thus the technic, the anatomy, and the machinery of electrical energy have absorbed the largest amount of attention. No doubt this is very valuable as pioneer work, clearing the ground and preparing the way for more exact studies along higher and broader

planes of activity; but the time has come when such studies must go on into the physiology, the psychology, the physical uses of electrical energy and its associated forces.

In the commercial world electrical energy is studied as a source of power and as to how it can be used in the world's industries. Several authors in this field have pointed out the possible theories of its physics, showing that vibration, vibratory force, and movement explain a great deal of the phenomena, and that when used along these lines, its practical service is evident. These are outline studies, which the physician should understand and seek to know their applications in medicine. The great questions are, How does this force act on cell and tissue? How can it be transferred and made to vivify, increase, or destroy and lessen? How can it supplement other forces and energies, and what is its relation to the other forces of life so dimly seen? It is along these planes that our association is concentrating for future work, and the triumphs that are yet to come.

In the twenty-four years of annual studies, there has been brought out a great variety of facts, concerning different features, possibilities, and energies of the electric current, and yet all seem to centre on the one great fact that it is all electrical energy, a most complex and wonderful power, and not a specific central force. It is also clear that this is only one of the energies pervading the universe, of which sunlight, heat, plant and animal growth, and many other forces, the effects of which we very vividly realize, are all parts of one great potentiality, moving along different planes.

Note the physics of light, and the marvelous power which it is capable of producing; the physics of nutrition, foods, and food forces, storing up in the body and utilized for activity and energy. Note the pharmacological action of drugs, in which certain chemical compounds are grouped to increase and produce certain energies; or the more modern fields of bacterial invasion and the means of checking and destroying them. All these in the last analysis are resolvable into electrical energies, formed and reformed, moving in all directions, in obedience to some mysterious laws.

The chemistry of the body, the studies of pathology and bacteriology, which fascinate so many persons, are really insignificant when compared with these great energies which we term electrical, energies that preside over the evolution and devolution of cell and organism in the human body as well as over the activities of all animated nature.

Studying the effects without knowing the causes, is crude and elementary. We may possibly reason back from the effects to the causes, and in some way get intimations of what they may be. Everywhere the new psychologist and the new physiologist are startled with the fact that so large a proportion of the disease and injury which afflict the human organism dates back to faults in the cerebrospinal centres and to the mind forces and mind energies, terms that express the invisible action of mind on matter. It is really a new world of facts that is dawning, and like the first rays of the rising sun, it begins to flash over the horizon and to indicate that the creative energies which are electrical and more

*Read at the twenty-fourth annual meeting of the American Electrotherapeutic Association, at Battle Creek, Mich., September 17, 1914.

than that, are beginning to be recognized. Every year our technic and methods of measuring electrical currents are becoming more and more exact. Our application of them for the prolongation of life, the retardation of disease, are becoming more and more practical. We can now measure not only these currents, but the functional activities of the body in a way that would have seemed miraculous a few years ago.

There are instruments called galvanometers and biometers that will indicate the changes of thought in the organism, and indicate whether that thought is agreeable or otherwise. This in a faint way indicates the marvelous mind forces which are really electrical on a different octave. Biologists show that the cells of the body are made up of oxygen, nitrogen, hydrogen, and carbon, and these are in incessant process of change, concentrating and liberating energies. There is a constant atomic revolution and evolution governed by conditions unknown, and every sensory activity puts into service, literally, batteries of energies and potentialities.

There are not only vibration, wave action, incessant transformations and changes in which electrical energies are displaced, but there are other forces which we call psychical because they are beyond our conception of electrical energies, and yet undoubtedly they are the same, only acting on a little higher plane and octave.

The effects of these energies are constant marvels and wonderments to the student. As an example, at one of the recent executions a prisoner was placed in position and the current turned on. The observers did not discover the usual quiver and tremor, and yet the prisoner was dead. Later it was found that through a fault of the machine the current did not reach the man, and he died from fright. Nothing was said of the error of the electrician. In the French Revolution, when the guillotine was in active operation, it was noted that a number of persons died while waiting their turn to be decapitated. We say it was the result of fear. At all events it was a sudden and profound paralyzing energy that stopped the heart's action permanently. Here was a new force and energy as powerful as the electric current, and capable of being used and directed. Numerous illustrations in practical life will occur to everyone.

A noted electrician now dead advised a certain paralyzed patient to take a certain current every morning for a stated time, and emphatically told him that it would help him. The man experienced great relief and was able to walk in a few days. The current was administered by a servant. The physician found by careful examination that the machine gave no current whatever, that the connections were broken, and the effect was mental entirely. Here was another example of a new force and power that is dominant in therapeutics and is often more potent than drugs and other physical measures.

Undoubtedly this is another phase of electrical energy. Many papers have been read before this society, showing the value of suggestion and mental impressions, to be used in connection with the current. Practical men get results from the application of these two measures that are not seen when one is used alone. Here again there are innumerable

examples of what we call mental power, or psychical force, associated with electrical energy, which acting on the brain and tissue cells is followed by astonishing results.

Numerous historic illustrations of this will occur, one of the Perkins tractors, which were supposed to draw electric currents out of the body by the means of two silver and gold points. For many years, this was a prominent and most absorbing question which depended entirely on what we called psychical force, or mental energy, directed in new channels. The Keeley cure is another illustration of how certain drugs combined with this new and higher mental force, acting on credulity and expectancy, have produced absolutely curative results.

There is a still more startling illustration in mental activities which has formulated itself into a religious creed and is followed by results that are bewildering and unexplainable to the ordinary mind. All these are intimations and adumbrations of the great mental creative energies which control cell and tissue and influence organism and vital energy, also forces that can be handled and in some way measured and put to service in the therapeutic world. Evidently this great fundamental potentiality of the universe resolves itself into what we term the spirit forces, meaning the invisible energies that conceive a picture, plan a house, build a dam, or promote any change or reform in the material world.

It is the spirit force acting on the cerebral and spinal centres which materializes in some work accomplished in the development of life, in the changes, suspensions, and destruction of the activities that constitute life and vitality. This is not a theory, it is an absolute effect, tangible to every thoughtful observer.

The work we have done already in generating, concentrating, and directing electrical energies as a therapeutic agent or as a force producer, indicates possibilities of using these and other associate forces. It is something more than motion, vibrations, and incessant changes. It is energies that destroy, build up, stimulate, repress, and break down. The marvels of the wireless waves, the telephonic vibrations, and the possibility of using light and sound, prepare us in some measure for entering upon the larger fields. Take radioactive energies in waters or in actual substances, and observe their effects; how limited our conceptions are of their value and use. We shall begin to realize that simple, electric currents, generated by our coarser methods are the mere alphabets of the vast fields before us.

How often a physician assumes that the results which he obtained from some special currents are specifically due to the apparatus and the methods of administering them. A little later the effects he thought so highly of, do not appear, and he reasons that the obstacles are something in the organization of cell and tissue. In reality, many of these failures are due to ignoring the psychical force and mental energies that preside over cell and tissue, and not taking them into account in the coarser applications of electric currents. We must recognize practically what we call the mind force, which presides over diseased tissues, diseased cells, controls the growth and development and movement of diseased processes.

Patients must be treated mentally in conjunction with electrical currents. It is a combination of this mental force which is really another form of electrical energy, combined with the electrical current that produces results. The attempt to use any of the electrical currents as specific and especially curative, without referring to the other electrical mind currents, means failure and limited success.

Patients that come to us for treatment have widely divergent disorders of cells, nerves, tissues, organisms, and brain energies. In lesions of almost every kind of degeneration in which diagnosis is almost futile, when we apply the current alone, we let loose a vast power, which is almost its equal, and in many cases its superior to assist in curative processes.

Electrical specialists should be psychical specialists, students of the psychics of brain and body, students of all the forces of air, light, food, and other factors which enter into the organic and mental life of the person. The application of all these energies, with appropriate skill and certainty, will give us results beyond anything at present dreamed of. These are the facts which every development of life and its processes reveals, and with them there are intimations of the use of new and unknown forces and powers, which no machinery can concentrate and distribute.

One fact which I wish to make prominent, is that electricity is a complex agent, and is so intertwined with all that we call psychical, referring to the mental operations of mind and mind force, that it cannot be used alone with success. We should study and measure the mental force of the patient, the pessimism and the dissatisfaction, and his mental attitude and receptivity before the current is applied. We must study the electrical energy of the mind and combine the two energies to get the best results. At present often the physician depends on the effects of the current to impress the mind of the patient and secure his cooperation. Often the more spectacular this is, the more definite are the results. This is not the scientific method and is likely to fail.

The sensationally impressed organism does not hold out long, but the organism that is appealed to by all the different agents and forces, not only by suggestion and reasoning, but by the actual application of these energies, supplemented by the currents indicated, presents a combination of therapeutic forces of immense value. It is this combination of potentialities that I urge to apply in our use of the electric currents. This is along the line of all scientific work and gives promise of lengthening life, diminishing disease, and restoring the exhausted energies of the patient.

Some of the conclusions which I have grouped, may be restated as follows: First, our studies of the technic of the electric currents must go on, beyond the almost endless differentiation and divisions and applications, through special appliances which we have at present constructed. Electrical energy, electrical power, vital force, and vital power and any other name that conveys the same fact, are all the same and all are evident in endless forms and combinations. The electrical energy in the air, in the waves of the ocean, in plant and cell growths, the same energy in the mind forces, stored up in the

tissues and utilized in various ways, are all marvels and are all practical forces that can be seen, known, and put to service in life and growth. Every now and then we are startled at the new uses and the new exhibits of the phenomena of mind and brain in endless forms, and yet these are only intimations of what a larger knowledge will reveal.

Secondly, the highest service that we can render is to study these forces and put them to service to combat, to break up, and to assist in restoration. The use of the electrical current alone is insufficient, and may increase degeneration rather than diminish it. Much of the present use of electrical currents is empirical, however exact the current used. We are dealing with an unknown agent, acting in an unknown way, and our theories give only a very imperfect idea of the physics, the physiology, and other qualities of this agent.

Third, electrical energy that we concentrate and distribute through the body, is only one force and by no means specific. If we can regulate the forces of light, nutrition, mind energies, and so on through the long list of creative energies that pass through the body, and appear in its organic and functional activities, we have attained a degree of therapeutic efficiency that is startling to the last degree. These are the potentialities, or really new forms of electrical force in different octaves and on different planes that constitute a most fascinating field for discovery before us.

Already we get intimations of the possibilities, and the question is today, How far can we glean from this vast field a practical knowledge that we can put to service in the cause of humanity?

HEMIPLEGIA COMPLICATING THORACIC ANEURYSM.

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CASE. The patient forming the basis for this report, a plaster mason by trade, was admitted to the wards of the Philadelphia General Hospital, April 23, 1914. There appeared to be nothing of special interest in connection with the family history. His past medical history included the ordinary diseases of childhood, and a prolonged sickness, when three years of age, regarded as typhoid fever. One year ago he suffered from an attack of acute (right) pleurisy. The patient denied all evidence of venereal disease. He had used tobacco liberally and stated that his custom was to take freely of whiskey upon rising each morning. He also drank to excess periodically.

Present illness. February 22d, sixty days before admission to the hospital, the patient, while working at his trade, was seized by attack of severe pain immediately beneath the sternum, which preceded syncope. This probably marks the sudden development of the aneurysm. The pain subsided in approximately one half hour, but following the disappearance of the pain, the patient noticed that he was unable to speak in his usual tone of voice. From the date of this attack, his power of speech gradually lessened until aphonia supervened. Following the attack of syncope, previously cited, the patient experienced vague pains in the right arm and right leg.

Hand in hand with the foregoing annoyances, there developed a harsh, rasping, paroxysmal cough, accompanied

by profuse serous expectoration. Dyspnea was a conspicuous feature following the attack of syncope and progressed from bad to worse.

April 20th, three days before admission to the hospital, the patient, while sitting, was seized with an attack of vertigo and fell to the floor; consciousness was not lost. From April 20th until his admission and throughout his stay in the hospital, the patient displayed total inability to move the right arm, right leg, or right side of the face, features shown post mortem to be caused by cerebral embolism.

Physical examination gave the following: Adult male, aged forty-one years, height 5 feet 4½ inches, weight 150 pounds. The cutaneous surface appeared normal, except for slight swelling of the right hand. There was present inequality of the pupils, the right being approximately 3 mm. and reacted normally to both light and accommodation. The left pupil was about 4 mm. and reacted sluggishly to both light and accommodation. The tongue was rather heavily coated. The buccal cavity and pharynx contained an unusual amount of mucus, which greatly embarrassed respiration. The patient was unable to swallow solids; and it was only with difficulty that he was able to take liquid and semiliquid foods. The respirations were rapid, 30 to 40 a minute, and there was a variable degree of cyanosis of the lips, ears, and finger tips. The apex beat was seen in the fifth interspace in the left nipple line. The right half of the chest appeared to expand somewhat more than did the left during inspiration. The neck became markedly distended during paroxysmal attacks of coughing, and at such times there was an appreciable increase in the size of the veins of both the neck and upper portion of the thorax. There was incontinence of both urine and feces.

Palpation confirmed inspection with reference to the position of the apex beat, the character of the respiratory movements, and inability to move the right half of the body. This method of examination further elicited that most valuable sign of aneurysm, tracheal tugging; which sign was obtained during the patient's sojourn in the hospital. The reflexes of the left arm and leg were normal; while on the right side the knee jerk was appreciably increased. Babinski's sign was also present. Ankle clonus absent. The pulse was of fair volume, fluctuating between 90 to 120 beats a minute. During the course of his illness, the pulse became decidedly irregular, rapid, and readily compressible.

The patient displayed that rather common type of arterial atheroma seen in the Philadelphia General Hospital, namely, that the radial arteries gave about the normal sensation to the palpating finger, for a person forty years of age. The brachial arteries, when palpated immediately above the elbow, were found to be tortuous and thickened, about what one would expect to find in a person sixty-five years of age. The femoral arteries were also extensively atheromatous; while the popliteal arteries gave no undue evidence of atheroma. These findings alone would at least cause one to suspect aneurysm. Unequally distributed atheromatous changes in the bloodvessels, especially when accompanied by high blood pressure, should be regarded as a clinical finding of serious moment. During the first two days of the patient's treatment in the hospital the systolic blood pressure remained around 160 mm. Hg.; diastolic 100 mm. Pressure taken over the brachial arteries of the two arms gave equal readings.

Percussion. Corresponding to the upper segment of the sternum was an area where the percussion note was appreciably impaired, and this area was imperfectly circular in outline, with a diameter of approximately two inches. At no time was there detected any undue evidence of pulsation or a thrill over this dull area. Two days prior to his death, there was an appreciable impairment of the percussion note over the inferior portion of both lungs posteriorly.

Auscultation. The heart sounds were at first abnormally loud and the first sound was booming in quality. As the disease advanced, the heart became irregular and the first sound deficient in muscular element. A bruit was not audible over the site of the aneurysm. The respiratory murmurs were always accompanied by numerous moist rales, and at times by distinct gurgling sounds, resulting possibly from an accumulation of mucus in the pharynx and upper respiratory tract. During the second day of the patient's

stay in the hospital, the blood was found to contain seventy-five per cent. of hemoglobin, 4,330,000 red cells (a count unduly high, due to cyanosis) and 78,000 white cells. A Wassermann reaction was distinctly positive. Thirty ounces of urine were voided during the twenty-four hours, specific gravity 1.028; tests for albumin and sugar were negative, as was also a microscopic study.

It is not the purpose of this report to give a detailed account of the autopsy; on the contrary, it will include a report only of those organs where extensive pathological changes were found, and where such changes were accountable for signs and symptoms displayed by the patient.

The left pleura contained about 100 c. c. of slightly turbid fluid, and showed some recent adhesions. The lower portion of the left lung posteriorly was unusually solid, and from its cut surface exuded blood stained serum. From some of the large bronchi, a mucopurulent exudate could be expelled. The right pleura showed conditions practically identical with those presented by its fellow. This lung, however, showed more congestion and the bronchi contained much mucopurulent exudate. The bronchi and trachea were deeply injected and the peribronchial lymph nodes moderately enlarged.

The pericardium contained approximately the normal amount of fluid. The anterior surface of the heart presented several milk spots. The right heart was markedly dilated, although the myocardium was of good color. The myocardium of the left ventricle showed moderate hypertrophy with some secondary dilatation.

The endocardium was smooth throughout, except in the vicinity of the aortic valve, where there was considerable atheroma. The aortic leaflets were decidedly thickened. The aortic orifice measured 8 cm., mitral orifice 9.5 cm., pulmonary orifice 7 cm., and the tricuspid orifice 11 cm. Almost continuous with the atheroma of the aortic leaflets was seen a variable degree of atheroma of the aorta, which was also moderately dilated. At the beginning of the transverse arch of the aorta was found an aneurysm about the size of an orange. This aneurysmal sac involved both the beginning of the innominate artery and a portion of the aorta beyond that point where the (innominate artery) blood supply to the right arm is given off. This last named pathological condition accounts for the fact that both the right and left radial pulses were equal in time, force, and volume. It also explains why both brachial arteries gave the same pressure readings. The aneurysm was fully two thirds filled with well organized clot. A portion of the clot occupied the anterior surface of the aneurysmal sac, a pathological feature which doubtless explains why abnormal pulsation was not detected in the sternal notch, and also why a bruit was not audible over the aneurysm.

There were extensive adhesions binding firmly the aneurysmal sac to the trachea and the right bronchus. This last named pathological change accounts for the tracheal tugging which was so conspicuous a sign throughout the patient's stay in the hospital. This sign went far to confirm the diagnosis.

The brain displayed a well marked area of softening, extending from the posterior two thirds of the anterior limb of the internal capsule, to the an-

terior two thirds of the posterior limb. A lesion of this nature serves to account for the many signs of paralysis that were present during the course of this man's illness.

This case appealed to us with unusual force, first, from the extreme difficulties and obstacles that were encountered while endeavoring to arrive at a diagnosis; secondly, because at autopsy definite pathological changes were found of sufficient gravity to explain all the symptoms and signs displayed by the patient; and lastly because wherever extensive arterial sclerosis or acute endarteritis or endocarditis is accompanied by secondary cerebral lesions, the case is sure to be received with unusual interest.

1819 CHESTNUT STREET.

COLON BACILLUS INFECTION IN MIDDLE EAR DISEASE.

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The study of colon bacillus infection as a causative factor in disease has of late engrossed the attention of the profession and occupied an important place on the programs of various societies. Papers have been read and cases reported by the internist, the proctologist, the gastroenterologist, and the pediatricist, but the otologist has not seemed interested, the infection having apparently not invaded his domain.

Taking into consideration the number of children in our tenement districts who suffer from running ears or eczema of the canal, neglected and dirty in habits, constantly rubbing or scratching their ears, one would be led to suppose that colon bacillus infection was of frequent occurrence; but otological statistics make no reference to this microorganism as a factor in middle ear infections or their complications. The history reports of two of our special institutions, as far as they could be arrived at; the history and laboratory files of the City Hospital; the laboratory statistics of Dr. J. H. Larkin and those of Dr. F. M. Jeffries; and the research work of Haskin and Dwyer, furnish no instance of such infection.

It is with particular interest, therefore, that the otological division of the City Hospital finds itself able to make, so far as can be ascertained, the first report of a series of cases of aural infection by *Bacillus coli communis*. This lack of data may be due, of course, to the fact that patients of this class are usually treated in dispensaries or institutions in which the examination of the character of the infection—if any is made—is necessarily limited to the microscopic examination of a smear; the difference in diagnostic worth between a smear and a culture being often more distinct than a casual observer might imagine.

The colon bacillus not being a pathogenic organism *per se*, the criticism may be made that dust carried or finger conveyed bacilli may lie dormant on the surface of a normal canal and be present in

aural infection as a concomitant but not contributing factor. This argument does not hold good, in view of the experiences of Hall, Alberan, Ackerman, and others, which prove the virulence of the bacilli in various organs of the body, and in the presence of other microorganisms. Doctor Larkin, also, has recently reported two cases in which colon bacillus infection was the direct cause of death. An even more conclusive refutation of any such criticism lies in the fact that several of the cases cited showed the presence of the colon bacillus in pure culture.

There can be no question as to the active agent of the infection occasioned by the scratching of an abraded surface by a fecally contaminated finger. A possible route for this character of infection is through the Eustachian canal during periods of severe vomiting, especially in the postanesthetic state.

CASE I. Woman, aged twenty-six years, Bohemian, two months in the United States; married; one child fifteen months ago. Patient entered hospital by ambulance November 1st, with the following history: Three weeks previous, had experienced pain in the left external auditory canal and over the mastoid and temporal regions, but at no time referable to the middle ear. Two days later, she noticed a discharge from the canal, which continued for three days and then suddenly ceased. On this cessation of the discharge, the pain became intense and the face and scalp swollen. Physical examination disclosed patient to be poorly nourished and anemic. Left side of face and head edematous; left eye partially closed. A foul, purulent discharge from left ear; pyorrhea, with badly decayed teeth; tonsils enlarged and phlegmonous. Examination of the eyes was negative; pupillary reaction good; no neuroretinitis; no nystagmus. Inspection of the ear showed the left canal to be reddened and swollen, and evidently the seat of an old furunculosis; tympanic membranes intact, slightly retracted, pinkish in color.

Temperature, 101.2° F.; pulse, 104; leucocyte count, 19,000; polynuclears, 79 per cent.

On the same day, under general anesthesia, with the assistance of Dr. Harold Hays and the house surgeon, Doctor Scudder, a large curvilinear incision was made, extending from the zygomatic region about one inch in front of the auricle, backward and downward behind the ear to the tip of the mastoid, evacuating an enormous amount of foul greenish yellow pus of fetid odor. The entire scalp was found to be raised from the bone, forming an abscess cavity which extended almost entirely over the temporal, parietal, and occipital regions. Directly under the necrosed mass of muscular tissue, which seemed to have been the first point of infective attack, there was complete dehiscence of bone, beginning at the juncture of the cortex and tegmen antri, and extending upward and forward, exposing an oblong section of the dura over the sphenotemporal lobe. This exposed dura was dark in color and covered with granulations.

A purulent discharge was welling up from the canal, and probing showed necrosis of the bony posterior wall. The antrum was accordingly opened and the mastoid cells were exenterated. The antrum was found filled with a grumous mass of pus and granulation tissue, and pus was found in the tip cells. The bony edges around the exposed portion of the dura were trimmed back until normal dura appeared, and the wound was dressed with iodoform gauze. The question of opening the dura for fear of cerebral abscess, was entertained, but this was considered unwise on account of the

virulent external infection. A spinal puncture was made at this time, and the culture of the fluid obtained was later reported negative. Culture of the pus from the abscess and mastoid showed colon bacillus in pure culture.

The patient progressed comfortably from November 2d to 5th, the temperature ranging from 99° to 100° F. November 6th: Patient restless. Temperature rose to 102.5° F.; pulse, 104; respiration, 24. Blood and spinal fluid taken for culture, with negative bacteriemic results. Examination of the eye grounds by one of the visiting oculists, Doctor Gilfillan, was also negative. November 7th: Temperature again rose from 100° to 102.5° F.; pulse, 120; respiration, 26. Wound when dressed showed pus oozing from between skull and dura. Dr. William Sharpe having expressed a wish to see the patient, was invited to examine her, and under general anesthesia, Doctor Sharpe and Doctor Hays, the assistant otologist, went thoroughly over the case with me, both advising against opening the dura, no symptoms of brain abscess seeming to be present. Another culture of the pus showed colon bacillus in pure culture. November 8th and 9th: Patient restless at times; temperature, 99° F.; pulse, 74 to 84. November 11th: Very restless, uttering sharp distressing cries. No Kernig; no Babinski; no nystagmus; eye grounds normal. Seen by the visiting neurologist, who diagnosed the case as postoperative hysteria, with no organic lesion, and declared further operative procedure unwarranted. November 12th: Patient died at 8:40 p. m. Autopsy showed abscess in left temporal and occipital lobes. Bacteriological report: Colon bacillus present in pure culture.

CASE II. Female child, aged nine years, United States, was referred to my service with a history of having suffered from a severe earache on the right side, followed by a purulent discharge lasting three weeks, but which had suddenly ceased several days prior to the date of admission. Simultaneously with the cessation of the discharge, a swelling appeared behind the ear, which was gradually extending.

Inspection of the affected parts showed a large fluctuating mass over the mastoid and temporal regions; the auricle pushed forward, a normal tympanic membrane, and a collapsed posterior canal wall, with a small, partially healed perforation in its middle third. A probe was passed through this, with slight pressure, and its withdrawal was followed by the exudation of a few drops of thick, foul smelling pus. No systemic disturbance; temperature, 99° F.; pulse, 86. Leucocyte count, 17,000; polynuclears, 70 per cent.

Under general anesthesia, the usual incision for the mastoid operation was made and carried well up over the ear, evacuating a large subperiosteal abscess of half a pint of thick malodorous pus. The posterior canal wall was found to be detached, and a grooved channel eaten into the cortex of the bone, from inside the bony meatus to a saucer shaped depression over the antrum. Here the bone had been corroded to tissue paperlike thickness, and a second, wider groove, channelled to the mastoid tip, which was entirely necrosed. Completion of the mastoid operation discovered the antrum free of pus or inflammation, but the lateral sinus partially exposed between the tip and the knee. The postoperative course of the case ran to an uneventful recovery. Bacteriological examination of the pus showed colon bacilli in pure culture.

CASE III. Man, aged twenty years, single, American, entered the surgical division of the hospital for operation for ischiorectal abscess, and on recovery was referred to my service for aural treatment. His ear affection had begun two months before entering hospital, when he had noticed difficulty in hearing, followed by a purulent discharge from the right ear. Had had no pain, but now complained of throbbing in the ear and slight dizziness when walking. Had been treated in dispensaries without relief.

Examination, February 3d, showed a slight suppurative

otitis media, with profuse foul discharge, entire loss of tympanic membrane, and presence of granulation tissue and polyps; slight tip tenderness, and loss of both bone and air conduction. Pupillary reaction and accommodation were normal; eye grounds normal; slight nystagmus to right. Temperature, 100.2° F.; pulse, 84; respiration, 22; leucocyte count, 14,400; polynuclears, 82 per cent.

February 4th, under ether anesthesia, assisted by Doctor Hays, a radical mastoid operation was performed. Upon removing the cortex, it was found that the middle ear, the antrum, and the middle cerebral fossa formed one continuous cavity, the bony partitions having been swept away. This cavity was filled with detritus and pus, thick in consistency and sickening in odor, and two small, hard spherical masses of bone. The exposed dura was dark and covered with granulations. The posterior and tip cells were found filled with pus of the same character. The sinus was not exposed.

After thoroughly cleansing the wound, the dura was incised, and a careful and thorough search was made for possible brain abscess, but with negative results. The wound was packed with iodoform gauze and dressed as usual. Culture of the pus showed large numbers of colon bacilli, a few staphylococci, and a Gram positive bacillus.

February 5th, patient rested comfortably until February 6th, the second day after the operation, when he experienced a slight chill, and temperature rose from 100° at 6 a. m. to 102.3° F. at 1 p. m. Next day, February 7th, had decided chill at 9 p. m., temperature rising to 104.4° F. Mentality good; no Kernig, no Babinski, no nystagmus. Wound dressed by Doctor Hays and Doctor Depping, looked clean. Blood and spinal fluid taken for culture. February 8th, temperature fluctuated in sharp changes between subnormal and 104.2° F.; Pulse, 106. Report on bacteriological examination of blood and spinal fluid, negative. Leucocyte count, 16,400; polynuclears, 80 per cent.

A diagnosis of probable sinus or jugular thrombosis having been made, February 9th, on the sharp temperature curve, the patient was prepared for operation. Under ether anesthesia, assisted by Doctor Hays and Doctor Depping, the sinus was exposed from the torcular to the bulb, and was found normal in appearance and pulsating, but enormously enlarged, bulging out as soon as the bony covering was removed. The mastoid incision was then extended along the anterior border of the sternocleidomastoid to the clavicle, the carotid sheath was opened, and the external jugular vein exposed. This was found to be thrombosed just below the bulb for about one inch. After tying the collateral branches, the vein was excised in its entire length. The torcular end of the sinus was then compressed, the sinus opened, and the bulb curetted, it also being thrombosed. A free flow of blood being established from the torcular end, the sinus was closed by pressure of gauze pledgets, and the wound dressed, the neck wound being drained and strapped. Toward the end of the operation, 1,500 c. c. of normal saline solution and a half ounce of an ergot preparation were infused and repeated in four hours. Patient's condition poor; pulse 144, small and irregular and of low tension. Temperature 101.2° F.

February 10th and 11th, the temperature ranged from 99° to 100° F.; pulse 96 to 148, weak and irregular. Leucocyte count, 20,000; polynuclears, 90 per cent. Bacteriemic examination of blood, negative; spinal fluid, normal; no cell count made, as specimen contained a few drops of blood.

Culture of pus taken from the wound at this operation, showed colon bacillus, and streptococci, moderately hemolytic. Thrombus contained disorganized hyaline material, fibrin, red blood cells, and blood pigment, no organisms. February 12th, patient died at 1:40 p. m. No autopsy permitted.

CASE IV. Girl, aged seven years, entered hospital with diagnosis of gonorrheal vaginitis. Transferred to the otological service, December 12th, with double purulent otitis media, culture showing Friedländer bacillus. Treated by irrigation and autogenous vaccine. January 30th, right ear dry. Some discharge from left ear. March 24th, adenoids and tonsils removed. Discharge from left ear increased. Middle ear filled with granulations and posterior wall of canal ulcerated. After considerable delay, consent was obtained and a radical mastoid was performed. Culture showed colon bacillus and *Bacillus pyocyaneus*. Recovery was uneventful.

CASE V. Girl, aged fourteen years, entered otological service, March 27th, with history of suppurative otitis media since January. Tonsils and adenoids removed three years ago. Radical mastoid was performed by Doctor Hays. Culture of pus showed colon bacillus and *Streptococcus viridans*. Patient discharged under the care of Doctor Hays.

CASE VI. Boy, aged four years, entered surgical service for operation for tuberculous cervical adenitis. Transferred to otological division, suffering from purulent otitis media, left ear. Bacteriological report, *Bacillus coli communis* predominating; a small amount of *Streptococcus mucosus*, and a Gram positive bacillus.

CASE VII. Boy, aged three years, entered service, January 20th, suffering from double otitis media suppurativa; treated with irrigations; consent for operation not obtained. March 15th, both ears discharging profusely; tympanic membrane absent; cellulitis of left external auditory canal. On March 17th, consent having been obtained, a double radical operation was performed. Biological character of pus: *Bacillus coli communis* in pure culture. Patient discharged cured.

CASE VIII. Male infant, aged nine months, entered service from dermatological division, March 7th, with large perforation of left drum and profuse discharge of pus. Culture showed colon bacillus, and *Streptococcus hæmolyticus*. Before treatment could be rightly instituted, the patient was transferred to the Riverside Hospital, having apparently acquired diphtheritic laryngitis.

CASE IX. Boy, aged four years, transferred from ophthalmological service, April 25th, with right otitis media purulenta and treated with irrigations and vaccines. Culture showed presence of colon bacillus and a nonidentified Gram positive bacillus.

CASE X. Man, aged forty-two years, with acute mastoiditis, and complication of chronic suppurative otitis media. Culture of pus from both middle ear and antrum showed colon bacillus and *Bacillus xerosis*.

CASE XI. Boy, aged eleven years, entered hospital, January 15th, suffering with cerebral meningitis. Transferred to the otological division, April 26th, with double suppurative otitis media. Bacteriological report, colon bacillus and *Staphylococcus aureus*. Treated with vaccines, with excellent result.

CASE XII. Boy, aged four years, entered hospital with diagnosis of acute mastoiditis. Profuse discharge and edematous mass behind left ear. Examination and operation revealed furunculosis of canal and perforation of the posterior wall, with consequent large subperiosteal abscess filled with foul pus. The cortex was eroded, but not perforated. Continuation of the operation showed antrum and tip free of pus. Bacteriological report, colon bacillus in pure culture.

It is of interest to note that Cases I, II, and XII are analogous in that colon bacillus was found in pure culture and the initial point of entrance of the infection was through the canal wall, the three cases differing only in the severity of the destructive process. In Case VII, in which the bacillus was in pure culture, the point of inception in the left ear was also furuncular.

In Case III we have, primarily, a chronic otitis media with slight staphylococcal infection, dormant

until lighted up by the virulence of the colon bacillus, which was conveyed direct from the rectal abscess. The streptococci found with the colon bacillus at the time of the second operation were probably due to secondary infection.

Case IV, in which the Friedländer bacillus had disappeared and the ear cleared up under local treatment, must have been due to a subsequent direct colon infection acquired while in the hospital. The remaining cases were mixed infections, in two of which the colon bacillus was largely predominant.

77 WEST FIFTIETH STREET.

PUERPERAL SEPSIS.*

A Report of Two Cases, with Remarks.

By J. N. UPSHUR, M. D.,
Richmond, Va.

CASE I. Mrs. A. B., aged twenty-nine years, came under my care early in the summer of 1911. She was suffering with a severe attack of dysentery, superinduced by taking some rum and may apple for the purpose of bringing on an abortion, which did not occur. She had an uninterrupted recovery from the dysentery, but later had a high temperature, and gave other evidence of septic infection from a dead fetus; she was two months pregnant. She entered the hospital, was curetted, and made a prompt recovery. In the autumn of 1912, she again consulted me, complaining of nausea in the morning; she had missed the October period. She failed to respond to persistent treatment for relief of the nausea, extending over several weeks, and begun to suffer pain over the lower abdominal zone, and said that she was feverish. Thinking from this evidence that she again had a dead fetus in her uterus, I sent her to the hospital for a curettage. But the morning following urinary analysis showed that she was suffering from a profound acetonuria. She was put to bed for treatment and was under close observation of a nurse. The record showed that she never had any high temperature, but being anxious to be rid of the fetus, she was insistent on an operation which was refused. She continued to complain of pain in the lower abdomen. Vaginal examination revealed a pyosalpinx on the right side. This subsequently ruptured into the vaginal cellular tissue, burrowed along the base of the bladder, and appeared at the ostium vaginae just below the urethra. It was freely incised and copiously and persistently discharged. The pregnancy progressed satisfactorily, labor being due the last of July, 1913. The discharge under the microscope showed staphylococci, comma bacilli, and gonococci. In fear of puerperal sepsis at the time of delivery, a dose of mixed bacterins was given about three times a week, beginning about the end of the eighth month. Labor came on unexpectedly, July 5th, normal but slow. The patient was delivered, July 6th, with instruments. When the head had entered the mid plane, I sponged out at least half an ounce of pus, squeezed but by pressure of head on abscess tract at base of the bladder. The bacterins were continued for two weeks. The temperature never went above 100° F., and she made an uneventful recovery. Four weeks after delivery she had a chill with subsequent rise of temperature on several consecutive days to 103.5° F. and complained of marked vesical distress. The urine showed albumin, and the microscope revealed pus cells. No evidence of bladder infection, but of a pyelonephritis; she promptly responded to appropriate treatment and made a most satisfactory recovery.

CASE II. Mrs. C. D., aged thirty-three years, came under observation in July, 1912, four and a half months pregnant. There was no evidence of any trouble; she looked well and expressed herself as feeling well. Analysis of the urine showed normal conditions. I learned after her confinement, that she had at times suffered with excruciating pain in her right side. Two years before, when in England, she

*Read before Richmond Academy of Medicine and Surgery, October 13, 1914.

had an attack of pneumonia. Labor came on November 13th, and in every respect was perfectly normal for a primipara. Forty-eight hours after delivery, she had a chill, the temperature rose to 103° and 105° F. She had a dirty discharge from the uterus, but without odor. She was thoroughly cleansed and iodine applied to the cavity of the uterus. Microscope showed streptococci, comma bacilli, and pneumococci. Thorough sterilization of the uterine cavity and vagina was repeatedly done and active treatment of every variety, including mixed vaccines was resorted to, but without avail. Two days before she died a double pneumonia developed and went on to hepatization of the lungs. She died the tenth day after delivery.

In Case 1, the husband, when a boy of fourteen years, had been sent to New York to school. There he fell into bad company and contracted gonorrhea; he supposed himself absolutely cured, but infected his wife twenty-two years afterward. These cases are of interest, first by contrast, the first case holding out little hope of escape from serious septic infection, carried to a safe conclusion by the use of vaccines, the second with no history given of the trouble in the side until after delivery. In this instance it was fair to conclude that the patient had suppurative trouble in the tube, and rupture during labor with subsequent infection was the result. In this case, too, the presence of pneumococci in the discharge, with previous history of pneumonia two years before, and finally death from a double pneumonia, is to me a matter of unusual interest, and by no means a common experience. An interesting fact in the first case was the infection of the wife twenty-two years after the husband had the disease. I would emphasize the fact that the utmost care as to complete asepsis was used during the deliveries.

1103 WEST FRANKLIN STREET.

PNEUMOCOCCUS PERITONITIS,

With Especial Regard to its Treatment.

By L. MILLER KAHN, M. D., F. A. C. S.,

New York,

Adjunct Attending Surgeon, Lebanon Hospital.

Pneumococcus peritonitis, despite the advances in abdominal surgery, still shows a very high death rate. This high mortality is due to the virulence of the pneumococcus and to the presence of a systemic as well as a peritoneal invasion. Then, too, the condition often goes unrecognized, and no definite plan of treatment is undertaken in time to be of value.

Pneumococcus peritonitis is a clinical entity which follows almost as definite a course as pneumonia and presents, with considerable uniformity, a first stage of diffuse peritoneal infection with profound prostration, and a second stage of localization of the infection with abscess formation and a partial subsidence of the somatic symptoms. It is important to dissociate pneumococcus peritonitis from pneumonia, for infection of the peritoneum by the pneumococcus often takes place without previous or subsequent lung infection by the pneumococcus.

The basis of the method of treatment here followed rests on the assumption that the patient must recover from a "pneumococcus septicemia," and that in instances where recovery is possible, the pri-

mary diffuse peritonitis must take care of itself, while the medical attendant takes care of the patient. If the patient is first seen when the infection is already localized, then there must be immediate recourse to surgery. In a certain percentage of all cases of pneumococcus peritonitis, death will ensue owing to the severity of the infection and the debility of the patient, but there is still a wide margin for improvement in the present methods of treatment.

DIAGNOSIS,

The diagnosis of pneumococcus peritonitis is admittedly difficult, but a careful dovetailing of the history and the physical findings will often enable one to make it with certainty.

The histories of these cases are fairly uniform. Without previous warning the little patient (most of these patients are under thirteen years of age) is taken violently ill with severe general pain in the abdomen, vomiting, and *diarrhea*. The temperature is high, ranging at first between 103° and 105° F. The respiration is shallow and rapid. There is often cyanosis, and Cameron has noted movement of the *alæ nasi* as in pneumonia. Herpes labialis is occasionally present. The abdominal rigidity may or may not be marked, and Salzer has described a doughy resistance in the abdomen which I have not so far met with.

The general impression one gains, is that the patient is sick out of all proportion to the abdominal signs. The constitutional disturbance is profound. There is a high leucocytosis often running up to 35,000. When the peritonitis becomes localized, the vomiting generally ceases, but the *diarrhea* (a diagnostic sign of the highest value in this condition) may continue. The violent onset, great prostration, relatively slight abdominal findings, the *diarrhea*, and the high leucocyte count should lead one to the correct diagnosis.

In relation to pneumonia, about one half the cases occur without lung involvement, the so called primary cases. In the secondary cases the peritonitis comes on at the height of the pneumonia or may succeed it by days or weeks. A very few cases have been reported in which the peritonitis preceded the pneumonia.

Within the last ten months there have been admitted to Lebanon Hospital three cases of primary pneumococcus peritonitis, all of which ended in recovery. The following case illustrates by its progress, first the diffuse peritonitis and following operation the localized abscess or second stage through which these cases pass.

CASE. Y. L., girl, aged four and one half years (No. 42,045). Admitted to Lebanon Hospital, service of Dr. Henry Roth. One year before admission had pneumonia. Well up to four days before admission, at which time the child vomited and had several loose stools. The mother said that the child had had high fever during these days and had complained of pain in the abdomen; was drowsy and had no appetite. Examination showed a well nourished child, drowsy and apathetic, with general abdominal rigidity and tenderness. Temperature 102° F., respiration 32, pulse 134, white cells 26,000, polynuclears 82 per cent. Diagnosis, diffuse peritonitis.

Operation: Right rectus incision. The entire peritoneum both visceral and parietal within view, was red and injected, and there was present a large quantity of yellowish green pus with masses of yellow fibrin adherent to the loops of gut. The diagnosis of pneumococcus peritonitis

was now made from the characteristic appearance of the pus (creamy yellow, fibrinous).

The appendix and Fallopian tubes were inspected and found to partake of the general peritoneal reaction, but as they were not found to be specially involved nor seemingly the source of the infection, they were not disturbed. The pus which was immediately in the wound was gently mopped and the abdomen closed tightly without drainage. Culture showed pure pneumococcus.

After operation child was immediately placed in Fowler's position and the Murphy drip started. Camphor in oil, thirty minims, given hypodermically every two hours. Nothing by mouth for the first twenty-four hours.

The temperature remained between 102° and 104° F. until the fifth day after operation, when it showed a marked decline and on the eighth day it had reached 99° F. For the five succeeding days the temperature ranged between 98.6° and 101° F. On the fifteenth day after operation the temperature rose to 102.4° F. There was again tenderness and pain, this time limited to the left lower quadrant of the abdomen. For the four following days the temperature was about 103° F. I was preparing to drain the pelvis (the seat of the now localized peritonitis), when fortunately the abscess ruptured into the intestinal canal at a point unknown, and the stool contained several ounces of yellowish green pus. Complete recovery followed in one week.

As this case passed through a typical course of the disease, the two stages are perfectly shown. Pneumococcus peritonitis may fitly be compared with pneumonia followed by empyema. In the first stage of each we have the local condition with the profound prostration. The patient succumbs to the toxemia or, recovering, is left with a residual abscess, in pneumonia in the pleura, in pneumococcus peritonitis in the abdomen. Then, too, there is a strong analogy between the treatment of pneumococcus peritonitis and pneumonia, based upon their somewhat similar clinical course. If the term "peritoneal pneumonia" were used instead of pneumococcus peritonitis, it would convey to the mind the exact point I wish to bring out.

The two stages of pneumococcus peritonitis are, therefore, first, the diffuse peritonitis with the accompanying evidences of a profound "septicemia" and, second, the resultant stage of localized abscess.

The source of the infection is usually unascertainable; it may come through the blood stream, the lymphatics, the appendix, Fallopian tubes, or by direct extension from the colitis or from a pleuritis. When the abdomen is opened the atrium of infection can sometimes be found, but by no means always.

OPERATIVE TREATMENT.

When the diagnosis of pneumococcus peritonitis can be made *with certainty*, it is the opinion of the writer that in the first violent onslaught of the disease, that is in the acute diffuse stage, it is better not to subject the patient to immediate laparotomy. This opinion is based upon the observation of three cases and a review of many case records and statistics in the literature. The plan that seems to offer better results is as follows: When a patient is seen suffering from the acute diffuse pneumococcus peritonitis, every effort should be made to support the patient, and with proctoclysis or continuous hypodermoclysis, Fowler's position camphor stimulation, and the withholding of all fluids and solids by mouth, an attempt to tide him over until the acute stage passes. Then the localized abscess, whether subdiaphragmatic, pelvic, lumbar, or between loops

of intestine and the abdominal wall, may be opened with comparative safety and effectively drained.

If the abdomen is opened and the diagnosis of acute diffuse pneumococcus peritonitis is made from the presence of the creamy, odorless, fibrinous pus, and no organ is found to be either the source of the infection or especially involved, the abdomen should be closed and the case treated as if the diagnosis had been made, but no operation undertaken.

It has long been known that attempts to drain the whole peritoneal cavity are futile and that within a very few hours after insertion, the drains become choked off from the general peritoneum. Whatever discharges are to be found after the first forty-eight hours, are exudations from the drain tract. This furnishes excellent reasons for not attempting drainage in cases where the infection is very diffuse. Another reason for not using drains, is the risk of introducing other strains of bacteria. Against the meddlesome removal of the appendix in pneumococcus peritonitis, unless this organ is itself the source of the infection, the same holds true perhaps in greater degree, as the addition of the colon bacillus to the pneumococcus is likely to result.

GENERAL CONSIDERATIONS.

The statistics of the mortality of pneumococcus peritonitis that depend for their reckoning on the separate identities of the acute and the sacculated forms of pneumococcus peritonitis, are erroneous. As pneumococcus peritonitis is at first a diffuse process, it must be plain that the high proportion of recoveries from the localized form, eighty-seven per cent. according to Rohr, must be credited to the class of acute cases that have become localized. Thus the general contention receives additional proof that the mortality of the diffuse acute peritonitis due to the pneumococcus would be greatly lessened if the patient could be supported until the peritonitis became localized.

The time for operative interference will be seen to be a matter for the nicest surgical judgment. It may not be possible in a given case to make a positive diagnosis of peritonitis due to pneumococcus, although its presence may be strongly suspected; where one is in doubt, laparotomy must be done immediately. Even the presence of pneumonia does not make certain that a coexisting peritonitis is of pneumococcus origin.

It will for the present require great fortitude on the part of the surgeon to resist immediate operation once the general diagnosis of peritonitis is made. When the great necessity for an exact diagnosis is understood, clinicians will make it with more frequency than at present.

It need hardly be said that upon the early recognition of this special kind of peritonitis, which demands a special form of treatment, depends in great measure the safety of the patient, and if, as the writer believes, operation is contraindicated in the acute diffuse stage, the necessity for an exact diagnosis is all the greater.

CONCLUSIONS.

1. Pneumococcus peritonitis is a pathological entity often occurring without the presence of pneumonia.
2. In the infection of the peritoneum by the pneu-

nococcus, there are two distinct phases: The acute diffuse peritonitis, and subsequently the localized abscess formation (walling off) in the peritoneal cavity.

3. Nothing is gained by operation during the height of the diffuse peritonitis.

4. Every effort should be made to support the patient in the acute diffuse stage so that the infection may become localized.

5. Provided the correct diagnosis is made, the correct time for operation is after the formation of the localized abscess.

223 WEST 113TH STREET.

Abstracts and Reviews.

NUTRITION AND GROWTH.*

BY PROFESSOR LAFAYETTE B. MENDEL,
Sheffield Scientific School, Yale University,

In a general way there are two distinct sources from which growth receives its impetus—the internal factor, largely the hereditary features, of which the inherent growth impulse is a conspicuous example; and the external factor, which involves the environment and food supply. Neither group of factors is entirely independent of the other. The factor of nutrition is more or less controllable; the impulse to growth is innate and is little subject to regulation. Our present remarks deal only with the food factor.

The food factor during growth is not alone concerned with the energy requirements, upon which much work has been expended of late, but there is the peculiarity that the intake of certain groups of nutrients, such as the proteins and inorganic salts, must exceed the mere demand of wear and tear and leave some excess available for the building up of new cells and the elaboration of tissues. In addition to these, it seems probable that the food requirements of the growing individual may be in some measure specific, demanding not only more lime, iron, or protein, but also certain special substances in addition.

The earliest views formulated on this subject were those of Voit, who held that the growing animal had far less capacity for the destruction of protein than the adult, and that there was consequently a better opportunity for deposition of nitrogenous derivatives in the organism. Rubner rejected both of these ideas, denying that there is either decreased essential protein catabolism or proportionately much greater protein consumption in the growing individual. He showed that with sufficient calories the young child could deposit nitrogen and grow when the intake contained the least excess of protein over the small requirement for wear and tear. He called attention to the fact that growth is a function of the cell which can be rendered latent by an insufficient supply of protein, but that protein cannot raise the rate of growth above the natural limits.

These older conceptions are seen to differ radically from the newer ones which no longer consider the proteins as entities in nutrition, but recognize

the significance of the *Bausteine* or nutrient units. The tissues are not dependent upon the gross characters of the foods, but select for themselves the requisite constructive units from the broken down food molecules. Comparison of the several possible food proteins excludes the possibility of any direct relationship between them and the tissue proteins which they must be supposed to replace or augment. There are eighteen or more of these nutrient units, the aminoacids, and much study is still needed before we shall be in a position to state which of these are indispensable in the dietary. This study is complicated by the great inequalities in the proteins as regards their aminoacid contents, and by our ignorance of the capacity of the body to synthesize these acids. It has been shown that glycocoll can be made anew in the body, hence lack of it in the diet would not be indicated by any nutritive disturbance. On the other hand, the aminoacid, tryptophan, does not seem to be produced *de novo* by mammals, and disastrous results follow the administration of a diet free from it.

Turning to the study of the protein factor of the dietary, the ideal method of investigation would be by the administration of the isolated aminoacid components in the form of mixtures. While Abderhalden has obtained some results with this method, the technical difficulties are too great for its satisfactory use at present. Another, and the one which Osborne and Mendel have followed, consists in the study of the nutritive efficiency of the different proteins, especially those of composition widely different from the normal tissue protein of the animals used. A diet was devised in which the protein factor was the sole variable. Rats, and in some cases mice, were fed on this dietary to which isolated proteins in different concentrations were added, and normal growth was secured with some of the proteins, while others failed to induce growth. Those which gave rise to normal growth when fed thus were casein, lactalbumin, ovalbumin, and ovovitellin from the animal kingdom, and edestin, the globulins from squash seeds and cotton seeds, excelsin from the Brazil nut, glutelin from maize, glutenin from wheat, glycinin from soy bean, and cannabin from hemp seed. Other proteins, such as legumelin (soy bean), gliadin (wheat), legumin (pea and vetch), hordein (barley), gelatin (horn), zein (maize), etc., failed to produce growth. The explanation of the failure in the case of some of these is suggested by the known absence of certain of the aminoacids, for example of the tryptophan group, from gelatin and zein, lysine from zein, gliadin, and hordein, etc. The administration of glycocoll-free diets, however, was shown to yield excellent growth, indicating that this aminoacid can be synthesized directly by the organism. The decline in growth caused by the lack of tryptophan or lysin can be checked promptly by the administration of these components. Similar studies will have to be carried out on the other aminoacids, but these are complicated by the fact that most available proteins contain the important aminoacid nuclei.

The indispensability of certain other aminoacid groups was demonstrated by the administration of proteins containing them, but given in restricted amounts. The reduction in growth was not due to the small total amount of protein, for if the deficient

*Summary of a lecture delivered before the Harvey Society at the Academy of Medicine, New York, November 28, 1914.

aminoacid was added, growth at once began. Such was the case with casein, which is comparatively low in cystin. The same was found to be true with relation to edestin, containing the aminoacid, lysin in relatively small amount.

These observations lead us to revise our conceptions of the meaning of the law of protein minimum, and rather to speak of the aminoacid minima. "From the standpoint of economy, therefore, it is advantageous to learn the aminoacid make-up of all available food proteins, so that they can be exhibited in proportions furnishing a balanced total aminoacid make-up as nearly ideal as possible."

Turning to a consideration of the carbohydrates as they relate to growth, we find that their absence from the diet menaces nutritive functions in growth quite as much as in adult life. While the writings and experiments bearing on this question are numerous, the evidence so far available does not seem to justify a dogmatic conclusion which discriminates unqualifiedly for or against any one of the usual dietary sugars.

A study of the role of the fats and lipoids has given much more conclusive results than in the case of the sugars. Owing to the experimental difficulties it has so far been impossible to determine conclusively whether the true fats are an essential requirement for the maintenance of the healthy organism. It is not feasible to remove the true fats from any of the foods without at the same time removing the other substances with similar solubilities such as lipoids and phosphatides, etc. The observations of Stepp, as well as those of Osborne and myself, with foods from which the fats had been extracted, seemed to show the indispensability of this portion of the dietary. The addition of the extracted fats, and in some instances of other fats, usually initiated growth in the animals. But in the light of more recent observations these findings may be interpreted upon an entirely different basis—that of the lack of the vitamins from the extracted foods.

The vitamine theory postulates the existence of unknown accessory factors, or specific requisites for growth in the food normally taken. Experiments with the feeding of artificial mixtures of the carefully isolated and purified food stuffs in the necessary amounts and proportions, have all led to failure of growth when prolonged beyond a comparatively brief time. But the fact that growth will continue for some time on such diets, leads to the idea that the growing young animal may have stored up a considerable supply of these unknown growth requisites, or vitamins, which becomes exhausted only after a considerable interval.

It does not follow, however, that the abnormality of the diet in such instances of failure of growth—whether we call it a lack of vitamins conceived to be organic in nature (with Funk), or attribute it to absence of some essential inorganic agent, or an inappropriate balance of the nutriment—inevitably involves the lack of a growth factor. Adequate growth postulates a satisfactory condition of maintenance before any progressive gains in weight can be made. It might be supposed that milk, protein-free milk, and other adjuncts to the ineffective artificial diets, promote growth solely because they fur-

nish something essential for normal metabolism, the basis upon which tissue construction and expansion is superimposed.

Further regarding the importance of fat, Osborne and I have found that the growth of rats fed on protein-free milk, carbohydrate, and lard was suspended, but that it could be restored by the addition of unsalted butter, butter fat, codliver oil, and, to a lesser degree, of beef fat. McCollum and Davis earlier obtained similar results by supplying the ethereal extract of egg or butter, and we have been able to show that the more liquid portion of butter, or butter oil, contains the effective ingredient.

From the observations recorded there seem to be two determinants of growth; one is supplied by protein-free milk, which insures proper maintenance in the absence of growth, the other by butter fat, codliver oil, or egg fat. Both of these determinants are essential for growth.

The practical applications of these elaborate studies are seen in the justification given to the use of codliver oil, the various milk fractions, butter, etc., in the feeding of infants and the undernourished. "Growth is more than a mere energy problem. Insufficiency of food and individual foodstuffs may be contrasted with *specific* deficiencies." The influence of heating in the treatment of milk and the preservation of foods must now be considered in the light of the stability of the accessory factors toward physical agents.

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLII.—How do you treat bedsores? (Closed.)

CLIII.—What has been your experience with condensed milk as a substitute for the mother's milk? (Answers due not later than December 31st.)

CLIV.—How do you treat prostatitis? (Answers due not later than January 15, 1915.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CLII, was awarded to Dr. Maxwell S. Simpson, whose article appeared on page 1121.

PRIZE QUESTION NO. CLI.

THE TREATMENT OF WHOOPING COUGH.

(Continued from page 1123.)

Dr. Henry D. Jordan, of Allentown, Pa., writes:

The treatment of whooping cough should include: 1. Hygienic management; 2, vaccine and drug therapy; 3, treatment of complications.

Hygienic management. A victim should be com-

pletely isolated from unprotected children by strict quarantine of the premises. Nonimmunized, healthy children of an already infected household should receive prophylactic treatment in the way of nose and throat sprays and gargles of weak solutions of lactic acid, carbolic acid, or hydrogen peroxide. The plan of mothers purposely to infect children, on the assumption that it is better to contract the disease in childhood than later in life, is nothing short of criminal.

A pleasant, sunshiny, and well ventilated room should be provided and its temperature maintained at 65° F. A lower temperature, during the febrile stage, is very likely to aggravate an already annoying bronchial catarrh, which later may develop into a terrifying bronchopneumonia. During warm weather, the patient may be shifted to more open quarters, such as a second story veranda. Drafts must be absolutely avoided, particularly after a coughing spell. Full open air treatment does not appear advisable.

The patient should be seasonably clad in woolen, silk, or linen. The chest, arms, and legs must be well protected at all times, particularly during convalescence. Sleeping suits of flannel should be closed at the bottom so that the child cannot kick itself naked.

The attendant, who very likely comes in contact with other members of the family, should have her outer garment protected by an overall slip made of some washable fabric. When in the sick room, her hair should be covered by a cap of sterilizable gauze.

During the febrile period only light nutritious food is allowed, such as milk (properly diluted with barley water), cold lemon whey, cold lemon milk, junket, liquid gelatin flavored with strawberry, calf's foot jelly, custard, animal broths, and the like. If the gastric disturbances are annoying, food should be given in smaller portions and more frequently. Happy results may be obtained with iced peppermint tea to which is added egg white and sugar of milk. Equal parts of milk and vichy has a very soothing effect on an irritable stomach. If vomiting is too annoying and exhaustion becomes rapidly marked, rectal feeding should be enforced. With the subsidence of vomiting and the cough paroxysms, the patient should be quickly changed to a more substantial food list.

The patient should be bathed daily, from head to foot, with a mild, warm chloride of lime solution. The disagreeable odor may be overcome by adding a little vinegar to the wash water. The attendant should wash her hands and face prior to leaving the room in a like solution or in weak iodine water.

Dishes and sickroom utensils, after being used by the patient, must be wrapped in sheets dipped in carbolic acid, chloride of lime, or other antiseptic solution. These articles are then safely conveyed through the house to vessels of boiling water.

Vaccine and drug therapy. Specific serums have proved wholly disappointing. Very favorable effects can be produced in the early, mildly catarrhal cases by the use of a vaccine of the Bordet-Gengou bacillus. In exposed cases, this plain vaccine should be used as a prophylactic. Where, however, the catarrhal symptoms are already prominent, an indication that the infection is mixed with the bacillus

influenza, *Micrococcus catarrhalis*, and most likely other microorganisms, a suitable mixed pertussis vaccine is decidedly beneficial. Careful treatment, in this manner, will very shortly cause amelioration of the catarrhal symptoms, the intervals between the paroxysms are soon considerably lengthened, and the paroxysms themselves are rendered decidedly less severe.

The drug treatment of pertussis is of some importance, though, unfortunately, not any one has so far proved itself into the class of so called specifics. Treatment may be divided into (a) local and (b) internal.

(a) *Local treatment.* Of insufflation powders, quinine, bismuth salicylate, combined with benzoin and boric acid, diluted with sugar of milk or acacia in large proportions, seem to do the most good. Unfortunately, children are so easily frightened by this method that it is almost useless to recommend it.

Properly prepared solutions of quinine bisulphate, carbolic acid, lactic acid, bichloride of mercury, hydrogen peroxide, or tannin are all useful as sprays, provided the patient will submit to their use without struggle. Swabbing the throat and nasal passages with a two to five per cent. cocaine solution is a measure that should be practised with extreme caution and only in emergencies. A four per cent. novocaine solution painted into the upper air passages frequently proves beneficial. Ten drops of this preparation, thymolis 3iiss, creosoti 3iiss, phenolis 3ii, olei caryophylli 3ii, ætheris acetici 3iv, on cotton wool and inhaled frequently is productive of much good in allaying the paroxysms. Turpentine, eucalyptol, terebene or thymol (one dram to three ounces alcohol and seven ounces water), frequently inhaled, appears to be helpful in some cases.

A plaster of powdered belladonna leaves 3i, oil of tar 3i, ichthyol 3i, and wool fat 3ii, continually applied to the chest and covered by a cotton wool jacket is at times helpful.

(b) *Internal treatment.* For the catarrhal stage little internal treatment is really required, though some use such expectorants as ipecacuanha, carbonate or chloride of ammonium, squills, and the like. Antipyrin treatment, given in wintergreen flavored mucilage of acacia, should be instituted early to do its most good. Other coaltar preparations have proved useless in my hands. Quinine, a little short of cinchonizing doses, best given in syrup of coffee or chocolate, is readily taken by children and certainly has gained a reputation for lessening the paroxysms. Mention of the two last remedies is made because the best effects are obtained when the treatment is instituted during the catarrhal stage.

The paroxysmal stage calls for the use of bromine preparations, belladonna (atropine), valerian, cannabis indica, etc. The irritability of the nerve centres is certainly lessened by the judicious use of bromoform (one to ten minims according to the age of the child). It is best given in the form of a simple emulsion. We should remember that bromoform becomes inert quite soon after being exposed to light. Atropine, given to physiological effect, is still in high favor among a large number of physi-

cians, and possibly has a quieting effect upon an irritable nervous system, lessening the number and severity of the paroxysms. Exhausting paroxysms may be cut short by wisely and carefully administered chloroform inhalations. Experienced hands only should, however, be trusted with this remedy. Properly balanced rectal suppositories of quinine, asafetida, and chloral hydrate occasionally prove useful against the paroxysms. A very irritable stomach frequently is soothed by a proper combination of carbofic acid, carbonate of bismuth, and the glycerite of pepsin (B. P.). At times prostration and overstrain of the heart call for the judicious employment of digitalis in some form, sparteine sulphate in large doses, convallaria, strophanthus, etc.

The stage of convalescence indicates the use of such remedies as codliver oil, iron in almost any form, calcium, and the like. For annoying pulmonary catarrh no remedy has stood the test of time like creosote, which drug is best concealed in milk.

The treatment of complications should be conducted as if whooping cough were not present. The indications of every complication must be met as they arise.

Dr. A. H. Gittleson, of New York, writes:

Prophylaxis is of paramount importance. As we have no specific treatment for whooping cough, our therapy must be symptomatic and may be considered under the following heads: 1. General hygienic measures; 2, antiseptics directed against the contagion; 3, treatment of the paroxysms; 4, treatment of the bronchitis usually accompanying the affection; 5, treatment of the complications.

1. The child should be placed in a room where fresh air is at all times available. Where possible, two rooms should be used, so that one can be occupied while the other is being aired. The temperature of the room should be constant, 60° to 65° F., and no one allowed to come in except the nurse and possibly the mother. In mild weather, outdoor treatment is efficacious, especially where the air is free from dust or too much moisture. All causes of excitement should be avoided. The child should be in bed when there is any fever. As a rule, no special diet is necessary; when fever is present, it should be light. The patient should be fed at regular intervals, and if vomiting takes place, food should be given in small quantities and frequently repeated. All sweet, sour, or irritating foods or drinks should be forbidden. One or two warm baths a day should be given and the patient dried gently, for fear of severe friction bringing on a paroxysm.

2. As to antiseptic treatment, we have at our disposal inhalations and internal medication. It is well to understand that in a disease like whooping cough a great many drugs have been tried and recommended, and it is frequently necessary to try several before satisfactory results can be obtained. Inhalations are sometimes of great benefit. Of internal antiseptics, quinine and its substitutes are the most efficacious; large doses are necessary. For children up to four years of age, as many 1.5 grain pills three times a day as the child is years old; under one year, one sixth grain for every month of age; over four years, about fifteen grains a day. Sometimes larger doses may be used for robust

children, but for a short time only. To older children, quinine is given in capsules; to smaller children in an aqueous solution with syrup of raspberry and a few drops of dilute hydrochloric acid. Sometimes antipyrine is useful, controlling the paroxysm better than any single drug. Sometimes antipyrine combined with sodium bromide acts very well, also with resorcin. If there are severe catarrhal symptoms, it may be combined with terpin hydrate, administered in capsules.

3. If the paroxysms are severe, we may give codeine or heroine for a short time. If these prove ineffective, the tincture or extract of opium may be given, but the patient must be watched. If asphyxia takes place during a paroxysm, artificial respiration, wet rubs, or slapping the chest with a wet towel may be resorted to. If the paroxysms are frequent and severe, intubation may be necessary to overcome serious spasm of the glottis and to prevent asphyxia.

4. For the catarrhal conditions, the ordinary expectorants, with or without stimulation, may be used.

5. The complications (bronchopneumonia, empyema, affections of the nervous system, etc.) are treated by the methods laid down for each.

A change of air after the end of the third or fourth week of the convulsive stage is beneficial, especially into the country, where the patient can be better kept out of doors.

Dr. John D. Buck, of Detroit, Mich., observes:

The general treatment, to me, is very important, and upon it greatly depends the frequency of complications. Fresh air, of which an abundance should always be supplied, is one of the prime factors in combating the paroxysms. Very young infants should be in a large airy room, while children of four or five years may be given the freedom of the yard during nice weather. Overexertion and overheating are to be especially guarded against, as either is often followed by a severe paroxysm.

The dietetic management of pertussis is the same as that of other acute febrile conditions—a soft or liquid diet consisting chiefly of milk, which should be given frequently, rather than in large quantities, to guard against vomiting, which is common. In some cases it may be advisable partially to peptonize the milk.

The internal treatment should be instituted with the idea of decreasing the number and severity of the paroxysms, in this way getting a quicker therapeutic effect than can be obtained by the vaccines.

A very efficient mixture for a child of about two years is:

℞ Antipyrini, ... gr. xv;
Fluidextracti belladonnæ, ... ℥ij;
Syrupi aurantiæ, ... q s. ʒij.
M. Sig.: ʒi every four hours, increasing gradually to every two hours.

Two or three grains of sodium bromide may be combined with the foregoing in severe cases. After the second injection of vaccine one or two doses daily of this mixture is often sufficient.

The local treatment is of minor importance, as at best it is unsatisfactory, causing young and nervous children to have a paroxysm from fear.

The inhalation of creosote, vaporized over an alcohol lamp, acts nicely in loosening the mucus and

aiding in its expulsion, and is the only advanced form of local treatment.

The vaccine treatment is important, and good results may be obtained if a dose of the following or similar mixture is used every four days: Pertussis organism fifty million, and twenty million each of *Staphylococcus aureus*, *Micrococcus catarrhalis*, and *Bacillus influenzae*, with ten million *Streptococcus pyogenes* in each c. c. As an initial dose about half a c. c. should be given, increasing to one c. c. for the succeeding doses.

When the vaccine is given early, four or five doses will usually be all that is required to control the symptoms.

Dr. R. O. Mundin, of Richmond, Va., remarks:

Hygiene plays an important role in the treatment of whooping cough. From the beginning, outdoor life should be insisted upon and only when necessity demands it, should a patient be confined to bed, and then only in a well ventilated room. Removal to the seashore will shorten the disease and lessen the sequelæ. Since at the onset it resembles diphtheria, attention must be paid to the respiratory tract. Hydrogen peroxide diluted, sprayed through the nasopharynx every three or four hours, will often cut short an attack. Internally, for a child three years of age, I use

R Sodii bromidi, ...gr. jji;
Antipyrini, ...gr. ji;
Glycerini, ...
Aquæ menthæ piperitæ, ...q. s. ad 3j.

M. Sig.: Take every three hours.

After the cough is established and there are eructations of stringy mucus, mistura asafœtidæ in half dram doses will be found of great service.

One drop of a solution of atropine sulphate (one grain to water, one ounce) cautiously increased until the physiological action of the drug is obtained, often proves efficacious. Give every four or five hours. A tight fitting belt extending from the axillæ to the hips serves to support the muscles of the thoracic and abdominal regions and prevent hernia.

Inhalations of creosote or menthol serve to keep the nasal passages open, allowing freer breathing.

Keeping the body fluids alkaline by giving alkaline drinks will to a great extent prevent complications. A light and nutritious diet is allowed.

(To be concluded.)

Therapeutic Notes.

Treatment of the Sigmoid Flexure in Post-dysenteric Colitis.—Cantlie, in the *Journal of Tropical Medicine and Hygiene* for August 15, 1914, is credited with having pointed out that the junction of the sigmoid with the rectum, the narrowest point of the colon, is a frequent site of excoriation and ulceration in postdysenteric conditions. The sigmoidoscope is, of course, necessary if changes in the mucosa of the sigmoid are to be readily seen. The author's treatment, where lesions are found, consists in the free local application of phenol, and subsequent injection of a diluted solution of colloidal silver, one dram (4 c. c.) in six

ounces (180 c. c.) of water, daily for a week and later twice weekly, if necessary. Usually one week suffices for cure in the most severe cases. The author is averse to the use of general anesthesia during examination by the sigmoidoscope, being convinced that the patient's own sensations are the best guide in the prevention of any accidental laceration of the bowel walls. The passage of the instrument is in itself distinctly beneficial, as it tends to dilate the sigmoidal junction, and thereby promote healing.

Relative Value of Mucilaginous Substances Employed in the Treatment of Constipation.—H. Surmont and P. Assoignion, in *Echo médical du Nord* for January 25, 1914, present a study of the relative efficacy of agaragar, linseed, and plantain seed (*Plantago psyllium*) in increasing the bulk of feces. Linseed and plantain seed retain water much better than agaragar, which is distinctly inferior to an equal volume of linseed or plantain seed.

Medication of the Deeper Recesses of the Nose and Ear.—F. L. Stillman, at a recent meeting of the American Laryngological, Rhinological, and Otological Society (*Post-Graduate*, March, 1914), described an apparatus for this purpose, the use of which combines the principles of two well known methods of treatment, viz., suction and the introduction of a medicated nebula under pressure. The efficiency of nebulization under pressure as ordinarily carried out alone is interfered with by the fact that the nebula fails to reach the distal walls of the air cells, because of the formation of a pad of compressed unmedicated air behind the nebula. By means of the author's apparatus, the medicated nebula enters into the depths of the cells while the air pressure in them is negative. A suction syringe is connected by hose to a straight metal tube three inches long, on the distal end of which is fitted an acorn shaped tip, with a tubular channel. Tips of different sizes and shapes are provided for use in the nose, external meatus, and Eustachian tubes. As near as possible to the distal end of the metal tube is a hollow nipple for the attachment of tubing from the nebulizer. The pressure delivered from the latter should be shown by a gauge.

The action of the apparatus when used, for example, for nasal treatment is as follows: The acorn tip is tightly fitted into the opening of a nostril. The patient holds it in place with one hand, and closes the other nostril by pressure on the ala. The nebula is started at the desired pressure, the vapor allowed to run for a short time, and the patient then requested to approximate his palate to the pharyngeal wall by one of the usual expedients used for this purpose. The operator now pulls the piston of the suction syringe to exhaust the air, at the same moment pressing the nebula hose with a finger flat against the barrel of the syringe. The amount of pull on the piston necessary to overcome air pressure resistance shows when the desired amount of vacuum has been obtained in the nasal cavity, and at that moment the finger compressing the flexible hose is lifted, and the nebula rushes into the cavities to restore pressure equilibrium, the whole of their walls thereupon becoming covered with the medicament used.

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PREVENTIVE MEDICINE AND BUSINESS.

It is somewhat astonishing how little thought has been given in the past to the physical fitness of those who seek employment. A man may accept a responsible position in control of powerful machinery without any one knowing whether his heart can stand the strain; a chauffeur may drop at a critical moment with disastrous results. In many other lines similar conditions exist. We know little or nothing of those who prepare and serve our food, yet there are many instances where diseases have been introduced into dwellings. "Typhoid Mary" has become a national figure.

The first to realize what a valuable asset is the good health of employees were the larger corporations for whom many people work. As the value of hygiene and preventive medicine became appreciated more thoroughly, these employers took measures to improve conditions. The railroads probably earliest recognized that safety could be procured only by obtaining employees who were physically sound, so for years they have had their examining boards. They too have taken the advanced step of carefully scrutinizing the health of those who work in the dining cars.

Firm after firm is now following along the same lines, particularly in those States where there is an employers' liability law. The employers see that in order to protect themselves and the fellow workers as well, no individual who is physically incapable should be employed. Then also it is self evident that an employee who is kept well is much more useful than one who is frequently sick. Consequently the next step after the physical examination is that of looking after the employee's health at all times.

The worker who becomes sick may have a communicable disease and transmit it to others. Any plan by which such a condition could be recognized in its incipency would be of much benefit to all concerned. The application of preventive medicine to industrial pursuits is in its infancy, and the future should show great results.

TYPHOID FEVER AND POLLUTION OF
THE GREAT LAKES.

Regarded from the sanitary standpoint, our country does not occupy the high position to which she is entitled by reason of her wealth and progressiveness. True, some of her city health departments are most useful; New York, for instance, possesses an excellent example. With regard to the measures taken to abolish typhoid fever, however, America has unaccountably lagged behind certain European countries, Germany, for example, and Great Britain. Attention has been drawn recently to America's backwardness in initiating and carrying out methods for the effective control of typhoid fever, by the publication of the *Progress Report* of the International Joint Commission on the Reference by the United States and Canada in re the Pollution of Boundary Waters. It is notorious that some of the boundary cities suffer unduly from typhoid fever. The city of Niagara is the most conspicuous case in point and it has been shown that this is due to the pollution of the Niagara River by the sewage of Buffalo.

The report points out that in the cities and towns upon the Great Lakes and their connecting rivers, sanitary and climatic conditions, exclusive of public water supplies, are much better than the average for the country as a whole. These sanitary conditions, moreover, are infinitely better, with the exception of water supplies, than those which obtain in European cities. These Great Lake cities lack the overcrowding, the filth, and the poverty of less favored communities; yet the typhoid fever rate in these cities for many years has been excessive, and, moreover, it has been punctuated at intervals by

massive explosive epidemics without parallel in European countries. Typhoid fever death rates per 100,000 in the large cities of northern Europe with safe water supplies have an average of less than five. Without reverting to the appalling disasters of a decade ago, in the last three years a rate of over 300 was registered in Ashland, Wisconsin; of 109 in Marquette, Michigan; of 196 in Port Huron, Michigan; of 194 in Niagara Falls; of 190 in Erie, Pennsylvania, and above fifty in Alpena, Bay City, Sault Ste. Marie, Duluth, and Sandusky; of 179 in Port Arthur, Ont.; of 330 in Sault Ste. Marie, Ont.; of 134 in Sarnia; of eighty-six in Niagara Falls, and of sixty-three in Brockville.

The report goes on to show that even in the more fortunate cities possessing intakes which are not so grossly polluted, rates are attained by typhoid fever which would not be tolerated in European countries. Detroit has never registered a lower rate than fifteen, and in 1913 had a rate of above thirty. In most instances these high typhoid rates were due to the use of sewage polluted water without purification of any kind. In a number of cases, however, an alleged purification plant was in operation, but disasters have occurred in spite of these plants, due either to faulty construction or, more frequently, to careless or unskilled operation.

The main factor concerned in the pollution of the Great Lakes is sewage discharged without restriction or treatment of any kind by the municipalities situated upon the boundary waters. The second factor in point of importance is the discharge of sewage by vessels. The United States Public Health Service investigated, in 1913, several epidemics caused by water drawn from polluted sources aboard lake vessels.

The object of the commission, which has secured the cooperation of such experts as Dr. Allan J. McLaughlin of the Public Health Service; Dr. J. M. McCullough, chief health officer of the Province of Ontario; Dr. John A. Amyot, professor of hygiene at the University of Toronto; and Mr. F. O. Dallyn, C. E., is to devise an adequate plan to remedy or prevent the pollution of the Great Lakes, so as to safeguard the health of cities and towns bordering thereon. It has been and is a public scandal that Niagara Falls, visited yearly by thousands, should be one of the worst pest spots so far as typhoid fever is concerned. There can be little doubt that the New York State Department of Health will heartily cooperate with the commission in any endeavor to free from typhoid fever all territory under its jurisdiction.

Typhoid fever should not be allowed to exist in a civilized country, and the somewhat careless and

slipshod methods now generally in vogue to exterminate the disease must be replaced by modern measures in keeping with our energy and wealth.

THE REFORM OF VITAL STATISTICS.

In the United States, where the individual State is the sovereign authority in so many matters, including that of the vital statistics within its own boundaries, it is little to be wondered at that many such statistics should be exceedingly defective. This fact has been one of the important arguments for the establishment of a United States Bureau of Public Health which should have jurisdiction over all such matters. But without constitutional revision a department with such powers could not be established, for it is not likely that the States would all agree to surrender this portion of their sovereign rights. That such a board is more than desirable can hardly be a matter for argument; but in our present status we must reconcile ourselves to the imperfections in our vital statistics with the hope that time and the slow process of education will lead to material improvement.

It is interesting to read, therefore, in the *British Medical Journal* for November 7, 1914, about the shortcomings of the vital statistics of so well centralized a government as that of England. Papers by Sir Victor Horsley and others show that much is still to be desired in the collection and in the accuracy and completeness of British vital statistics. In the first place, the *Nomenclature of Diseases* permits the names of several symptoms to pass as diagnoses of such diseases as hiccough, trance, delirium, etc. Inasmuch as this nomenclature was the work of selected physicians, part of the responsibility for defective death statistics seems to lie with the profession. Not alone in this way is the profession to blame, but also on account of the reluctance of many members to submit diagnoses which might reflect on the character of the family of the deceased, and on account of a human tendency to neglect the task of filling out proper death certificates.

The notification of certain reportable diseases, birth and stillbirth reports, as well as death statistics, need considerable improvement to make them of full value to the community. Ways are therefore suggested by which some of these improvements might be accomplished, and a few of these suggestions seem worthy of trial in this country so that we may be in a position to know what plans to adopt when the time comes for the establishment of a national system of vital statistics.

It is suggested that all reports of deaths be made

in such a way as to be absolutely confidential, not even coming into the hands of the family of the deceased. This might be done on the Swiss plan, which consists of a serially numbered death certificate, perforated so as to make two records. On one portion is the name of the deceased, his residence, etc., and the mere statement of his death, with the time and place of its occurrence; on the other, bearing the same serial number, is the detailed death certificate, including the causes of death. The first portion goes to the local authority, the second is sent separately to the Government registrar; it is never possible for the confidence of the physician to be violated under this method. It is also suggested that some system be adopted by which the physician be remunerated for each certificate of birth, death, or stillbirth.

Other suggestions were made, but these seem to be the most radical and the most certain means by which correct and complete records could be obtained, and such methods, save perhaps the remuneration, are capable of application in any community. It would be a valuable experiment for some enterprising city or State to devise a plan along these lines, and we are inclined to think that the experiment would yield interest manifold.

A SCARCITY OF YOUNG DOCTORS IN THE COUNTRY.

How the dean of a medical college in Philadelphia receives requests from time to time from rural communities to send young doctors is related in the *Churchman*; but the young doctors will not go. In the last decade the number of medical colleges in the country has decreased well nigh one hundred per cent., and the number of students from 30,000 to 16,000. There are now fewer graduates in medicine, while medical standards have risen to an imposing degree. There are also fewer failures in medical practice; yet all too many, especially in the cities. A twofold evil then still remains, arising out of a lack of medical attendance in rural communities, and a decided superabundance of doctors in cities and towns. Corroborative evidence is contained in the address made by Dr. Stuart McGuire, president of the Southern Medical Association, at its annual meeting in November. Doctor McGuire emphasized one phase of the situation—the increased expenditure of time and money now required for the development of the medical fledgling, who “is conscious of the sacrifice he has made, and usually overappreciative of the attainments he has acquired. He desires to be a specialist and will only do general practice as a means to an end. He

is determined to locate in a city and unwilling to settle in the country, preferring to starve himself in the one rather than starve his ambitions in the other. This results in an urban congestion and rural depletion of medical men which has reached a point to give serious concern, and for which some remedy must be found.”

The great trouble is that many matriculates coming from the country to the great civic medical schools are so attracted by the meretricious urban glamor that they conclude on graduation to establish themselves where they have studied. With no other capital than a square jaw and a sublime (and touching) faith in themselves, they determine to remain permanently, to starve if need be. During those years when men normally should marry, they lead pathetically barren lives. Life's honorable obligations they meet with difficulty, or in humiliation fail to meet. Many such men finally make good; how many are the failures after all those years one does not like to think.

In former years rural practice was hard and unremunerative; it need not be either today. One's motor car takes one quickly over good roads over great distances; among one's patients one has, much more than formerly, prosperous folk; commuters having business in the city; people who go to the country for health or recreation. The medical journals and the other literature of the day, the discussions at the county medical society are altogether adequately informing and easily keep one up to date. A few weeks of postgraduate work in cities is a positive recreation. The telephone, the parcel post, the self playing musical instruments, the trolley expresses—such factors have transformed the character of life materially and socially in country districts throughout the length and breadth of the United States. Wherefore, young colleague, unless the city has been your home, unless you have abundant capital to enable you to wait, unless you have unusual and assured prospects, you are far better off beginning your career in the country than in the big city.

DANGER FROM DRUGS SUPPOSEDLY HARMLESS.

Calling attention to the well known increase in deaths from degenerative diseases in the United States during the past three decades, M. I. Wilbert, of the Public Health Service, in an article on Drug Intoxication (Reprint No. 227 of the *Reports*), attributes the phenomenon to the remarkable increase in the manufacture and inferentially in the consumption of materials used in medicines. While

the increase in population from 1880 to 1910 was approximately 83.3 per cent., the increase in the value of patent medicines and related products was 740.5 per cent.! The population has not doubled, but the medicines have increased ninefold. The people of the United States expend annually five hundred million dollars in medicines, most of which are consumed haphazardly and not under professional supervision.

What is particularly striking in Wilbert's report is that reference is not made especially to narcotic drugs, but to agents not habit-producing and generally presumed to be innoxious, e. g., the soluble salts of mercury, lead, uranium, and related metals, which affect the kidneys, the coal-tar analgesics and hypnotics, which may disorganize the blood, even quinine, large doses of which cause cinchonism, manifesting itself in gastritis, chronic gastric catarrh, deafness, and even blindness. The salicylates, too frequently used for headache and neuralgia, interfere with digestion and produce symptoms analogous to cinchonism. The hebetic mental condition brought about by the long continued use of sulphonal is well known.

In connection with some drugs, the use of which is long continued, the body may acquire a tolerance or diminished sensitiveness to their action. This appears to be particularly true of narcotics and of many of the cathartic drugs. These lead to the habitual consumption of drugs, and their use once begun is fraught with difficulties. The use of the so called laxative drugs, says Wilbert significantly, is not an entirely negligible factor.

The amount of money expended annually for drugs and medicines in this country is out of all proportion to the real need or requirements of the people, and to this extent at least the unnecessary use of medicines may be considered an economic waste. The rapid increase in mortality from degenerative diseases and the fact that this increase is greatest in persons who should be in the prime of life, warrant making a careful study of the problems involved in order to direct attention to the causative factors of the degenerative processes.

A GERMAN JOURNAL OF FERMENT INVESTIGATION.

Germany is still the land of *Festschriften* and *Forschungen*; this newest periodical called *Fermentforschung*, edited by Abderhalden, is a fine example. It fits his work with a peroration. There is a candid preface which should be read. He speaks of the numerous problems of ferments, and the general scope of the new investigation is to show the need of correcting errors in the old. The articles in the first number are not by any means light, be-

ing written rather for experts than for general readers. Like much of Abderhalden's other work, it is laboriously conceived, but executed rather too quickly. For ourselves, we should read it for its instruction alone, as unmatched in this line of investigation. It is not less interesting than hopeful that it should appear at this time.

News Items.

Changes of Address.—Dr. F. W. Wunderlich, to Galen Hall, 184 Joralemon Street, Brooklyn.

Dr. William Gaynor States, to 260 West Fifty-seventh Street, New York.

Dr. Willis A. Wilder, to Room 1125, Morton Building, 116 Nassau Street, New York.

Dr. Bernard Weiss, to 150 East Seventy-second Street, New York.

Dr. Frank G. Esson, to 166 West 105th Street, New York.

Western Surgical Association.—The twenty-fourth annual meeting of this society will be held in Denver, Colo., December 18th and 19th, under the presidency of Dr. Byron B. Davis, of Omaha, Neb.

Fund for Cancer Research.—The Rockefeller Institute for Medical Research will receive \$200,000 under the will of Henry Rutherford, for cancer research work. This bequest was threatened by a contest of the will filed by a cousin of the testator, but the contest was dismissed and the will admitted to probate.

"Tag Day" at Harvard University.—On Wednesday, December 9th, "tag day" was held at Harvard University, and almost every one of the students, numbering over four thousand, was tagged. The money collected will be given to the Red Cross Society for the purchase of four motor ambulances for use in the war zones of Europe.

American Red Cross Society Takes Charge of Allies' Hospitals in Turkey.—British and French hospitals in Constantinople are now being managed by the American Red Cross chapter in the Turkish capital. A cablegram announcing this reached Red Cross headquarters in Washington just after it had been decided to accept a formal invitation from the British government to take over the operation of the English hospital at Smyrna, Asiatic Turkey.

Queens-Nassau Medical Society.—The following officers were elected at the annual meeting of this society, held in Jamaica, on Tuesday, December 1st: President, Dr. Herbert L. Barker, of Woodside; vice-president, Dr. E. H. Pershing, of Woodmere; secretary-treasurer, Dr. James S. Cooley, of Mineola; censors, Dr. R. F. Macfarlane, of Long Island City, Dr. Howard M. Phipps, of Hempstead, Dr. L. A. Van Cleek, of Manhasset, Dr. L. H. Kice, of Baldwin, and Dr. Margaret M. York, of Flushing.

American Hospital in Petrograd.—A fully equipped hospital with twenty beds for the exclusive use of Russian wounded has been established in Petrograd by members of the American colony in that city. No contributions have been solicited or accepted from other than Americans. One prominent member of the little colony, consisting usually of some sixty persons, donated the quarters—a converted automobile garage—and provided the beds, linen, pajamas for patients, and numerous other necessities. The others almost to a man have bound themselves to pay sums aggregating \$1,500 monthly for the running expenses.

Medical Fraternity Meets in Philadelphia.—Two hundred physicians and medical students, attended the national convention of the Nu Sigma Nu Medical Fraternity held in Philadelphia on November 28th. Practically all the medical schools in America were represented by the delegates, who were entertained by two local chapters, Rho Chapter of Jefferson Medical College and Lambda Chapter of the University of Pennsylvania. The highest honor in the fraternity was awarded Dr. J. Playfair McMurrich, professor of anatomy at the University of Toronto, for distinguished work in anatomical research, and will be formally conferred upon him at the next convention, to be held in 1916.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, December 14th, Section in General Medicine, College of Physicians; Tuesday, December 15th, West Branch of the County Medical Society; Wednesday, December 16th, Section in Otology and Laryngology of the College of Physicians, Northwestern General Hospital Medical Society, Mount Sinai Hospital Clinical Society; Thursday, December 17th, Section in Ophthalmology of the College of Physicians, Northeast and Germantown Branches of the County Medical Society; Friday, December 18th, Neurological Society, South and Southeast Branches of the County Medical Society, and Jefferson Hospital Clinical Society.

Magistrates Have No Jurisdiction Over Violations of the Sanitary Code.—Justice Nott of the Court of General Sessions of the City of New York recently decided that violations of the sanitary code of the city, being misdemeanors, should be tried before the Court of General Sessions, and that city magistrates have no jurisdiction in such cases. The health authorities hold that if this procedure is followed, an unnecessary burden will be laid on the court and on minor offenders who will have to be held on bail for trial by the Court of General Sessions. The case, which involved the illegal sale of heroine, was re-argued before Justice Nott in chambers on December 1st, decision being reserved.

New York Society for the Relief of Widows and Orphans of Medical Men.—The seventy-second annual statement of this society, recently issued, shows that there are now 119 members, of whom 110 are life and nine annual members. Five members died during the past year and no new member joined. The number of benefactors living is five, of whom four are laymen; deceased, 54, of whom 10 were laymen. Dr. W. B. Chase, of Brooklyn, is president of the society; Dr. Hermann J. Boldt, Dr. R. W. Westbrook, and Dr. S. T. Armstrong, are vice-presidents; Dr. Andrew F. Currier, of Mount Vernon, is secretary, and Dr. E. H. Squibb, of Brooklyn, is treasurer. Application for membership may be made through the president, the secretary, or any member of the society. The initiation fee is \$25, the annual dues \$10. A single payment of \$100 constitutes a life membership, and the payment of the annual dues for twenty successive years makes a life member.

Procedure in Meningitis and Acute Poliomyelitis.—Heretofore all cases of death from meningitis, whether of tuberculous or pneumococcal origin, have been referred to a medical inspector of the New York Bureau of Infectious Diseases for investigation. In the future, however, where the nature of the case is clearly stated (especially as to the type of bacterial organism causing it), and where the department of health requires no further detailed information, no such investigation will be made. In cases reported as simple meningitis, or where the variety is not stated, an investigation will be made, as in the past. Such investigations will invariably be made of deaths from such diseases where the cases were not reported during life. These procedures, as well as the similar routine pursued in acute anterior poliomyelitis, are in no way to be construed as a reflection on the diagnostic ability of the physician in attendance. They are taken merely to insure the accuracy of the morbidity statistics of the department.

The Week's Mortality in New York.—The mortality for the week just passed was noteworthy by reason of the increase in the infant mortality of infants under one year of age compared with that of the corresponding week in 1913, there being twenty-five more deaths reported at this age group. A comparison of the infant mortality according to cause of deaths shows that this increase was due in a great measure to the increase in the deaths from the acute respiratory diseases—especially bronchopneumonia—and from measles. This increased mortality at this age group accounts for the increase in the absolute figures of the deaths from all causes at all age groups, there having been 1,385 deaths from all causes reported during the past week against 1,372 for the corresponding week in 1913. On the other hand, taking the increase in population into consideration, there was a relative decrease in the mortality of 41 deaths, the death rate being 0.38 of a point less. The death rate from the infectious diseases, including pulmonary tuberculosis, showed a much decreased mortality with one exception and that is diphtheria and croup, the mortality from this cause being much higher than in the corresponding week in 1913.

News of the Medical Schools.—The following appointments have been made on the staff of the Medical Department of Columbia University: Dr. Joseph Francis McCarthy and Dr. Clarence Garfield Bandler, instructors in clinical genitourinary diseases; Dr. E. Livingston Hunt, instructor in clinical neurology; Dr. Charles Whittemore Knapp, instructor in clinical medicine; Dr. Arthur Hutchinson Terry, Jr., instructor in physiology; Dr. Warren Hildreth, instructor in physiology, and Dr. George Robert Elliott, assistant professor of clinical orthopedic surgery.

Leave of absence has been granted to Dr. Walton Martin, Dr. Karl M. Vogel, Dr. Karl A. Connell, and Dr. Donald Gordon, to take charge of the surgical work of the field hospital established in France by Mrs. Harry Payne Whitney.

Bronx County Medical Society.—At the annual meeting of this society, held on Wednesday, November 18th, the following officers were elected: President, Dr. William G. Eynon; first vice-president, Dr. Thomas J. Dunn; second vice-president, Dr. J. Lewis Amster; secretary, Dr. Herman T. Radin; financial secretary, Dr. Henry A. Dodin; treasurer, Dr. Edward F. Hurd; censors, for two years, Dr. Nathan B. Van Etten, Dr. Isaac M. Heller, and Dr. Joseph Henschel; censors for one year, Dr. Cornelius J. Egan, Dr. Simon M. Jacobs, and Dr. Maximilian Zigler; delegates for two years, Dr. Clarence H. Smith and Dr. William M. Dunning; delegates for one year, Dr. Milton R. Bookman and Dr. Thomas D. Brown; alternates for two years, Dr. Edward Broquet and Dr. Clarence A. Holmes; alternates for one year, Dr. Adolph Rostenberg and Dr. Paul Dolan.

American Public Health Association.—Professor William T. Sedgwick, of the Massachusetts Institute of Technology, was elected president of this organization at the annual meeting held in Jacksonville, Fla., last week. Other officers were elected as follows: Dr. C. J. Hastings, health officer of Toronto, Canada, first vice-president; Dr. Juan Guiteras, of Havana, Cuba, second vice-president; Dr. C. E. Terry, health officer of Jacksonville, third vice-president; Dr. S. M. Gunn, of Boston, secretary (reelected); Dr. Lee K. Frankel, of New York, treasurer. Dr. John F. Anderson, of the United States Public Health Service; Dr. J. H. Landis, health officer of Cincinnati, and Dr. Alfredo Dominquez, port officer of Havana, Cuba, were elected members of the executive committee. Honorary membership was conferred upon Dr. Eduardo Leeraga, for many years president of the bureau of health of Mexico City. Next year's meeting will be held in Rochester, N. Y.

Personal.—Dr. C. W. Garrison has been appointed secretary of the Arkansas State Board of Health, to succeed Dr. Frank B. Young. Doctor Garrison had charge of the work in Arkansas of the Rockefeller Hookworm Commission, which will withdraw from the State on January 1st, as it is believed that the State health authorities are able to handle the situation.

Dr. J. D. Taylor, of Grand Forks, has been named chairman of the Belgian Relief Fund for the city and vicinity.

Dr. George S. Crampton has been elected attending surgeon to the eye department of the Pennsylvania Hospital to fill the position left vacant by the resignation of Dr. P. N. K. Schwenk. The latter having served thirty-two years in this capacity, was formally presented with a silver loving cup by the staff of the eye department.

Dr. Charles S. Pancoast, of Camden, N. J., sailed a few days ago for Vienna, where he has accepted a post as field surgeon with the Austrian forces.

Dr. Lewis Gregory Cole, of New York, gave two lectures on the x ray at the University of Maryland on Thursday, December 3d, on radiography in diseases of the stomach and intestines. The lectures were illustrated by moving pictures.

Dr. Robert U. Patterson, major in the Medical Corps of the United States Army and head of the Medical Service Bureau of the American Red Cross Society, recently delivered an address in Richmond, Va., under the auspices of the Woman's Guild of St. Paul's Church, his subject being the work of the Red Cross Society. Major Patterson was in charge of the Red Cross ship which sailed from the United States in September.

Dr. J. L. Greene, of Little Rock, has resigned as superintendent of the Arkansas State Hospital for Nervous Diseases, and Dr. Frank B. Young, of Springdale, secretary of the State Board of Health, has been elected to succeed him.

Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

September 28, 1914.

The Treatment of Colitis gravis through Appendicostomy, by E. Fuld.—This report of two cases emphasizes the value of appendicostomy as a means of thorough colonic irrigation. One of the two patients was cured at the time of the report and the other was well on the road to recovery. The operation itself is simple and is not fraught with the dangers and discomforts associated with an ordinary colostomy. The opening has some tendency to close spontaneously, and it may be necessary in case of prolonged treatment to dilate it from time to time. A further advantage of the method is that closure of the wound is a simple matter when treatment is completed. In the experience of the author, the best preparation for irrigation of the intestine in severe colitis is a saccharinated copper compound called beniform. To be successful the treatment usually has to be extended over several months.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT

October 1, 1914.

Bacillary Dysentery, by Grober.—No less than 123 different strains of dysentery bacilli have been isolated, differing from one another widely in some cases. In many cases clinically dysenteric, it is not possible to isolate any one of the forms from the stools, probably because these bacilli are soon overgrown by those of the colon group. In any case in which the organism is found, it is necessary for accurate diagnosis to cultivate it, and determine the specific agglutination titre of the blood in order to establish its etiological relation to the case. The most important factors in the spread of the disease and the outbreak of epidemics in troops and institutions are direct transmission by means of carriers and flies. Much less important seems to be water, though this must not be neglected. These factors alone are insufficient to cause an epidemic, and there must be added the predisposing factors of improper diet and overstrain or impaired general health. The symptoms are too well known to need repetition, but it is important to bear in mind that no index of the outcome in a given case can be derived from the severity of the early symptoms; those with mild initial symptoms may succumb early, while those with intense initial disturbance may promptly recover. Even the number of bloody stools daily gives no trustworthy indication of the prognosis, for stools may vary from one or two to over 100. But, in general, when the number is very great, the loss of fluid and blood alone, aside from the systemic intoxication, is likely to be fatal. The state of the circulatory system is the best index of the probable outcome of the disease; when the pulse is feeble, the heart beat weak, and the first and second sounds are alike, the prognosis is always unfavorable, even when cardiac stimulants are administered early. In spite of the most careful management, the likelihood of recurrence is considerable, and this may be severer than the primary attack. The prophylaxis of the disease by immunization has not proved successful, at least when Gauss's serum has been em-

ployed. In the treatment of the disease an initial moderate dose of castor oil seems beneficial. Tannin preparations have failed, but the administration of light red wine, with or without cinnamon, has been followed by improvement in the subjective symptoms. The use of opium suppositories to relieve the tenesmus gives variable results, but belladonna in the same form is followed by considerable relief. The use of bolus alba in large doses has given good results, allaying irritation, and coating and protecting the denuded intestinal surface. Digitalis or other cardiac stimulant should be administered early in the course of the disease. It seems probable that part of the extreme wasting seen in cases of dysentery may be attributed to the practice of underfeeding patients; it would seem better in the future to give a more sufficient diet, as is now done so successfully in typhoid fever. The only danger which seems likely from this practice is the possible absorption from the denuded colon of toxic materials from the food residue. This is, however, not likely to be great, as the small intestine and stomach are not involved in the disease and digestion should be fairly complete before their contents pass into the large intestine.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

November 3, 1914.

Congenital Status thymolymphaticus, by Hermann Schridde.—To decide whether a true congenital status lymphaticus or status thymolymphaticus existed a number of stillborn children were examined at full term. These children had to measure between forty to fifty-five cm. in length, and tuberculosis, syphilis, or other disease of either parent had to be excluded. Schridde found that the weight of the thymus varied considerably; as a rule the thymus gland of the male children weighed more than that of the female. Three cases are cited in which the thymus weighed respectively nineteen, twenty-four, and twenty-six grams compared to an average normal weight of 14.4 to fifteen grams. These children showed a marked development of the subcutaneous fat, a marked hyperplasia of thymus pulp. The spleen had lymph nodules visible to the naked eye and these were also demonstrated in the intestine. Another interesting feature of these cases was the fact that the livers weighed from 200 to 240 grams compared to an average normal weight of 142 grams. An autopsy performed on the mother of one of the three infants reported, revealed the presence of a status thymolymphaticus so that it would appear as though the case was one of hereditary status thymolymphaticus.

Male Fern Poisoning in Latent Addison's Disease, by Ferdinand Schotten.—This was a case of a patient, treated for a tape worm with extract of male fern and castor oil, who died as a result of acute poisoning. The autopsy findings were those of poisoning by male fern and also of a tuberculosis of the adrenals—a true Addison's disease. The exact cause of death was probably acute poisoning, as sudden death in Addison's disease, without any previous cachexia, is extremely rare. It is also possible that the combination of both acute poisoning and the latent tuberculosis of the adrenals, was responsible for the patient's death. Two

reasons why patients with Addison's disease are more liable to be fatally poisoned by the administration of male fern, are general shock due to the poison and because of the special action of the poison on the kidneys. The latter seems to interfere with the internal secretion of the adrenals. Most of the cases of poisoning by male fern are those in which the administration of the drug has been followed by the administration of castor oil and the use of the combination is strongly warned against.

Peroxide of Hydrogen Solutions in the Treatment of Wounds, by Walter.—Peroxide of hydrogen solutions are preferred to carbolic and mercury bichloride solutions. Hydrogen peroxide is nonpoisonous, does not irritate the wound, and does not disturb granulations. It does away with the harmful wiping of the wound; there is thorough mechanical cleaning by the foam produced by its action on the tissues. In a series of over 800 cases treated on the battlefield, it has given satisfaction at all times and the wounds treated with it showed a tendency to heal quickly, especially those treated with the newer, higher percentage solutions of hydrogen peroxide. Where compresses are indicated and there is no open wound, solutions of aluminum acetate may take the place of hydrogen peroxide solutions, but when dealing with an open wound these are to be preferred.

ZENTRALBLATT FÜR GYNÄKOLOGIE.

October, 1914.

Laminaria in Dilatation of the Cervix, by Calmann.—In rapid dilatation the greatest danger is tearing of the cervix; the muscle has not time to accommodate itself to the strain. Another danger is subsequent atony. The laminaria, although slow, cause dilatation more closely resembling that of a normal labor; the pain can be controlled by morphine. The chief objection to the laminaria is that infection seems to follow frequently.

Anatomy and Pathology of the Menstrual Cycle, by Schröder.—The endometrium has two layers, the basal and the functional. After death of the ovum, the functional layer very rapidly degenerates, leaving the basal layer exposed. This condition persists some five days; then the functional portion begins to regenerate from the remnants of the glands within the basal layer. This development occurs rapidly up to about the tenth day, when it proceeds more slowly. The glands become larger and more irregular, and by the fifteenth day, when ovulation takes place, the functional layer has regained its original condition, which it retains until the twenty-eighth day. Schröder therefore divides the cycle into a proliferative stage, five to fifteen days; a secretory stage, fifteen to twenty-eight days, and a stage of desquamation and regeneration, one to five days. He prefers these terms to postmenstrual, interval, and premenstrual.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

October 27, 1914.

Treatment of Bullet and Shell Wounds, by Témoïn.—Observations on 800 wounded soldiers treated in a hospital in the central part of France are reported. Shrapnel bullets generally did not penetrate deeply, and being septic, usu-

ally caused small abscesses which showed the bullets' place. Rifle bullets, though having greater penetrating power, caused little trouble in the soft tissues, being generally aseptic, and the wounds produced healed rapidly after spraying with tincture of iodine and the application of a dressing. No attempt should ever be made to probe for bullets, lest infection take place. When bullets, entering the chest, cause unusual hemorrhage, with subsequent infection of the extravasated blood, incision and irrigation should be practised; rapid recovery followed in the author's three cases. Shell wounds caused the greatest trouble from tissue laceration, septic infection, gangrene, and tetanus; yet conservative treatment should be employed in all wounds in which there is the least hope of tissue repair or unless general sepsis threatens. Compound fractures, no matter how severe, recovered easily under preliminary antisepsis—with abstention from all palpation—and immediate immobilization. Of 101 cases of compound fracture all ended in recovery, though one, which required amputation, led to tetanus. Depressed skull fractures, after trephining and removal of bone fragments, seemed to heal more easily than in civil practice. Eighteen ligations for arterial or arteriovenous aneurysm were required in the author's cases.

Wounds by Bullets Deflected from Their Course, by Rochard.—Rifle or machine gun bullets deflected and partly arrested in their course through contact with hard objects such as stones or metallic articles of military equipment, produce wounds indistinguishable from those made by dumdum bullets, owing to rupture of the hard shell of the bullet and marked deformation of the lead filling. Much laceration of soft tissues is caused, the wound resembling one produced by a small shell fragment, but little harm is done to bones, owing to the slackened speed of the projectile's flight. The author reports three cases of this type of wound.

Posture in the Administration of Antitetanic Serum, by G. d'Hôtel.—The following procedure in the administration of antitetanic serum is recommended: Lumbar puncture is done and some cerebrospinal fluid allowed to escape, twenty cubic c. c., i. e., a little less than the amount of cerebrospinal fluid evacuated, of antitetanic serum is injected, and the patient placed in the inverted posture, with the head and shoulders down and the pelvis elevated to an angle of about twenty-five to thirty degrees. This position is to be kept for at least two hours. The object of the procedure is to bring the serum in direct contact with the medulla. The results have been good, the spasmodic manifestations diminishing within twenty-four hours after the first injection.

RIFORMA MEDICA.

November 7, 1914.

Etiology of the Leucemias, by C. Martelli.—Leucocytosis is simple or functional, myeloirritative, toxicometaplastic, leucemic. Both acute and chronic forms of leucemia are well defined syndromes due to intoxication or infection of the blood by agents which excite a metaplastic deviation from the normal. There is a preleucemic stage which is

directly connected with the intoxication, and which yields to proper medication.

Study of 5,000 Cases of Nervous Diseases, by R. Colella.—The chief feature of the series is the relative frequency of neuroses, thirty-eight per cent. of the total. The important factors were: Age in infantile paralysis, dementia præcox in the neuropsychoses of the menopause. Sex in hysteria, and climacteric conditions. Climate; the autumns in Sicily, owing to the prevalence of the sirocco, are unfavorable seasons. Place of habitation played an important part, as a large percentage of the patients lived in narrow dark streets, in houses which were badly lighted and poorly ventilated. Two very important factors are heredity and the general state of health of the individual. The author considers that the frequency of epilepsy is largely due to the impulsiveness of the Sicilian character. The intimate relation between syphilitic infection and diseases of the nervous system was well brought out in the study of this series of cases.

REVISTA DE MEDICINA Y CIRURGIA PRÁCTICAS

November 14, 1914.

Two Cases of Pelvic Inflammation Opened through the Bladder, by M. Barragan y Bonet.—The first was a case of pericystitis from vesical calculus and perforation of the bladder wall, in which, after the treatment, there was seen a conical eminence in the bladder. This was on the left side of the organ around the vertex, when incised it gave vent to a quantity of bloody pus. The aftertreatment consisted, in addition to drainage, of irrigations with two per cent. formol. A little later, when the purulent discharge had lessened, the lavage was done with one in 2,000 solution of oxycyanide of mercury, followed by the injection of eight to ten c. c. of iodoform oil. The patient made an uninterrupted recovery. The second case was one of pelvic abscess which had ruptured into the bladder. The condition had originated in the ovary and tube of the left side, and did not yield to vesical drainage; an anterior colpotomy was successful.

BRITISH MEDICAL JOURNAL.

November 21, 1914.

The Treatment of Wounds in War, by Sir W. Watson Cheyne.—The frequency of sepsis in the wounds is remarkable. Aseptic methods fail utterly in times of war because wounded men cannot be attended to at once, often not for many hours. During the interval, their wounds almost invariably become infected, and in the case of land troops frequently either with the tetanus or the aerogenes bacillus or both. All wounds except those inflicted by rifle bullets are in general extensive and the parts are severely torn and bruised. The infectious material is often actually driven into the wound under these conditions. Two different courses of treatment must be followed, depending upon the freshness of the wound. When seen within twenty-four hours—exceptionally even within forty-eight hours—after the injury, an attempt must be made chemically to destroy the infectious agents present. For this purpose only one antiseptic has been proved of great value, namely phenol. The most effective method of procedure consists in

the thorough primary cleansing of the skin about the wound by ether soap and one to twenty solution of phenol. The wound is then covered with gauze saturated with the phenol solution; the badly soiled fragments of tissue are removed, the wound is enlarged if necessary to give access to all its recesses, and hemostasis secured. In an extremity bleeding may be stopped by a tourniquet, in the trunk by application of hemostatic forceps and firm plugging with gauze. When this is accomplished, the entire cavity is to be swabbed out thoroughly with liquefied phenol, being sure that the drug reaches every small recess. Recesses may be washed out with the one to twenty solution and the application repeated. The tourniquet is then released, in the case of an extremity, and the ends of the bleeding vessels are clamped and tied off. In trunk wounds the clamps are removed, one at a time, the bleeding vessel touched with liquefied phenol, a fresh clamp applied, and the vessel ligated. The wound should then be dressed with antiseptic gauze, the best being salicylic acid gauze, with a layer of cyanide gauze next the skin to protect it. By this method the wound is completely sterilized; growth of pathogenic organisms in the dressings, which are soon saturated with discharges, is prevented by the antiseptic. In wounds more than twenty-four to forty-eight hours old sterilization cannot be made complete by any method of local applications. In these cases the use of strong antiseptics and the mechanical removal of any considerable amount of tissue are contraindicated, as they tend to break down the natural barriers which have formed. Instead, continuous irrigation with sterile normal saline solution is the best of all methods, and drainage should be established by means of open rubber tubes, counter openings being made if necessary. Here, as before, the dressings should be antiseptic. In no case, whether already too late to be completely disinfected or not, the dressings should be very light and thin, as thick masses of gauze absorb the pus and discharges, which undergo decomposition, and the dressing forms an irritant poultice for the promotion of bacterial growth. By these methods it should be possible to convert every case which is seen within twenty-four hours into an aseptic one and secure healing in blood clot. Phenol in the concentration used—liquefied—kills not only the organisms but also their spores and is active in the presence of albuminous and fatty fluids. The method harks back to the time of Lister and is but a slight modification of his original technic.

LANCET

November 21, 1914.

Splenomegalic Jaundice with Bile Pigment in the Urine, by T. R. C. Whipple.—The case which prompted this paper was that of a girl six years old, who was born jaundiced. From her birth there were repeated attacks of jaundice and remissions. There was enlargement of the liver, which, however, receded at times between the attacks. The spleen was greatly enlarged and its size continually increased. There were occasional attacks of epistaxis. The stools always contained bile pigment, and bil'rubin was always found in the urine during the periods of jaundice. No urobilin was ever de-

tected. There was an increasing anemia, the red cells were abnormally fragile. There was no family history of importance and the patient's blood gave a negative Wassermann reaction. Splenectomy was performed, the patient showed marked improvement, gaining in weight, strength, and color. Red cells increased to the normal number, but hemoglobin did not rise proportionately. Jaundice and other symptoms returned later and she died. No autopsy was permitted. This case follows the description of acholuric jaundice, but has an exceptional condition in the constant presence of bilirubin and absence of urobilin in the urine. The hemolysis is also striking. For these reasons, it is suggested that a better name would be based upon the striking features of the disease rather than upon only two characteristics, one of which may be wanting. It is proposed to call it splenomegalic hemolytic jaundice. For a study of this case and the findings recorded in others which have been reported, the conclusion is that the jaundice may be due to one or both of two different conditions—either hemolysis, or a recurrent moderate grade of cholangitis. The cause of the splenomegaly is unknown, but its effect in increasing the fragility of the red cells is recognized and is shown well in the case here recorded.

Pityriasis rosea of Gibert, by E. Graham Little.—Only six instances of recurrence of this disease are discoverable in the literature and some of these are open to doubt as to the genuine nature of the recurrence. To these cases can now be added a seventh, in which there was definite disappearance of the disease under purely expectant treatment and its recurrence in its original sites after an interval of about a month. The first attack lasted about five weeks, as did the recurrence. As in the case of the first attack, no local treatment was used and the disease again disappeared.

Morphological Types of Bacilli in the Prognosis of Pulmonary Tuberculosis, by Horace R. Wilson.—Two general morphological types of tubercle bacilli have long been recognized. The one is short, plump, and stains uniformly; the other is long, thinner, and stains less deeply with distinct, clear, unstained spaces in its course. Some have thought the one to be of bovine, the other of human type; others that the short form represented the young active bacillus while the long, mottled form was old and degenerate. It is to the latter view that Wilson subscribes, and he has found that these morphological differences are of prognostic value in cases of pulmonary tuberculosis. The short form is found in the active, florid cases of the disease, and is indicative of the virulence of the infecting strain. In chronic fibroid cases, and in cases with old cavities, the long, beaded type is present and is indicative of a partial degeneration of the strain and a diminution of its virulence. In cases originally showing the short form, a transition to the long form can sometimes be observed if the sputum is examined at intervals over a long period of time. This would seem to indicate one of two possible conditions—either that the original infection was bovine and that with long growth in the human host its change in form has gradually become evident, or that the original short and virulent strain is degener-

erating in the face of resistance on the part of the host and showing this by the change in form. The latter seems to be the more acceptable view. Just what causes the changes in form is not understood. The change ultimately progresses to a disintegration of the long vacuolated bacilli and the portions which retain the stain lie dormant in the tissues of the host, retaining their potential power of resuming activity either in the same host, or when passed on to another.

BOSTON MEDICAL AND SURGICAL JOURNAL.

November 26, 1911

The Laboratory in the Study and Treatment of Crime, by V. V. Anderson.—The writer first describes the establishment of a criminological laboratory in the criminal courts of Boston, as recommended by Committee A of the Institute of Criminal Law and Criminology. As it is impossible carefully to examine every individual that passes through the court, the judges and probation officers pick out the persons that seem to be serious problems and send them for a thorough mental and physical examination. The first task was to standardize certain methods of the neurologist and psychiatrist and to form mental tests for adults. The scale method was adopted, and not only a quantitative, but a qualitative estimate of the mental processes was sought. Next came a study of the personality of each individual. The importance of such an investigation is shown by his report of the diagnoses in 350 cases. Without quoting the table in full, it may suffice to say that only three sevenths per cent. were normal, mental defectives furnished over thirty-one per cent., dementia præcox over three per cent., constitutional psychopaths over twenty-four per cent., epilepsy over three per cent., general paresis and senile dementia each over one per cent., and over twenty per cent. were pronounced subnormal. Of these 350 persons, 140 were men, 210 women. Sixteen per cent. of the men and forty per cent. of the women were mentally defective, thirty-five per cent. of the men and seventeen per cent. of the women were psychopaths. Two men and 105 women were arrested for drunkenness; of these 12.9 per cent., of the men were mental defectives, 40.3 per cent. were constitutional psychopaths, while 43.8 per cent. of the women were mental defectives and 27.62 per cent. psychopaths. In general these studies bear out the conclusions of other investigators that women criminals differ from non-criminals in a lack of intellectual development, but regarding criminals as a whole, the psychopath furnishes a group of seriously large proportions. The author then goes on to speak of a type in which exact methods show no real defect in the intellectual field, and no evidence of insanity, and yet seem to have certain anomalies of character, a certain lack of personality adjustments. They are unstable, neurotic, with inadequate and inefficient adaptation, and easily become disordered under the influence of emotion or drink. Their antisocial conduct seems to be due to a lack of coordination of the mental faculties and a disturbance in the working of the proper mental mechanisms. He suggests that this group may possibly belong with the neuroses and psychoneuroses rather than the defectives. Prob-

lems bristle at every point, but the reader feels that the writer is justified in the statement that in the creation of such laboratories in the municipal courts of our larger cities lies the road to the establishment of a rational and scientific method of dealing with criminals.

Some Things that Influence the Mortality after Prostatectomy, by Arthur L. Chute.—The high mortality that follows prostatectomy is considered to be unnecessary, and to depend very largely on the functioning of the kidneys. The first thing urged is that kidneys that are not working well be brought into a condition in which they will act efficiently prior to the operation, and then to avoid injury to embarrassed or susceptible kidneys at the time of operation. He believes that the prognosis as regards recovery from a prostatectomy depends mainly on the renal function.

Intestinal Putrefaction with Convulsions, by W. L. Thompson.—In this case the patient was a boy six years old, who suffered daily from a large number of mild and brief convulsions, and had done so for three years or more, and yet had preserved an unusual degree of mental and physical health. Uranalysis revealed abnormal quantities of indoxyl and its congeners, so the diagnosis was made of protein intestinal putrefaction with its consequent toxemia. Proteins were excluded from the diet and a combination of phenosulphonate of zinc with cascara was given every four hours for five days. Half an ounce of magnesium sulphate was given in hot water on the morning of the sixth day, followed by the same dose at noon. That night five grains of thymol were given on a small piece of bread, and another dose of magnesium sulphate given the following morning. During this thirty-six hours he was allowed no food or drink except teaspoonful doses of water. He was then allowed his usual diet, with meat restricted to a minimum. He was then started on a dose of lactic acid bacilli suspension, lactobacilline, twice a day and urged to drink buttermilk freely. The convulsions diminished rapidly in number and had disappeared entirely five days after the administration of the thymol. There had been no recurrence at the end of seven months.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

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Services to be Expected from the Psychoanalytic Movement in the Prevention of Insanity, by J. J. Putnam.—This paper was abstracted in our issue for July 4th, page 50.

Genetic Factors in One Hundred Cases of Psychoneurosis, by D. Gregg.—This paper was abstracted in our issue for July 4th, page 50.

Notes on Public Institutional Work in Mental Prophylaxis, by E. E. Southard.—This paper was abstracted in our issue for July 4th, page 50.

Efficiency of Sodium Chloride in the Therapeutics of Bright's Disease, by H. Lowenburg.—This paper was abstracted in our issue for July 4th, page 49.

Method of Suspension (Killian), by R. H. Skillern.—This paper was abstracted in our issue for July 4th, page 54.

Functional Kidney Tests and Preoperative and Postoperative Treatment in the Reduction of Prostatectomy Mortality, by B. A. Thomas.—The most appropriate method of prostatectomy in a given case depends on the pathological condition present, rather than on the normal anatomical relationship of the prostate. This pathological condition is of greater consideration than the statistical low mortality rate of either the perineal or suprapubic method, and more discrimination in this respect offers a means of shaving even the present low percentage. The cystoscope is a most important aid in the determination of the avenue of approach in the particular case. Although the renal function is the paramount consideration in determining the operability of a case, a study of the other organic conditions must never be slighted. Indigocarmine is superseded by no other kidney test in the estimation of the renal function. Apparently of more dependence than merely the onset and quantity of excretion of indigocarmine is the index of elimination described by the author. A prostatectomy mortality of 3.3 per cent. is attributed largely to cystoscopic aid in determining the method of operation, and also to the index of elimination of indigocarmine in discrimination as to the operability of cases.

Relief of Sterility by Means of Permanent Epididymostomy, with the Formation of an Artificial Sac for the Storage of the Sperm, by V. D. Lespinasse.—In this procedure, the sac is made as follows: Rubber sheeting (tunica vaginalis) is sewed to the reflected capsule of the epididymis in such a manner as to form a closed sac. With the technic given a sac can be produced into which the sperm will discharge and continue to live, and which can be tapped whenever sperm is desired for impregnating purposes. This operation will relieve all cases of male sterility in which there is a functioning testicle.

Direct Method of Intralaryngeal Operation, by C. Jackson.—The direct method is the only one by which the larynx can be operated upon in children. In children no anesthetic, general or local, is necessary. The difficulties to be surmounted by the direct method require prolonged and constant practice; but not nearly to the same extent as the direct or mirror method. No one method is best for all cases and all operators.

Prevention of Communicable Diseases in General Hospitals, by D. L. Richardson.—1. Infectious diseases are introduced into the hospital chiefly by new patients. 2. Well equipped and well regulated isolation wards should be provided for all suspicious and infectious cases, and for all children under fourteen years, during a detention period. 3. There should be very careful admission and supervision of all patients and nurses. 4. There should be sufficient equipment for all wards, and better teaching of nurses.

Oil of Chenopodium in the Treatment of Hookworm Infections, by R. J. Levy.—1. Oil of chenopodium is an effective vermifuge in the treatment of uncinariasis. 2. It is not unpleasant to take, its ingestion is followed by no disagreeable symptoms, and it is cheap. 3. In therapeutic doses, it is nontoxic. 4. This remedy deserves a thorough trial in the campaign against hookworm disease.

MEDICAL RECORD.

November 28, 1914.

Radium Beta Rays the Efficient Factor in Repressive Action on Vital Cells, by Robert Abbe.

—The effect of radium radiation in retarding growth of cells and living organisms has never been explained. The physical properties of this remarkable substance are beginning to be understood, but it is such a composite agency that no demonstration has heretofore been made which assigns to any one of the several streams of particles flowing from the radioactive atoms the results, which all observers acknowledge. The investigations which he has made, with the aid of Dr. A. Carrel, and Professor Pegram, of Columbia University, have led him to the following conclusions: Separated beta rays from radium are demonstrated to be the efficient force most active against living cells. These rays are electrons or particles discharged from the radium atom, each bearing a charge of negative electricity. What the force is which actuates living cells is unknown, but it adds one link to the chain of facts to know that a charge of negative electrons carried into certain types of disorderly growing cell tumors reduces them to orderly growth. The permanency of this checking force is established.

Imbedded Radium Tubes in Cancer; Sarcoma Remaining Cured Nine Years after Radiation, by W. J. Morton.—That the alpha, beta, and gamma rays of the radioactive elements are the sole known demonstrable means of effecting a deterrent influence upon the vitality and proliferative power of cancer cells is now established beyond doubt. The action of radiation upon cells is selective, in the sense that normal tissues react in well recognized gradations. As to dose, the radiotherapist has the choice of a small quantity of radioactive substance used over a long period or of a large quantity over a short period. These and various other considerations must be taken into account in imbedding tubes of radioactive elements in cancer tissue. By this method all that is valuable in radiotherapy is retained, while there is an advantage in not being obliged to protect intervening normal tissue, and thus limit a desired dose. Imbedding the tube is an intensive radiotherapy, and must come more and more into practice.

Microscopical Traumatic Lesions of the Mucosa in Appendicitis, by C. Savini.—In the cavity of some diseased appendixes a great number of foreign bodies are found of very small dimensions, sometimes with sharp cutting edges, composed of carbon with particles of iron. It is most probable that these bodies may occasionally produce a traumatic lesion in the mucosa of the appendix, favoring the entrance of microorganisms into the layers of the appendix and causing various degrees of inflammation and necrosis.

LANCET-CLINIC.

November 28, 1914

Watkins-Wertheim-Duhrssen Operation, by Charles T. Souther.—The Watkins operation in prolapse of the uterus is indicated for women who have passed the menopause; in cases having a cystocele which bulges from the vagina; when the uterus shows complete procidentia; in retroversion

with cystocele and descensus in patients at or past the menopause. Contraindications are: Insufficient experience of the operator in vaginal work; complicating fibroids, which are best dealt with through the abdominal route; ovarian tumors and tubal complications, which should also be dealt with through the abdomen; when the condition of the cervix is suggestive of cancer; here hysterectomy should be performed. Preliminary treatment: Rest in bed for several days; vaginal douching twice daily; tincture of iodine to raw surfaces; preliminary curettage one or two weeks before the curative operation in long standing cases. The operation may correctly be termed subvesical transplantation of the uterine fundus for cystocele and rectocele. It has been found that it fills all requirements. When performed in connection with a proper perineorrhaphy, it will cure cases of complete procidentia. In doing this the levator ani muscles must be brought together and the posterior wall must not be shortened. This can be accomplished by avoiding the so called crown suture. The cervix should be amputated only when the indication to do so exists—stellate laceration, ulceration, elongation, hypertrophy, polyp, presence or suspicion of malignant growth.

Abscess Originating in Pilonidal Sinus, by Louis J. Krouse.—A pilonidal sinus is a fistulous tract of varying extent in the lower part of the spine, terminating in a blind extremity. The French have called it posterior umbilicus. The situation of the sinus is over the coccyx and always in the median line. It causes irritation and itching and, occasionally, a discharge of pus. A lock of hair is occasionally found in the cavity. The following elements are necessary for its formation: The presence of a congenital dimple, abundant pilous development—hence it is seen only in the adult and almost always in the male sex—insufficient attention to cleanliness. It may connect with the rectum. The following methods of treatment have been employed: Curettage of the sinus; dissecting out the fistulous tract; cutting the sinus along its entire length and stitching the lining membrane to the skin. The walls of the sinus are composed of granulating tissue, not true skin. It is regarded as an imperfection in the development of the embryo.

Military Medicine, by John D. Spelman.—Personal hygiene is of great importance to the men in the ranks. Camp diseases must be combated by such measures as antityphoid vaccination, mosquito netting covering in countries where malaria and yellow fever exist; filtering the water by means of mechanical filters; sterilization of the water by boiling or by the hypochlorite method. The wounds caused by modern bullets are not infected primarily, as the bullet is sufficiently heated by friction to sterilize the wound. This fact is taken advantage of and a first aid dressing is applied, thus insuring the healing of the wound by primary intention. When a battle is in progress, the wounded are first brought to a dressing station where dressings are applied and imperative operations of a minor character are performed. As rapidly as possible the patients are sent to the field hospital in the rear. Here operating equipment is prepared and the patients are received, nursed, and nourished. These may be situated at a distance of six miles from the rear of the battle

line. A diagnosis tag is attached to the shirt of every wounded soldier and this tag is kept on until he is discharged from the military hospital. A careful record of his condition and treatment are kept so that claims and pensions can be adjusted.

AMERICAN MEDICINE

October, 1914.

Mechanism of Immunization, by H. S. Williams and J. W. Beveridge.—The main thesis of this dissertation is: The mechanism which gives the human organism partial or complete immunity to bacterial disease comprises what may be called the cytogenic system, including as its active agents the lymphatics, bone marrow, and spleen, with its daughter cells, the white and red corpuscles, and the liver as the excretory organ of the waste products incident to the immunizing process. The theory assumes that the entire cellular system of the organism, viscera, muscles, and brain, may be considered as a secondary apparatus, standing as it were in the background, ready to supplement the work of the chief immunizing agents. So general an implication as the latter may seem to savor of the nature of a truism, but it is the aim to show that the theory ascribes a specific and definite part in the immunizing process to the body cells; the attempt being made to trace the precise causes of their activity. Equally specific is the interpretation of the activities of the white and red corpuscles, which are postulated as the chief and controlling mechanism in the process of immunization. This hypothesis of immunization might, appropriately enough, be termed the cytoplasmic theory were it not that this term seems too general and not sufficiently explanatory. On the whole, the term proteomorphic theory is the most comprehensive and explicative one which suggests itself, inasmuch as the theory, at all stages and in its widest implications, has to do with the metamorphosis (mainly hydrolytic) of protein compounds.

Healing of Wounds on the Balkan Battlefields, by T. McMasters.—From the accumulation of battlefield data the writer has deduced that men wounded with small calibre bullets recovered quite well from their wounds, even when, as was frequently the case, the bullet was allowed to remain *in situ*, provided, of course, the wounds had been dressed antiseptically soon after their reception. The surgeons near the firing line first swabbed out the wounds with tincture of iodine, and then applied the first aid dressing. Every soldier in modern armies is supplied with a first aid packet, and the men who had applied the packet recovered excellently, and were often back under arms in a short time. American surgeons, the author remarks, have had their clinical experience verified by the Balkan war, but, being fully abreast of the times, have learned from it very little that is new.

Scientific Study of Method and Practice in Education, by Francis Warner.—The following propositions are advanced: 1. The high mortality under five years falls principally on males, and is probably largely due to congenital developmental defects. consequently, there are more girls than boys to be educated. 2. The proportion of defects in development, abnormal nerve signs, and mental dullness is

higher in boys, and the proportion of pale, thin, or delicate subjects is higher in girls. 3. Children with abnormal nerve signs (indications of brain disorderliness) are often dull pupils; hence the importance of the observation of these signs and of training adapted to remove them. 4. Delicate children are often dull, and mental application and control by a teacher whose work is directed by a physician is desirable. 5. Good health and strength are quite as frequent among girls free of any defect in development as boys, but the girl who is in some degree subnormal suffers more from the defect than the boy in like case. Training should be used which is adapted to remove irregular action, mental faults, backwardness, or deficiency.

ARCHIVES OF DIAGNOSIS.

October, 1914.

Prognosis of Chronic Myocardial Insufficiency, by H. L. Elsner.—Conditions are often complex even in the early stage of myocardial weakness, rendering prognosis difficult. If during the initial stage there are severe anginal attacks, the chances of materially prolonging life are small. Early evidences of venous stasis are unfavorable features. Early high blood pressure is as unfavorable as hypotension with the same subjective complaints. High systolic pressure with myocardial fibrosis in patients over fifty-five years of age is often without unfavorable effect, but there is a class of cases in which hypertension is promptly followed by hypertrophy of the left ventricle and equally rapid renal cirrhosis. A normal pulse accelerated by slight exertion is always suggestive of myocardial degeneration. Diabetes, gout, and other diseases, as well as faulty dieting in metabolic disturbances, the use of thyroid extract in obesity, continued mental strain, and acute disease, particularly influenza, often promptly invite progression of existing degeneration. The fate of the myocarditic patient often depends on his own acts, excesses of any kind greatly shortening life.

The Austin Flint Heart Murmur, by R. Abrahams.—The mode of production of this murmur is believed by the author to be as follows: The typical diastolic murmur of aortic insufficiency, heard at the fourth left interspace close to the edge of the sternum, "takes a dive" through the heart or under the heart—becoming temporarily inaudible—and reappears at the apex as a seemingly independent, presystolic murmur. It is distinguished from the presystolic murmur of mitral stenosis in being limited to the apex, softer in quality, and followed by a normal first sound instead of, at times, a violent thump or thud. It is a relatively favorable prognostic indication in pure aortic incompetency.

Ptyalism as a Danger Signal in Renovascular Disease, by H. Stern.—Profuse salivation was witnessed in three cases of combined kidney and vascular disease in the last two years. In each instance salivation appeared at a time when there existed no alarming symptoms of renal inadequacy, metabolic and functional tests, in fact, yielding results the same as had been obtained months previously. The ptyalism must have been caused, not by renal insufficiency, but by disease of the vessels,

probably those in the vicinity of the salivary nerve centres. Projectile vomiting and other symptoms of cerebral involvement appeared in one case soon after ptyalism; in the other two cases, paralytic phenomena were noted within a few months. It is therefore a danger signal of vascular deterioration in these and similar cases.

Gallstones Ejected through the Mouth, by A. R. Carman.—The unique case is reported of a woman who, about a month after an attack of gallstone colic with jaundice, was taken apparently with acute indigestion, vomiting frequently for about four days and bringing up a number of gallstones, varying in size from that of a pea to a small walnut. The author collected more than thirty stones made up chiefly of biliary pigments. The patient subsequently remained in excellent health.

NEW YORK STATE JOURNAL OF MEDICINE.

November, 1914.

Correction of Nasal Deformities, by William Wesley Carter.—The bridge splint is most satisfactory in the treatment of both recent and old traumatic cases where there is displacement but no destruction of some of the primary segments of the nasal arch. As a method of treating depressed deformities, it is founded on sound mechanical principles, aiming at the restoration to their normal positions of natural structures. But where there is a deficiency of the bony tissue, the most satisfactory results are obtained only by bone transplantation.

Blood Transfusion and Its Value, by John A. Hartzell.—Blood transfusion is strictly not the introduction of a fluid into the circulation, but it is the transplantation of living tissue. When considering the use of this measure the following questions must be answered: 1. Does the method employed guard against the changes involved in coagulation? 2. Does the method employed transplant the new tissue in such a manner that it can live in its new host? 3. Is the pathological condition existing in the host favorable or unfavorable to the continued life of the new tissue? 4. If unfavorable, can any good be accomplished by chemical or physical reactions between the new tissue and the host, which are not dependent on living activities? 5. Does any condition exist by which the new tissue may prove a detriment instead of a benefit to the host? 6. Is the quantity of blood administered an important factor? Hartwell then points out that very little attention has been paid to the question of the mass of blood to be transplanted, and we are at present decidedly ignorant on this point. After discussing the technique of blood transfusion, Hartwell summarizes by saying that: The technic of transfusing by the means of an intermediate receptacle—preferably that of Satterlee and Hooker—is now perfected to meet practically ideal requirements. It is no longer an ordeal for the operator, the donor, or the recipient. It can, therefore, be used in general hospital practice whenever indicated. As yet, transfusion has been proved of permanent benefit only in conditions resulting in the loss of blood by hemorrhage. Some isolated cases give rise to the hope that it will be curative in the primary anemias, but as yet the benefit in these conditions has been tem-

porary. The results have been disappointing when transfusion has been used for septic conditions, though exceptionally the benefit has appeared so striking that we may hope for farther advance in this direction. The simplified technic will afford an opportunity for more careful study of the indications, the limitations, and the results of its use. Such study is greatly needed, since in the past the desire to develop a practical technic has overshadowed all else and other phases have been neglected.

SURGERY, GYNECOLOGY AND OBSTETRICS

October, 1914.

Internal Derangements of the Knee, by Robert Jones.—One condition which gives considerable disability is rupture of the crucial ligaments. The diagnosis of ruptured crucials is simple if their functions are remembered. The anterior crucial ligament is tense when the knee is fully extended and prevents the tibia from being displaced forward on the femur. The posterior crucial ligament is tense in complete flexion and prevents the tibia from being displaced backward on the femur. Both ligaments check inward rotation of the tibia. Hence, if after an injury of the knee, the tibia can be displaced backward or forward or rotated inward in the extended position, an injury of one or both crucial ligaments may be assumed. If in the extended positions the tibia cannot be displaced forward it may be assumed that the anterior crucial ligament is not torn. If in full flexion the tibia cannot be displaced backward, the posterior crucial ligament is not ruptured.

End Results of Interposition of Uterus, by J. O. Polak.—Interposition operations should be limited to women at or past the menopause, with relatively small uteri, and when the procedure is elected in those still menstruating, sterilization by tubal ligation should be done at the time of operation. Cases of prolapse in which the sliding takes place in the postpubic cleavage plane are not corrected by this procedure. The morbidity is wholly due to technical defects, i. e., improper preparation, imperfect hemostasis, vesical injury, etc. In anteverting the uterus, the anterior wall should rest on the fascial plate just behind the pubis, and the fundus should not be brought under the arch, as excessive anterior displacement not only favors recurrence, but anteflexes the uterus and interferes with drainage. The curettings from uteri about to be transposed should always be examined, as degeneration may occur.

Eruptions Following Operations, by F. B. McCarty.—Eruptions following operations are of comparatively frequent occurrence, particularly after operations upon parts abundantly supplied with sympathetic nerve fibres, such as the pelvic organs, where they occurred in four and one half per cent. of a series of 1,000 cases. These eruptions occur after any of the common anesthetics—ether, chloroform, or nitrous oxide. The condition is characterized by an interval between operation and onset of eruption, by lack of prodromata or of constitutional symptoms, by the presence of an erythematous or papular eruption with severe itching, and by the presence of an elevated temperature and moderate leucocytosis. The eruption often simulates scarla-

tina, measles, and the so called drug exanthems. The exciting cause varies; drugs, enemata, anesthetics, and operative shock are included. The underlying cause is a vasomotor disturbance due probably to irritation of the sympathetic nervous system.

Renal Lesions after Pyelography, by Leo Buerger.—Collargol or argyrol when injected into the renal pelvis for purposes of pyelography may penetrate into the renal parenchyma as far as the surface of the kidney. Extensive necrosis and suppurative foci may be the consequence. Aseptic foci of necrosis may heal, all renal symptoms disappearing. Interference with the outflow of the silver salt, inflammation or congestion of the renal parenchyma, are predisposing factors in the production of the necrosis. Thorough evacuation of the renal pelvis through the ureteral catheter, aided by irrigations with saline solution or boric acid whenever spontaneous drainage does not occur, may be regarded as precautionary measures which should be employed in every case.

Proceedings of Societies.

SOUTHERN MEDICAL ASSOCIATION.

Eighth Annual Meeting, Held at Richmond, Virginia, November 9, 10, 11, 12, 1914.

The President, Dr. STUART MCGUIRE, Richmond, Virginia, in the Chair.

Some Medical Aspects of the American Negro.

—Dr. ROBERT WILSON, Jr., of Charleston, said the negro brought from Africa many diseases and sowed them in the Caucasian race, and that he had been found a fruitful soil for tuberculosis, making him a serious menace in the home. The health of the negro, in a large measure, constituted a public health problem. If they were to solve this problem, they must break themselves of the habit of taking things for granted and of accepting assumptions for facts. They must study the negro after separating the mulatto from the pure stock.

Early Diagnosis of Pulmonary Tuberculosis.—

Dr. CHARLES H. COCKE, of Asheville, could not too strongly urge the value and necessity of careful history taking, among other things, with the expectation of finding some contact infection, remote possibly, but none the less valuable, for the tuberculin test showed clearly how early one might fall a victim to tuberculous infection, although years might pass before any evidence of disease called attention to the possibility. For the examination the patient must be stripped to the waist; no other examination was satisfactory. Careful palpation did not always elicit the presence of cervical glands, although they should be looked for. Increased fremitus should always be noted, and if found early was at the left apex usually. In percussing, only the most delicate stroke revealed the earliest changes from normal resonance. No examination was complete without careful inspection of the throat with a laryngeal mirror. The x ray was also valuable both fluoroscopically and radiographically, although perhaps only a small percentage of general practitioners were able to avail themselves of this aid. Of the tuberculin tests, the subcutaneous was the test *par*

excellence where there was no fever, a focal reaction betraying active disease, while a febrile reaction alone, unless obtained with the initial small dose, implied a high tuberculin sensitiveness, and consequently almost certain probability of active tuberculosis.

Significance of the von Pirquet Test—Dr. THOMPSON FRAZER, of Asheville, drew the following conclusions: 1. A positive cutaneous reaction was less frequent in children than it was once thought to be, the high percentage of reactions obtained being due to the application of the test chiefly to infection in children of the poorer classes, and therefore, a positive reaction was of greater significance than commonly supposed. 2. While there was an increasing percentage of reactions with advancing years, and a corresponding decrease in the value of the reaction, the view usually held, that the reaction had significance only during the first two or three years of life, was not borne out by recent figures, and they should be suspicious of a reaction occurring up to the age of ten years. 3. Annual tests should be instituted in the effort to detect early infection, bearing in mind the fact that many if not most cases of clinical tuberculosis in later years were due to renewed activity of old foci, and they should seek by proper means to prevent the development of infection into disease. 4. A negative reaction, negative on the repetition of the test, was valuable evidence of the absence of tuberculosis unless the child was suffering from advanced or acute disease, especially measles. 5. Further study of the test was necessary before they could fully interpret the reactions, and in the future it was possible that refinements of technic might enable them to determine with greater accuracy how recent the infection was.

State Policy in the Management of Tuberculosis.

—Dr. W. S. RANKIN, of Raleigh, spoke of the advantages of the combination of cooperative sanatorium and correspondence school; neither could accomplish the reduction in the tuberculosis death rate of a State on the same appropriation that would sustain both agencies. The sanatorium could not expect to reach, at least for a number of years and in a very direct way, more than one tenth or one fifth of the consumptive population of a State. The correspondence school would probably reach the majority of the consumptives, but a purely educational attack on tuberculosis was too weak in proportion to the magnitude of the problem. The combination of sanatorium and school was of mutual advantage, one developing the other. The sanatorium provided out of its maintenance funds a small percentage that could hardly affect its *per capita per diem* cost which would easily make possible an effective correspondence school, while the latter, in touch not only with the consumptive of the State, but with all the organized interests, political, fraternal, religious, business and social, with which the patient was in touch, would abundantly nourish a strong sanatorium. The combination gave the State an educational organization analogous to the ideal system of education in operation in the State of Wisconsin. Their cooperative sanatorium in this system was the central university where about one tenth of the consumptive population was treated and was taught what constituted

the right kind of treatment. These alumni, on returning home and seeing other cases not being properly treated, enabled the sanatorium reflexively to improve the medical supervision of consumptives throughout the State. The correspondence school, an adjunct of the central university or sanatorium, would put the State government in almost personal touch with its entire tuberculous population.

The Federal Government and the Tuberculosis Problem.—Dr. G. M. COOPER, of Clinton, N. C., outlined a plan whereby the National Government should form a cabinet office of secretary of the public health, saying it should rank with the army and agricultural departments, then let the National Public Health Service, through each State board of health, invite any county that desired to cooperate. Such as agreed were to pay one third of the expense incidental to maintenance of a whole time, efficient health officer. The State board of health was to pay one third, and the National Government the remaining third. Under this plan the local county government would select the officer, subject to approval by the State and National health authorities. In this manner local self government would continue to exist and the health officer would have the mail franking privileges, so that he could reach all classes of citizens. Open air schools and tent colonies in each county would be established, and each county would be the centre of a public health school in which preventive medicine would be taught.

Tuberculosis Sanatoriums in the South.—Dr. JOHN J. LLOYD, of Catawba Sanatorium, Va., stated that the sanatorium was able to accomplish good results for the following reasons: 1. Rest was enforced so long as symptoms remained active. 2. Provision was made for open air life, which was insisted upon. 3. Proper food regularly served in abundance was furnished. 4. The patient was placed in entirely new surroundings, thus affording complete change. 5. The patient was almost under constant supervision, and therefore could be more thoroughly taught the extreme importance of attention to details. 6. Observing the progress of fellow patients had a salutary and stimulating effect upon the patient himself. Rest, fresh air, and proper food were the basis of modern treatment of tuberculosis and needed no comment, and an entire change was universally recognized as beneficial in most diseased conditions. The sanatorium was a powerful weapon for prevention from the fact that it isolated patients, and more especially because it taught them about the means of preventing the spread of the disease.

The Pleural Effusions of Artificial Pneumothorax.—Dr. MARY E. LAPHAM, of Highlands, N. C., stated that five years' experience with artificial pneumothorax had led her to believe that the tendency to pleural effusions increased with the length of time the compression was maintained, because there was a tendency toward progressive irritability of the pleura in consequence of the punctures and the development of a nervous susceptibility. She had had three types of pleural effusions, those developing without any clinical manifestations and no suggestions of any active process. The fluid collected insidiously and might be first detected by a rise in pressure in the manometer, or by

filling the needle, or be heard as a splashing sound by the patient. She called these myocardial effusions. A second class had developed in consequence of repeated traumatism of the pleura as a result of an acute infection, such as an angina, or of chilling, or from other reasons, commonly associated with ordinary pleurisy. These were called infectious pleurisy. A third class was due to tuberculous nodules and process in the pleural surfaces and these seemed to have been favored by the separation of the pleural surfaces by the artificial pneumothorax.

Dr. W. S. LEATHERS, of University, Miss., said there was no problem in public health that had more aspects than that of tuberculosis, and none that had more difficulties associated with its solution. The best plan of attacking the tuberculosis problem was upon a cooperative basis.

Dr. C. W. STILES, of Wilmington, N. C., had only two questions he wished to refer to. One was a potential question. Could they do it? The other was a financial one. Had they money to do it with? No matter whether one was paving streets, building roads, or fighting tuberculosis, those were the two fundamental questions that lay back of all of the other premises. He took issue with the idea that the Federal Government was doing very little in regard to this problem. Every pound of meat that came into a State had been inspected by the Department of Agriculture for tuberculosis. The Federal Government was carrying out certain restrictive measures in interstate commerce according to the law, which was no small contribution to the fight against tuberculosis. Unless the medical profession represented by the State medical society and by the Southern Medical Association were willing to set an example by controlling its own members with regard to spitting, etc., it was foolish to go to the Federal Government and ask the State to change the Constitution of the United States in order to put local police power into the hands of the Federal Government.

Dr. CHARLES L. MINOR, of Asheville, said the von Pirquet test had been misused. He had had cases of full grown adults sent to him on account of a positive von Pirquet. They must not reach the conclusion that because every case reacted to this test, it was necessarily active tuberculosis. They must differentiate between latent and active tuberculosis, otherwise there would be great harm done.

Dr. THOMPSON FRAZER, of Asheville, pointed out the reason why they failed to detect tuberculosis early was because they did not recognize it as a chronic disease with relapses. They did not ordinarily get a case of this disease until it had had one or two relapses.

Dr. E. C. THRASH, of Atlanta, said that many practitioners had made a diagnosis of tuberculosis from the fact that they got a reaction, and the result was it threw a well person into a panic and perhaps subjected him to many inconveniences, possibly a trip away, while other persons subjected to the test would have the disease. He had seen patients with far advanced tuberculosis that came to him where physicians had told them they did not have tuberculosis because the von Pirquet or tuberculin test proved negative.

Dr. WILLIAM R. KIRK, of Hendersonville, N. C.,

in speaking of the symptoms of early tuberculosis, called attention to the point that he did not think they should attach too much importance to the temperature curve alone, for very often they got the same character of temperature curve in cases of malignant disease. Recently he had such a case that gave the identical tuberculosis curve, with early morning subnormal temperature and an afternoon rise.

Dr. W. E. DRIVER, of Norfolk, recognized tuberculin as a specific, and in the cutaneous or von Pirquet reaction the only aid they had was from a negative standpoint. There were definite conditions in which it did not react in young children, in vague and febrile cases. A one per cent. Calmette test was of value from a positive standpoint.

Duodenal Alimentation.—Dr. CAMP STANLEY, of Washington, D. C., said the greatest field for duodenal feeding was in those cases of gastric ulcer which had not yielded to medicinal treatment, and where the indications for surgical treatment were not clearly defined. The direct aim of this method was to relieve the stomach of all work and to remove the mechanical irritation to a sensitive and disorganized mucous membrane, which under ordinary circumstances was the case when the patient was put on an ulcer diet and food allowed to pass through the stomach. It also obviated the stimulation to gastric secretion which in a large percentage of cases had an excess of hydrochloric acid, the food in the tube cases passing directly through the duodenum. There was an alkaline reaction. The tube passed into the stomach, which in turn passed the food to the duodenum without any further effort on the part of the physician. This method was simple and a comfort to the patient after the first twenty-four hours, in that it accomplished rest for the stomach, maintained the body weight, and relieved the gastric distress. The procedure, after the tube was in place, was not complicated, and the success of the treatment was then dependent upon careful attention to details. The nourishment must be at body temperature, properly regulated, and allowance made for body temperature, as the movement of liquid through the tube was not very rapid and its temperature was consequently maintained at or at least very near body temperature. The solution must be strained through muslin to avoid the stoppage of the tube at the bulb end. If this precaution was taken, it might obviate the necessity of removing the tube, causing mental and physical discomfort to the patient. In only two of his cases had it been necessary to remove the tube, and when the tip was taken off of the button he found a small mass of cotton threads. He learned later that the nurse had used ordinary cut gauze to strain the solution. The tube should be cleaned after each feeding by passing through it a small amount of warm water, followed by a syringeful of air so that the tube might be kept empty. Attention must be paid to the patient's mouth, and a good mouth wash used often.

Dr. J. CLARENCE JOHNSON, of Atlanta, said the appendix, the gallbladder, and the stomach had received considerable attention, but this quiet, unobtrusive organ, the duodenum, had been neglected, and yet it was the melting pot of the alimentary canal. There was no other organ in the body so

tolerant as the duodenum. He had used the method described by the essayist not only for feeding, but for systemic medication and for local application to the duodenum.

Dr. PHILIP S. ROY, of Washington, D. C., said there was no physician who could not make use of duodenal feeding. It was simplicity itself. The apparatus was not expensive. A point with reference to the diagnosis was the stain test. One could tie a shot to a string and the next morning pull it up, and if he found a stain, it was fair to assume that an ulcer existed. A patient might have cancer, or a juicy mucous membrane, but along with the other clinical symptoms it was an important point in diagnosis. If one added to that the high acidity, which did not occur usually in malignant disease, along with the other symptoms, he could make a diagnosis of ulcer of the stomach or duodenum.

The Wealth of Health.—Dr. HARVEY W. WILEY, of Washington, D. C., said the Department of Agriculture was spending \$100,000 a year quarantining against the foot and mouth disease, but this disease was not confined to animals. It often attacked politicians, and every time they opened their mouths they put their foot in it. There were ten States quarantined to protect pigs and cows against disease. But they hardly could think of quarantining against cholera and the plague. This would bring up the spectre of State rights. Only their loved ones would die, not their blooded horses, their registered bulls or prize pigs. There was nothing so cheap as human life. In this country 9,000 men were murdered every year; 12,000 or 15,000 were killed by railroads, and innumerable hosts died from avoidable diseases. Out of 1,000 children there were 127 who never appeared in school. Only so many grades were filled and so many cribs were empty. There was absolute indifference to human life and to human welfare, and yet where was there anything so valuable as human life? He was a believer in conservation. He believed in the conservation of human life the same as Gifford Pinchot believed in the conservation of running streams, old forests, and the minerals under the ground.

Radiotherapy.—Dr. HOWARD A. KELLY, of Baltimore, expressed the hope that some day a cure for cancer would be found, although at the present time he had not found radium to be a solution of the problem. Radium was alleviating and had effected many temporary cures, but the principal methods of treatment were a combination of surgery with radium, provided that the case was taken in its incipency.

President's Address: The Profit and Loss Account of Modern Medicine.—Dr. STUART MCGUIRE, of Richmond, believed that the most distinct profit and loss in modern medicine had come about through changes in medical education, which had been accomplished largely through the efforts of the American Medical Association, the Association of American Medical Colleges, and the Carnegie Foundation for the Advancement of Teaching. It was recognized that each year a progressively increasing number of low grade practitioners were graduated by medical colleges and licensed by States. An investigation of the medical schools showed that many of them were poorly equipped,

had scant clinical material, and lacked sufficient funds to procure the necessary time of efficient teachers. To remedy this evil a deliberate and systematic movement was inaugurated to lessen the number and improve the quality of the men who were being added to the ranks of the profession. By moral suasion, by State legislation, and by the combination of the better schools, the entrance requirements were advanced, the number and length of the teaching sessions were increased, the character and scope of the curricula were improved, and the minimum number and approximate pay of the full time teachers were specified. The result had been that in the last ten years the number of medical schools in the United States had been reduced from 186 to 101 and the number of medical students from 28,142 to 16,502. In other words, eighty-five medical schools, weak either educationally or financially, had ceased to teach, and over 10,000 medical students not properly qualified for the profession had ceased to study. While the profit side of the specialist's account was large, still on the opposite page there were some items of loss. The high esteem in which the specialist was held, the pecuniary rewards which his services commanded, and the advertising opportunities offered by his position, had made him a victim of imitators and imposters, both inside and outside the pale of the profession, who deceived and defrauded the public. Modern medicine was not responsible for the quack and charlatans, but it was responsible for the members of the regular profession found in every town and city who posed as specialists, but who really did a general practice, and for others who, while they might limit their work to certain diseases, were not qualified as experts and had no more knowledge or experience in their diagnosis and treatment than the average general practitioner.

Oration in Medicine: The Importance of Simpler Methods of Physical Examination in Medicine.—Dr. WILLIAM S. THAYER, of Baltimore, said that practical bedside examinations should be instituted to test the clinical ability of the applicant for a degree, and these examinations should be conducted by teachers of medicine. To be a good physician, one must be skilled in the fundamental art of diagnosis. It was the duty of the schools of medicine to see that this art was taught thoroughly by trained and experienced men. Moreover, students should be offered a considerable measure of practical experience in the wards of hospitals before graduation. It was the duty of the State to demand this experience and to offer tests under the control of competent men.

(To be concluded.)

Letters to the Editors.

DEPARTMENT STORE CLINICS.

NEW YORK, December 1, 1914.

To the Editors:

My attention having been called to the editorial article in your issue for November 28th implicating my name, I desire to state that the publication and advertisement of my lecture for Gimbel's was absolutely unauthorized. It can be easily proved that I have not appeared there.

Thanking you for putting this letter in your columns,
A. LOBELL, M. D.

[We made no reference in our editorial article on the

subject to the physicians advertised to lecture in a department store on twilight sleep; we simply reproduced the announcement from a daily paper. The accuracy of the information conveyed in the advertisement is a question to be decided between our correspondent and the managers of the store.—EDS.]

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Fundamental Basis of Nutrition. By GRAHAM LUSK, Professor of Physiology, Cornell University Medical College, and Scientific Director of the Russell Sage Institute of Pathology. New Haven: Yale University Press; London: Humphrey Milford (Oxford University Press), 1914. Pp. 62.

Of this monograph of sixty-one small pages, the author devotes thirty-seven to the subject described in the title; five to the curious disease of beriberi and eleven to the criteria of the monetary value of foods, the rest being reserved for an index. The only excuse we can discern for its publication is the statement in the preface that "educated people may be able to obtain a better understanding of the principles of nutrition than is to be derived from current popular writings." Where beriberi comes in for educated people it is difficult to understand. Perhaps the purpose of the book is to indicate means through which the high cost of living may be reduced, while pointing to beriberi as a warning that exaggerated economy—a diet of polished rice for instance—may entail dire results. Indeed, the monetary value of foods is given in several interesting tables. We are told that the average workman need not expend more than eight cents per 1,000 calories, and since about 3,500 calories (the New York State farmer is down for 3,785) are required in the daily food of such a man, he could restrict his food expenses to twenty-eight cents a day, should the pinch of the times reach him. Educated people can even do better, for 2,500 calories should suffice for a man whose occupation is of sedentary character. Many educated people will be pleased to learn, therefore, that twenty cents a day will procure a scientific meal for them. This will be welcome news for American professors—whose salaries are not adjusted to the ever soaring cost of twentieth century food stuffs.

Diseases of the Skin including The Acute Eruptive Fevers. By FRANK CROZER KNOWLES, M. D., Instructor in Dermatology, University of Pennsylvania; Clinical Professor of Dermatology, Woman's Medical College of Pennsylvania; Dermatologist to the Presbyterian, the Howard, the Children's, and the Babies' Hospital, etc. With 199 Illustrations and 14 Plates. Philadelphia and New York: Lea & Febiger, 1914. Pp. xiv+546.

This work from the pen of Dr. F. C. Knowles must be considered a valuable contribution to the books already written. It not only gives a complete account of the various skin affections, but also considers the various acute eruptive fevers. In the consideration of the exanthemata, one is struck by the fact that the illustrations are not too numerous. In the discussion of scarlet fever, Knowles mentions the fact that sweat desquamation may resemble the desquamation of scarlatina, a fact that we have considered of great value to both practitioner and the student. His review of the various infectious diseases which may be accompanied by eruptions, is complete and follows closely the same chapter in Schamberg's work on dermatology. The chapters dealing with diseases of the nails are full; and that dealing with the hair is instructive. In his discussion of alopecia areata the author leans toward the nervous theory, evidently discounting the reported epidemics of this affection which can be explained only on the basis of a microorganism.

When the subject of epithelioma is considered, we are impressed by the great faith of the writer in the x ray for the treatment of skin cancer. While the author mentions other methods of treatment, he fails to make note of the valuable use of the cautery following curettage of a can-

cerous growth of the skin. In the chapter on tuberculosis of the skin, we observe, not only the great detail in the clinical descriptions of the various affections, but the painstaking and minute instruction as to the performance of the various tuberculin tests.

When the subject of syphilis is approached, we find at the outset the new classification of luetic eruptions elaborated by Fox. The dissertation on the Wassermann reaction is somewhat too technical. There is included a small chapter dealing with the luetin reaction. In treatment the conclusions are correct; pills can cure, but cannot be relied on. Inunctions and hypodermic treatments are far superior. Knowles states in detail how to give the injections and furnishes formulæ both for the insoluble and soluble mercurials; he also tells in detail how to give salvarsan and neosalvarsan.

The discussion of the various physical agents and of the various drug remedies is worthy of the highest praise; it is a useful arrangement. Throughout this work are interspersed valuable tables of differential diagnosis and many useful formulæ. The illustrations in the main are creditable. On the whole the book will prove its usefulness to that part of the medical profession for which it is intended.

A Textbook of Insanity and Other Mental Diseases. By CHARLES ARTHUR MERCIER, M.D., F.R.C.P., F.R.C.S., Late Lecturer on Insanity at the Medical Schools of the Westminster Hospital, Charing Cross Hospital, and the Royal Free Hospital. Author of *Sanity and Insanity, Psychology, Normal and Morbid; Conduct and Its Disorders; A New Logic; Criminal Responsibility; Crime and Insanity*, etc. Swiney Prizeman for 1909. Second Edition. Entirely Rewritten. London: George Allen and Unwin, Ltd., 1914. Pp. xx-348. (Price, 7/6.)

This book begins with two original and entertaining prefaces; it ends with an equally original and entertaining diatribe against indexes. This latter is meant to serve as a reason for the absence of an index to the present volume, and it certainly finds its appropriate place in a book which bears on its back the word, *Insanity*. No one but an expert on insanity could have so thoroughly appreciated the eternal fitness of things as to publish such an effusion in a textbook dealing with his own specialty. Following the prefaces will be found the textbook proper, a large portion of which is devoted to psychology, and is necessary for the understanding of the author's method of classification. The main part of the book deals with the forms, types, and kinds of insanity; and this is followed by a chapter on the legal relations of insanity, as they obtain in Great Britain. The volume is well worth reading, and to the general practitioner it will prove useful as a supplement and also as an antidote to other works on the same subject. Unfortunately, the author has deliberately put a ban on the use of the book by his making it necessary for the reader to wade through the volume in order to find what he is in search of, and possibly to waste valuable time in hunting for what is not contained in it.

Essentials of Physiology. By E. A. BAINBRIDGE, M.A., M.D. (Cantab.), D.Sc. (Lond.), F.R.C.P., Professor of Physiology, University of Durham, and J. ACWORTH MENZIES, M.D. (Edin.), Lecturer on Physiology, University of Durham College of Medicine. With 134 Illustrations. London: Longmans, Green & Co., 1914. Pp. viii-434. (Price, \$3.)

This is an entirely new book, in which the reader will find a concise presentation of the fundamental facts and principles of physiology. Histology and laboratory work are both omitted, with the result that more space is available for the discussion of physiological subjects. The book is up to date and authoritative; and it will be of value, not only to medical students, but also to practitioners who wish to revise their knowledge of the subject without having to read details of laboratory work or wade through endless discussions of questions that are still unsettled.

The Clinical History in Outline. By PAUL G. WOOLLEY, S.B., M.D., Professor of Pathology, College of Medicine, University of Cincinnati; Director of Laboratories, Cincinnati General Hospital, Cincinnati, Ohio. St. Louis: C. V. Mosby Company, 1914. Pp. 53. (Price, \$1.)

The purpose of this little book is to remind the clinician of the symptoms of disease while proceeding with the examination of a patient. Each system is gone over in turn, the symptoms peculiar to the disorders of that system

being arranged in their logical sequence wherever possible, all collateral sources of information, such as examination of the urine, feces, sputum, blood, etc., being mentioned when needed. Errors in diagnosis are often due to inability on the part of the examiner to recall a sufficient number of symptoms to identify the disorder present; this excellent book will prove of material assistance along this line.

Interclinical Notes.

George Lynch, in *Collier's* for December 12th, gives a picturesque description of the advance of German troops in the present war: "Anyone accustomed to returning homeward along Regent street, Oxford street, or the like in the early hours of the morning after leaving a dance or a night club or the House of Commons or any such place of late dissipation, will be familiar with the way in which these streets get their morning wash. Now imagine a line of firemen, shoulder to shoulder across the top of Regent street, everyone with the nozzle of a watermain pipe in his hand held at the highest effectual elevation. Then imagine every drop of water falling away in front on the pavement to be a shrapnel bullet, and underneath the water arch, close to, but clear of the nozzles, a line of men advancing, and then you have an idea of the method of advance of the German armies. There has never been such a demonstration of the effect of massed artillery since the invention of gunpowder. This is the feature, more than any other, which contributed to the success of the German advance. It was terrible and magnificent. Every park of artillery might have been a nozzle of a hose pipe leading from Krupp's."

* * *

The Parents' Share of Responsibility, by Franklin Chase Hoyt, is the article of most immediate interest to the physician reader, in the *Christmas Century*. There is a defense of mechanical music, by Robert Haven Schauffer. From what we have heard we had no suspicion that people were taking lessons in mechanical piano playing, but we are glad to learn that such is the case. In the hands of a clever manipulator (?pedipulator), a player piano is extraordinarily like the real thing; the instrument, if the fact were only known, is quite as responsive to the musician as a pipe organ.

* * *

Such masters of modern fiction as W. W. Jacobs, Henry Sydnoe Harrison, Mary Synon, and A. E. W. Mason write for the *Christmas Metropolitan*, and there are special articles by Art Young, Walter Lippmann, and Anna Howard Shaw. There are verses by Bert Leston Taylor and Robert Stanley Weir, and illustrations by Penrhyn Stanlaws, F. R. Gruger, Troy Kinney, and others, to say nothing of reproductions of paintings by Gabriel Max and Sigismond de Ivanowski and beautiful rotarygravure photographs from life. We need no longer look to Europe for handsome and satisfactory Christmas numbers.

* * *

A character in *Help*, by Barry Pain, in the *December Strand*, wears a tartan necktie. Mr. Pain is an Englishman. An American writer would have horrified or amused his Scotch readers by calling this article of apparel a plaid necktie. Our brilliant colleague, Sir Conan Doyle, gives the British side of the controversy about who started the present war. There is much psychology and physiology in *The Counter Irritant*, by E. L. White. The interesting peculiarities of the *Strand* are all retained in this issue.

* * *

It is a strange phenomenon that while our newspapers are sure that G. B. Shaw is not to be taken seriously, still they are anxious to give him as many columns as he needs for his high priced copy. The situation is not unlike that between the daily journals and Theodore Roosevelt; pages of print and cartoons are devoted to proving that the Colonel has sunk into absolute oblivion.

* * *

When we speak in the United States of a man as a "regular fellow," we pay him a high compliment; but, popular as American slang is in England, that phrase in our sense has not yet invaded the tight little isle. When a character in *The Outlaws*, by R. S. Warren Bell, in the *December Strand*, speaks of the parson as a "reg'lar feller," he means only that the clergyman is noted for his punctuality.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending December 2, 1914:

Bahrenburg, L. P. H., Surgeon. Granted twenty-one days' leave of absence from November 25, 1914. **Carter**, H. R., Senior Surgeon. Granted five days' leave of absence from November 30, 1914. **Earle**, B. H., Passed Assistant Surgeon. Reassigned to duty in charge of service operations at Port Townsend, Wash., effective November 4, 1914. **Frost**, W. H., Passed Assistant Surgeon. Granted one day's leave of absence en route to Jacksonville, Fla. **Grimm**, R. M., Passed Assistant Surgeon. Directed, on request of the sanitary committee of Princeton University, Princeton, N. J., to proceed to that city for conference and inquiry into the causes of the outbreak of typhoid fever. **Lumsden**, L. L., Surgeon. Reassigned to duty at the Hygienic Laboratory, Washington, D. C., effective June 27, 1914. **McMullen**, John, Surgeon. Directed to confer with the authorities of Jefferson County, Ky., regarding the opening of a temporary trachoma hospital by them, and to assume general supervision of the opening and conduct of the hospital. **Perry**, J. C., Surgeon. Directed, on request of the Efficiency Division of the Civil Service Commission of Chicago, Ill., to proceed to that city, for the purpose of conducting an investigation of sanitary organization and administration. **Phelps**, E. B., Professor. Directed to address the Women's National Waterways and Harbor Commission at a meeting to be held at the New Willard Hotel, Washington, D. C., December 10, 1914, upon the pollution of streams from a sanitary aspect. **Rucker**, W. C., Assistant Surgeon General. Leave of absence amended to read "eighteen days' leave of absence from November 11, 1914." **Schereschewsky**, J. W., Surgeon. Directed, on request of the Public Health Committee of the City Club of Chicago, to attend the conference on infantile mortality, held in that city December 10, 1914, for the purpose of delivering an address. **Smith**, F. C., Passed Assistant Surgeon. Detailed, on request of the Southwest Medical and Surgical Association, to attend a meeting of that association, held at El Paso, Texas, December 10 to 12, 1914, for the purpose of presenting a paper on tuberculosis. **Stimson**, A. M., Surgeon. Reassigned to duty at the Hygienic Laboratory, effective June 29, 1914. **Sweet**, E. A., Passed Assistant Surgeon. Directed to make a sanitary survey of the steel industry at Johnstown, Pa. **Waller**, C. E., Assistant Surgeon. Directed to assist Passed Assistant Surgeon E. A. Sweet in making a sanitary survey of the steel industry at Johnstown, Pa.

Boards Convened.

Board of medical officers convened to meet at Detroit, Mich., at earliest possible time for the reexamination of a detained alien. Detail for the board: Senior Surgeon H. W. Austin, chairman; Surgeon H. W. Wickes, member; Acting Assistant Surgeon K. L. Weber, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending December 5, 1914:

Bevens, James L., Major, Medical Corps. Ordered to report for duty at Fort H. G. Wright, New York. **Birmingham**, Henry P., Colonel, Medical Corps. Upon arrival in United States from Vera Cruz, ordered to report to his proper station. **Burket**, John A., Captain, Medical Corps. Upon arrival in the United States ordered to report for duty at Presidio of Monterey, Cal. **Cabell**, Julian M., Captain, Medical Corps. Relieved from duty with the fifth brigade, and ordered to report to the office of the surgeon general, Washington, D. C., for duty. **Duncan**, William A., Captain, Medical Corps. Upon completion of duty assigned to him, ordered to proceed to Fort Leavenworth, Kansas, on official business. **Eber**, Albert H., First Lieutenant, Medical Reserve Corps. Upon arrival in the United States ordered to report for duty at Fort Douglas, Utah.

Falkner, L. K., First Lieutenant, Medical Reserve Corps. Ordered to active duty and will report for duty at Fort Niagara, New York. **Fletcher**, Harry Q., First Lieutenant, Medical Reserve Corps. Ordered to duty at Trinidad, Colorado. **Gentry**, Ernest H., Captain, Medical Corps. Upon arrival in the United States, ordered to report for duty at Fort Screven, Georgia. **Gregory**, Junius C., Captain, Medical Corps. Relieved from duty at Fort Slocum, New York, and ordered to proceed to Philadelphia. **Hess**, Louis T., Major, Medical Corps. Will make one visit of instruction every three months until June 30, 1915, to sanitary organization of the Organized Militia in Pittsburgh, Wilkes Barre, Franklin, Allentown, Summit Hill, Scranton, Sunbury, and Connellsville, Pa.; Newark, Trenton, Camden, Elizabeth, Paterson, and Jersey City, N. J.; Baltimore, Md.; Washington, D. C.; Wilmington, Del.; Richmond, Norfolk, and Chase City, Va., and return to proper station on completion of duty. **Hill**, R. Felix, Captain, Medical Corps. Upon arrival in the United States ordered to report for duty at Fort Myer, Virginia. **Love**, Thomas S., First Lieutenant, Medical Reserve Corps. Upon arrival in the United States ordered to report for duty at Fort Rodman, Massachusetts. **Mayo**, Harry N., First Lieutenant, Medical Reserve Corps. Relieved from further duty at Fort Douglas, Utah. **Persons**, Elbert E., Major, Medical Corps. Upon arrival in United States from Vera Cruz, ordered to report for duty in Washington, D. C. **Phalen**, James S., Major, Medical Corps. Will make one visit of instruction every three months until June 30, 1915, to sanitary organization of the Organized Militia in Paris, Hillsboro, Rockford, and Geneseo, Ill.; St. Louis, West Plains, Joplin, Kansas City, and St. Joseph, Mo.; Sioux City, Clinton, Iowa City, and Des Moines, Iowa; Minneapolis, St. Paul, and Mankato, Minn.; and Appleton, Viroqua, and Milwaukee, Wis., and report to station at end of tour. **Shockley**, M. A. W., Major, Medical Corps. Will make one visit on instruction every three months until June 30, 1915, to the sanitary organizations of the Organized Militia in Indianapolis, Frankfort, Bloomington, and Angola, Ind.; Louisville, Beattyville, and Garlinto, Ky.; Grand Rapids, Detroit, and Bay City, Mich.; Cincinnati, Youngstown, Toledo, Spencerville, Dayton, Cleveland, and Zanesville, Ohio; and Piedmont and Bluefield, W. Va., and return to his proper station at the completion of each tour. **Snyder**, Henry D., First Lieutenant, Medical Corps. Upon arrival in the United States from Vera Cruz ordered to report to his proper station. **Whitcomb**, Clement C., Major, Medical Corps. Relieved from duty at the Medical Supply Depot, New York City, and will report for duty at Fort McKinley, Maine.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending December 5, 1914:

Baker, M. C., Passed Assistant Surgeon. Detached from the *Chatanooga* and ordered home to await orders. **Bassin**, J. N., Assistant Surgeon, Medical Reserve Corps. Detached from the receiving ship at Norfolk and ordered home. **Butler**, C. St. J., Surgeon. Ordered to the Naval Medical School, Washington, D. C. **Carpenter**, D. N., Surgeon. Detached from the advance base brigade, Atlantic Fleet and ordered to temporary duty at the Bureau of Medicine and Surgery, Washington, D. C. **Chambers**, W., Passed Assistant Surgeon. Detached from the marine expeditionary force, Atlantic City, and ordered to the Asiatic station via Army transport on January 5, 1915. **Charlton**, C. F., Assistant Surgeon. Resignation accepted, to take effect January 16, 1915. **Cornett**, H. V., Assistant Surgeon. Detached from the *Hancock* and ordered to the Asiatic station via Army transport on January 5, 1915. **Crawford**, R. L., Assistant Surgeon. Detached from the *Virginia* and ordered to the *Nashville*. **Dorsey**, B. H., Passed Assistant Surgeon. Detached from the *Connecticut* and ordered to duty with the Atlantic Reserve Fleet. **Farenholt**, A., Surgeon. Detached from the *St. Louis* and ordered to the *Oregon*. **Garrison**, P. E., Passed Assistant Surgeon. Detached from the Naval Medical School at Washington, D. C., and ordered to the *Solace*. **Harlan**, T., Passed Assistant Surgeon. Detached from the marine brigade and or-

dered to the *Neptune*. **Haworth**, W. L., Assistant Surgeon. Detached from the marine expeditionary force, Atlantic Fleet and ordered to the *Prometheus*. **Healey**, T. R., Assistant Surgeon, Medical Reserve Corps. Commissioned an assistant surgeon in Medical Reserve Corps from November 12, 1914. **Kelley**, Harry N., Passed Assistant Surgeon. Detached from advance base manœuvres, Atlantic Fleet, and ordered to the *Olympia*. **Kerr**, W. M., Passed Assistant Surgeon. Detached from the *Rainbow* and ordered to the *Chattanooga*. **Koltes**, F. X., Passed Assistant Surgeon. Detached from advance base manœuvres, Atlantic Fleet, and ordered to duty with the Atlantic Reserve Fleet. **Pollard**, J. B., Passed Assistant Surgeon. Detached from advance base manœuvres, Atlantic Fleet, and ordered to temporary duty with the Atlantic Reserve Fleet. **Sheldon**, L. L., Passed Assistant Surgeon. Detached from the *Solace* and ordered to the Naval Medical School, Washington, D. C. **Strite**, C. E., Passed Assistant Surgeon. Detached from the marine detachment, Pensacola, Fla., and ordered to the Navy aeronautic station, Pensacola, Fla. **Wood**, C. C., Assistant Surgeon. Detached from the *Nashville* and ordered to the *Virginia*.

Meetings of Local Medical Societies.

MONDAY, December 14th.—New York Ophthalmological Society; Society of Medical Jurisprudence, New York (annual); Roswell Park Medical Club, Buffalo; Williamsburg Medical Society, Brooklyn (annual); New Rochelle, N. Y., Medical Society.

TUESDAY, December 15th.—New York Academy of Medicine (Section in Medicine); Tompkins County Medical Society (annual); Medical Society of the County of Monroe (annual); Buffalo Academy of Medicine (Section in Obstetrics and Gynecology); Tri-Professional Medical Society of New York; Medical Society of the County of Kings (annual); Binghamton Academy of Medicine; Syracuse Academy of Medicine (annual); Ogdensburg Medical Association; Oswego Academy of Medicine.

WEDNESDAY, December 16th.—New York Academy of Medicine (Section in Genitourinary Diseases); Alumni Association of City Hospital, New York (annual); Schenectady Academy of Medicine; Medico-Legal Society, New York (annual); Buffalo Medical Club; Northwestern Medical and Surgical Society of New York (annual).

THURSDAY, December 17th.—New York Academy of Medicine (stated meeting); Auburn City Medical Society; Geneva Medical Society; German Medical Society, Brooklyn; Esculapian Club of Buffalo; New York Celtic Medical Society.

FRIDAY, December 18th.—New York Academy of Medicine (Section in Orthopedic Surgery); Mount Vernon Medical Society; Clinical Society of the New York Post-Graduate Medical School and Hospital (annual); New York Microscopical Society.

Births, Marriages, and Deaths.

Born.

Swan.—In Brooklyn, on Thursday, November 12th, to Dr. and Mrs. Eugene LaForrest Swan, a son.

Married.

Bernstein—Lurie.—In Brooklyn, on Sunday, November 29th, Dr. Samuel Bernstein and Miss Jennie Lurie. **Carpenter—Grant.**—In Boston, Mass., on Tuesday, December 1st, Dr. Robert J. Carpenter and Miss Mildred Chapin Grant. **Etter—Stough.**—In Shippensburg, Pa., on Thursday, November 26th, Dr. Harry Etter and Miss Helen Stough. **Golding—Kremer.**—In Phoenixville, Pa., on Wednesday, November 25th, Dr. Edward S. Golding, of Reading, and Miss Marie Kremer. **Howard—Franklin.**—In Glasgow, Ky., on Friday, November 27th, Dr. C. C. Howard and Miss Julia Franklin. **Myers**

Ross.—In Clinton, Ind., on Monday, November 23d, Dr. Edward M. Myers and Miss Margaret Ross. **Newman—Montague.**—In El Paso, Texas, on Monday, November 9th, Dr. S. H. Newmon, of Dolores, Mexico, and Miss Willie Lee Montague. **Nunn—McDade.**—In Binghamton, N. Y., on Friday, November 27th, Dr. Sylvanus J. Nunn, of Orange, and Miss Ethel McDade. **O'Brien—Simms.**—In Attleboro, Mass., on Wednesday, November 25th, Dr. William F. O'Brien, of Pawtucket, and Miss Esther Ursula Simms. **O'Donnell—Duffy.**—In Brooklyn, on Thursday, November 26th, Dr. Edwin O'Donnell, of Albany, and Miss Marie Louise Duffy. **O'Hern—Larkin.**—In Bartlesville, Okla., on Wednesday, November 25th, Dr. Charles D. Frederick O'Hern, and Miss Frances Hazel Larkin. **Osgood—Mackeye.**—In Detroit, Mich., on Tuesday, November 24th, Dr. Alfred Townsend Osgood, of New York, and Miss Ethna de Lestere Mackeye. **Shaefer—Dixon.**—In Kansas City, Mo., on Tuesday, November 10th, Dr. William R. Shaefer, of Columbia, and Miss Alice Dixon.

Died.

Augur.—In Baltimore, Md., on Friday, November 27th, Dr. Ralph H. Augur, aged thirty-two years. **Babbitt.**—In South Braintree, Mass., on Wednesday, November 25th, Dr. Warren Morris Babbitt, aged eighty-two years. **Baker.**—In Waltham, Mass., on Thursday, November 26th, Dr. William H. Baker, aged sixty-nine years. **Black.**—In Winooski, Vt., on Saturday, November 21st, Dr. William H. Black, aged thirty-three years. **Bonebrake.**—In Chambersburg, Pa., on Sunday, November 22d, Dr. H. X. Bonebrake, aged seventy-one years. **Bradford.**—In Wilmington, N. C., on Wednesday, November 25th, Dr. R. H. Bradford, aged thirty-six years. **Burgess.**—In Wayne, W. Va., on Tuesday, November 24th, Dr. M. S. Burgess. **Camp.**—In Brainerd, Minn., on Sunday, November 22d, Dr. James Camp, aged fifty-nine years. **Crow.**—In Indianapolis, Ind., on Friday, November 27th, Dr. Charles R. Crow, aged sixty-two years. **Dowd.**—In Willow Springs, N. C., on Thursday, November 26th, Dr. C. F. Dowd, aged seventy-four years. **Fitzhugh.**—In Kansas City, Kans., on Saturday, November 21st, Dr. Thaddeus Fitzhugh, aged seventy-nine years. **Galloway.**—In Xenia, Ohio, on Friday, November 20th, Dr. Clark M. Galloway, aged seventy-one years. **Green.**—In Clayton, Ga., on Saturday, November 28th, Dr. W. J. Green. **Harris.**—In Key West, Fla., on Saturday, November 21st, Dr. J. Vining Harris, aged seventy-five years. **Jones.**—In Harrisonburg, Va., on Sunday, November 22d, Dr. T. O. Jones. **Kohler.**—In Philadelphia, on Friday, November 27th, Dr. Frederick W. Kohler, aged fifty-nine years. **Martel.**—In East Angus, Quebec, on Tuesday, November 24th, Dr. H. Martel, aged thirty-eight years. **Melcher.**—In Mt. Holly, N. J., on Monday, November 30th, Dr. William P. Melcher, aged sixty-five years. **Millen.**—In Omaha, Neb., on Sunday, November 22d, Dr. Sarah Hessey Millen, aged sixty years. **Morton.**—In Memphis, Tenn., on Friday, November 20th, Dr. John W. Morton. **Parker.**—In Versailles, Ky., on Thursday, November 26th, Dr. W. C. Parker, aged fifty-five years. **Parks.**—In Atlanta, Ga., on Monday, November 23d, Dr. W. B. Parks. **Pettit.**—In Brooklyn, on Thursday, December 3d, Dr. Stephen C. Pettit, aged forty-three years. **Ramsey.**—In Bridgewater, Pa., on Wednesday, November 25th, Dr. James Harper Ramsey, aged eighty years. **Robertson.**—In Clayton, Ala., on Saturday, November 21st, Dr. W. H. Robertson. **Rosebrugh.**—In Toronto, Ont., on Thursday, November 26th, Dr. Abner M. Rosebrugh, aged seventy-nine years. **Scales.**—In Starkville, Miss., on Thursday, November 26th, Dr. Samuel W. Scales. **Stotelmeyer.**—In Hagerstown, Ind., on Thursday, November 12th, Dr. C. T. Stotelmeyer, aged fifty-five years. **Terrell.**—In Fort Worth, Texas, on Wednesday, November 18th, Dr. Albert Pinkney Terrell, aged sixty-two years. **Van Magness.**—In Everett, Mass., on Monday, November 30th, Dr. Fred Van Magness, aged thirty-four years. **Van Zandt.**—In Bellingham, Wash., on Saturday, November 21st, Dr. Euclid Van Zandt, aged seventy years. **Wagner.**—In Geneva, Switzerland, on Tuesday, November 24th, Dr. Clinton Wagner, aged seventy-five years. **Whitmer.**—In Goshen, Ind., on Sunday, November 22d, Dr. Benjamin F. Whitmer, aged seventy-six years.

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REPORT OF A CASE OF APHASIA AND APRAXIA.

BY ARRAH B. EVARTS, M. D.,

Washington, D. C.,

Assistant Physician, Government Hospital for the Insane.

It is not because of any especial knowledge of aphasia and apraxia that I may have that the following case is presented, but because its character may prove interesting to others than those who have seen it.

By aphasia we mean a special disturbance in the orderly speech process. Speech is conveying to the mind of another an idea of our own. In man this has evolved into language, but is not confined to language. It is essentially a process of associations, these having been built up through innumerable experiences. Aphasia is a disturbance of these associations and is manifested in its milder forms in the occasional use of a wrong word. This may be seen in many degrees of intensity until the individual is utterly unable to give expression to his idea because the impulse which was started correctly by his will to do, is shunted, as it were, to another line and he hears words entirely different from those he had intended, coming from his own lips. On the other hand, the disturbance in the association may have occurred in what one might call the receiving half of the arc. The object seen or felt or the words heard may be correctly transmitted by the eye, the hand, or the ear, but this is in some way swept to another line and the idea conceived is at variance with the one conveyed. Doctor Franz, in his *Handbook of Mental Examination Methods*, has arranged sixteen varieties of aphasia:

1. Cortical motor aphasia; loss of spontaneous speech, of the abilities to repeat, to read aloud, to write spontaneously and from dictation.
2. Transcortical motor aphasia—loss of the abilities to speak voluntarily and to write.
3. Subcortical motor aphasia—loss of the abilities to speak voluntarily, to repeat, and to read aloud.
4. Cortical sensory aphasia—loss of the abilities to understand spoken language, to repeat, to read aloud and to one's self, and to write from dictation.
5. Transcortical sensory aphasia—loss of the abilities to understand vocal speech and writing.
6. Subcortical sensory aphasia—loss of abilities to understand vocal speech, to repeat, and to write from dictation.
7. Conduction aphasia—loss of the abilities to repeat, to read aloud, and to write from dictation.
8. Alexia—loss of the ability to understand written and printed matter.

9. Alexia and agraphia—loss of the abilities to write and to understand written and printed speech.

10. Agraphia—loss of the ability to write.

11. Acoustic agnosia—loss of the ability to understand spoken language and other sounds (noises of animals, etc.).

12. Optical agnosia—loss of the ability to understand things seen and their uses.

13. Tactile agnosia—loss of the ability to recognize objects from touch.

14. Ideokinetic apraxia—loss of the abilities to perform certain movements voluntarily and to imitate movements.

15. Ideotonic apraxia—loss of the ability of voluntary innervation.

16. Member apraxia—loss of the ability to perform certain fine movements, as whistling.

Franz also says that aphasia seldom exists pure in any one of these forms, but a given case may have any possible combination of them. Grouping upon broader lines, aphasia is considered either sensory or motor, depending upon which half of the arc is involved, the receiving or the transmitting.

As regards apraxia, Glascock says: "As we now understand motor apraxia we infer an inability to perform proper purposive movements without impairment of motility; objects cannot be properly manipulated, not because they are not rightly recognized or because the sensory memory pictures do not sufficiently assist the manipulation, but because the motor part of the action itself is out of order. The patient, although he recognizes the penholder, sticks it in his mouth because the motion runs off the track."

As to the case under consideration, we know practically nothing of the family history excepting that parents and grandparents lived and died in Ireland, being poor people belonging to the laboring class. The patient was born in Ireland and received practically no education, being able only to write her own name. She did domestic work of some kind in the old country. At the age of twenty-one years she immigrated to America, entering at the port of New York, and soon securing work as a nurse girl. Within a few years she was married, her husband being a carpenter. There were seven children, all boys. Two died in their infancy, the others are living and well.

While her children were still small, the patient's alcoholic tendencies became manifest. She drank constantly, and her appetite grew worse with indulgence. She insisted that her husband and sons supply her with money for this purpose, and she cared not what sacrifices it meant to them. She has three times been taken to the Washington Asylum Hospital. Just what her attacks these times may have been, is hard to say. Her son called them "fits," and stated that she foamed at the mouth and stammered for some time after each attack.

Her present illness began about a year before her admission to the Government Hospital, but exact information concerning it was impossible to obtain. When examined early in September, she was able to say a few words and sentences voluntarily, but many of her attempts at speech could not be understood. When given a ring she named it correctly. A pencil she called a knife. Given a hairpin she called it a "cake, no ring," and then said, "What is that now? Tell me, I can't speak it." She was unable to write her name with either hand, making only a few purposeless movements. She could promptly follow simple commands when told to stand up, to cross her legs, squeeze the examiner's hand, etc., but any command containing two or more ideas brought about confusion and inability to obey. She was unable then to name certain pictures which were given to her, but recognized the correct name when it was supplied.

During the next two months the patient improved markedly. She was able to say many more things, to make her wants known with greater ease than upon admission, but both aphasia and apraxia were still marked. The more specific tests of her aphasic condition follow:

Voluntary speech: The patient uses a few Anglo-Saxon words of every day life with comparative ease, but her vocabulary is quite limited. She was able to make a voluntary remark more easily than to speak in answer to questions. Questions given her concerned her childhood home, her early life, her marriage, and her children. Most of the questions were answered explosively by yes or no, often by both, and the real answers to the questions were sometimes hard to obtain because of this.

There are many tests for the examination of a case like this, which are concerned with the abilities of reading and writing. This patient is uneducated, never having learned to read, and being able to write only her own name. These tests, therefore, were inapplicable, except that the patient was asked to write her name. Her pencil was held correctly, but rather awkwardly. With the right hand, the result bore a resemblance to script, but with the left hand it was only scrawls. The patient is able to repeat practically any word or short sentence which is given her, although understanding of the ideas contained therein does not seem to be present. The words doll, lady, rabbit, Susie, tongue, beef, work, church, and girl were all correctly repeated. In food, the *f* was indistinct, and in toast the *s* was very soft. Mule was called "meal," "king" was called "cane," and "bringing" was called "brinin," while "plow" could not be pronounced at all. It was noticed in all of these, that the labials and linguals gave the patient the most difficulty. Sounds in imitation of cat, dog, sheep, cow, and pig were given her, and she was asked to name the animal. She could not voluntarily name any one, but when given several names as "Is it a dog?" "Is it a cat?" "Is it a cow?" etc., she could correctly pick out the animal which she wished and then repeat the name.

Recognition of objects: A cork, a button, a screw, a knife, and a small electric lamp were placed before the patient. These she picked up correctly at command, except that when asked for the screw she picked up the lamp, but later when the command

was repeated, she picked up the correct object. Squares of color, red, gray, black, green, purple, brown, blue, pink, yellow, and white were spread before her. Of these she promptly picked out the gray, black, purple, brown, blue, yellow, and white. She hesitated over the red, but made no mistake. When asked for green, she first picked up the blue, but later corrected herself. Pink was given four times. The first time she picked up green; the second time purple; the third time blue; and at the fourth attempt she correctly picked up the pink.

Stereognosis: All articles put into either hand were correctly recognized, but the patient had her usual difficulty in finding the right name to apply and there was always needed a number of questions containing the incorrect name as well as the correct before she could name the one presented. It was noted that the tests, when applied to the right hand, were more rapid and more sure, probably because they had been applied to the left hand first.

Pictured objects of hen, dog, girl, rabbit, boy, ship, monkey, and robin were given her. It was often thought that she knew each one as soon as she saw it, but again there was the same difficulty in finding the name which applied, although when the right name was once given she chose it unhesitatingly.

Physical examination made upon admission showed evidences of a right hemiplegia. Muscular tonicity was increased on the right side, being especially marked in the arm. At that time she complained of pain in the right side when it was manipulated. Her tongue was protruded in the median line. There was no tremor. The respiratory system was normal. Heart outline was normal. No murmurs were heard. Pulse was regular, of good quality, and of moderate tension. The right corner of the mouth drooped slightly. The wrinkles were a little less prominent on this side, and facial movements were not so well performed. She walked unsteadily, dragging the right foot. The Romberg sign at that time was present. Both knee jerks were exaggerated. Pupils reacted to both light and accommodation.

Physical examination made again six months later showed practically no difference. To the neurological examination the right half of the body appeared to be hemiplegic, but the difference in the two sides of the face had apparently disappeared. It was difficult for the patient to use her right arm and hand, and in walking she dragged her right leg. Muscle tone was increased on the right side, but apparently normal on the left. As to sensation, the patient complained during the examination, that movements of the right side and stimulation applied to the right side caused her subjective pain. This apparently at times was quite severe in character. The tests were applied first with the eyes open, later with them closed.

With her eyes open, she promptly recognized all touches and located them without error over both the right and left sides of her body, using the left hand for this purpose, except where the location was such as to make this impossible. Then the right hand was used, but less readily. With the eyes closed she could promptly recognize and locate as before all touches over the left side of the body,

the localization being fairly accurate. On the right side a touch was recognized, but the locating finger would wave uncertainly in the air, the patient often saying, "Let me see, now where was that, on my leg, on my arm," etc., wherever the place might have been. The spot was usually located at last, but within a long radius of the original touch. Sometimes the patient gave up in despair of touching the point, saying, "Oh, I don't know" and utterly relaxing upon the table. After a few moments of rest, the same spot could be correctly located at another touch. A toothpick was used for the foregoing tests.

Differentiating the head and point of a pin: A rather large, heavy steel pin was used for these tests, and her eyes were closed in all of them. Over the left side of her body she could correctly differentiate the two, but she had considerable difficulty in using the right one of the words, head and point. When asked "which one is it?" she would stutter and stammer, making great effort at speech, but practically always failed. When asked the question in this way, "Is it the head?" "Is it the point?" she made no mistake. Over the right side she most often said that she did not feel a stimulus at all, but upon the side of the abdomen and the leg below the knee, she could always name the point, this being done almost explosively as if the answer was hurried in order to get ahead of any shunting of the impulse.

Heat and cold: The usual difference in the two sides was less marked, as was the difficulty in expressing the two ideas. Cold she often varied by using the word "ice," warm by using the word "hot." The cold was practically always called warm, however, over both sides of the body, while the warm was never given the obverse name of cold. This did not seem entirely an aphasic phenomenon. Throughout these tests perseveration was noted. The left hand continued almost automatically to locate the area under stimulation, the same location being noticeably more accurate over the right side during this time than during the first testing of location.

Movement: The right arm is held flexed at the elbow. The fingers usually awkwardly extended, but sometimes the right hand clenched very tightly. This hand and arm are almost constantly in motion, the motions being not correlated with the subject in hand. Although the patient's cooperation was perfect, this hand and arm tended constantly to get in the way. It usually tried to push the physician away.

The finger-finger test: The index finger of the left hand came easily to the desired point for meeting its fellow of the right hand, but the movements of the right hand were uncertain and wavy, although it finally came to position. The palm of the right hand, however, lay upon the fingers of the left, and the index fingers did not meet. This was repeated several times with varying degrees of success. When the eyes were allowed open for the test, the right hand was under much better control. In testing the left hand separately in the finger-nose test, it came promptly and correctly to position, the index finger touching the tip of the nose. The finger-chin test was equally well performed. When

told to put her left hand on top of her head, she first grasped her nose, then her forehead and eyes. She appeared utterly bewildered and was unable at any repetition of the command to do as told, but seemed to realize that her movement was not the one wanted. The movement was illustrated by the physician and the patient was then able without the slightest hesitation to imitate what was done, but subsequently when the test was repeated, she had the same difficulty in obeying the command. When told to put her left hand in the middle of her back, she first tried to reach the spot from above as Doctor Glascock's patient had done, but imitated the motion correctly when it was illustrated for her.

The right hand-finger-nose: The hand was brought slowly toward the nose with a broad waving motion, all the fingers being placed on the tip of the nose. The finger-chin test was practically the same. When told to put her right hand upon the top of her head, she put it first upon her nose and then upon her forehead, repeating the movements previously given by her left hand for the same test, but it was finally put correctly upon the top of her head, although the command had been given her but once at this time. When it was correctly performed before the examiner had spoken, there was a look of triumph upon her face as if she knew that she had accomplished what was asked of her. The right hand was also put correctly upon the back of the neck, although it was very slow in coming to position. This test had previously been done well by the left hand. Told to put her right hand in the middle of her back, she first put her left hand upon the middle of her chest in front, but changed immediately to her right hand in the same position and said "that's it," but without the examiner indicating that the motion was wrong, she immediately realized that she had made a mistake and said, "no, no," and the look of bewilderment returned to her face. The command was repeated without illustration, and the right hand was then properly moved under the axilla and placed in the middle of the back.

Adiodokokinesis: The patient could not understand what was wanted at command and it was therefore necessary to illustrate this test first. The right hand was very slow and uncertain in movements; fingers and wrist were both cramped. In the left hand the movements at the wrist were fair, but very slow, and this was accompanied by an irregular hinge motion at the elbow, which imparted a wildly waving character to the motions. The two hands were by no means synchronous in this.

Movements of her legs: Given first with her eyes open, the patient lying on her back, she was told to lift her left leg. This was done promptly and well. When told to lift her right leg, there was considerable hesitation and she was unable to perform the action until she had raised her head from the pillow and was able thus to get the assistance of her eyes. Her right leg was then lifted about one foot from the bed, but no further. She crossed her left leg over her right with fair ease and after some difficulty crossed them in the opposite direction. She was unable at this time to put either heel on the opposite knee at command, although the right leg was much more uncertain in the attempted movement

than the left. In each case she put the heel upon the mattress beside the opposite knee. With her eyes closed, these tests showed no difference, except in the one test, putting one heel on the opposite knee. This was done correctly the first time tried, and at any time afterward she was able easily to perform this motion at command with either leg.

Face, throat, and trunk muscles: The patient was able to cough easily at command. When told to take a deep breath, she repeatedly put her hand to her lips, and finally pursed up her lips, using her hand for the purpose. She looked bewildered and shook her head. The test was practically abandoned by the examiner and then she took easily a long deep breath. When told to swallow, she repeated the word without seeming to understand the idea. This motion she could not even imitate. When told to sniff as if smelling a flower, the same results were seen. She was able to put out her tongue at command and move it freely from side to side. She could shake her head, but nodded only to imitation. She could raise her eyebrows, frown, smile, and whistle at command. When told to blow out a candle, she was again greatly puzzled in grasping the idea, but was able to imitate the motion correctly.

Different motions without the object in hand: When told to stir up a cake, the patient knew at once what was wanted and said she had done it many times, but she had considerable difficulty in starting the motions. The right hand was used voluntarily for the stirring motion, while the left arm apparently grasped her imaginary mixing bowl. The right hand was held open, the fingers outspread, and the stirring motion was well done. This motion was voluntarily repeated with the left hand, when the same wide motions at the elbow were noted as seen before, the position of the hand itself being better.

Ring a bell: The patient was puzzled and repeated the command several times, but finally understood what was wanted and tried to ring the bell with long sweeps of the right arm, but the hand immediately clenched and the forearm flexed in the air and no ringing motion was obtained. With the left hand, the motion was fairly well performed with the same wide motions of the elbow.

Different motions with the object in hand: When told to comb her hair, without difficulty the patient took the comb in her left hand and complied. When told to use her right hand for this purpose, she first grasped the comb by the teeth and attempted to comb with the solid back. Using her left hand, she took the comb from the right to readjust it, but three times returned it in the same position. She realized all the time that this was wrong and then relaxed, saying, "I don't know," as she had done so many times before. Then immediately without further comment, she adjusted the comb properly and slowly made a few correct passes with the comb through her hair.

Knock on the door: With her left hand she knocked with the flat of her hand. With her right, the hand was doubled into a fist, but she knocked with the fleshy part of her hand instead of her knuckles.

Sewing: She used her left hand very awkwardly as a right handed woman would do. She could not

even grasp the needle in her right hand, her fingers failing to approximate. This she soon gave up in despair.

Scratch a match: This was done with greater ease than anything else. The box was grasped in the left hand. The match extracted with the right hand the fingers of which now did not refuse to approximate as they had in the sewing test, and the match was struck with the right hand, the motion being sure and certain, calculated exactly for the results expected.

Voluntary motion: After the tests were completed, the examiner was busy writing and the patient considered herself unobserved while she was trying to dress. The contractions of the fingers of her right hand and of her arm seen so frequently in the special tests were now at a minimum, although the extensors of her fingers were still hyperactive and it was difficult to make the right hand grasp various portions of her clothing. Her left hand was used to quite an extent in place of the right. Buttons and buttonholes were adjusted somewhat awkwardly with the left hand, but when it was necessary to put a safety pin in position, the left hand could not accomplish this and the crippled right was compelled to serve. Several attempts were made to grasp the pin properly. When once grasped, the fingers had a firm hold upon it and it was put exactly where the patient wanted it after once or twice starting to insert it a little to one side. These fingers, however, could not fasten the pin, and the fingers of the left hand were again brought into requisition.

As regards the possible location of the causative lesion in this case, we can only reason from the clinical manifestations, for the patient is still living and the history of the attack or attacks is most incomplete. Neither must we lose sight of the fact that clinical symptoms often point toward the involvement of a certain area, while autopsy has revealed the actual lesion in another place. The possibility of being wrong, however, should not deter us from ascribing a tentative location, bearing in mind the fact that autopsy may prove our conclusion incorrect.

Bing says that in subcortical lesions of the left frontal or temporal lobe not involving the cortex, we have pure motor aphasia (word dumbness) or pure sensory aphasia (word deafness), and in neither case is there any defect in reading or writing, while if the lesion is cortical in character, the aphasias are not pure because lesions of either cortical area interrupt the association fibres connecting the Broca and Wernicke centres, with each other, with the motor area for movements of the hand, and with the visual memory centre. Not only are the power of speech and the understanding of speech affected, but we also find disorders of reading and writing.

In our case the aphasia is not pure. The power of expressing herself by speech seems to have received the chief injury, but there were frequently noted times when words failed to provoke their proper engrams. There is accompanying apraxia of the right hand and to a lesser degree of the right leg and a dyspraxia of the left hand. How great may have been the injury to that portion of the

brain which exercises control over reading and writing, is hard to say because the patient never could write anything but her own name. We can infer, therefore, that this is a cortical lesion. We also see that this patient's trouble is motor rather than sensory, and therefore can select Broca's centre as the one probably affected, this being in the posterior portion of the inferior frontal convolution where it borders upon the operculum. So interruption of the association fibres alone is sufficient to account for what sensory disturbance we have found as well as to account for our apraxia. Whether the actual lesion in any way involves Wernicke's centre, which is in the left superior temporal convolution, and concerns itself with the tone pictures necessary to the understanding of speech, is difficult to say. We can choose, therefore, the posterior portion of the inferior frontal convolution as being a likely area in which to find the lesion in this case.

GLENARD'S DISEASE.*

The Cause of Hysteria, Neurasthenia, and the Visceral Neuroses.

BY OTTO LERCH, A. M., PH. D., M. D.,

New Orleans,

Professor of Medical Diagnosis, Tulane University, Postgraduate Department.

Enteroptosis, a dislocation and mobility of the abdominal organs and not rarely of the heart, is a constitutional anomaly of common occurrence and is far more frequent than usually thought. It is asserted that autopsies do not bear this out, and I fully agree with this statement, having found the condition far less often in the cadaver than in living subjects, but it must not be forgotten that cases examined post mortem have usually been in bed for days and weeks and that in the recumbent posture the abdominal organs, and the heart, if not fixed, return to their normal positions.

This, I believe, explains why practitioner and pathologist do not agree in their findings. The condition is characterized by more or less serious disturbances of the nervous system and of the function of the chest and abdominal organs, so much so that in certain cases it may become difficult to differentiate between functional disease and organic lesion. Operations have been performed for appendicitis, oophoritis, for gallstones, for ulcer of the stomach; and tuberculosis, diseases of the gastrointestinal tract, heart disease, and serious affections of the nervous system are not at all rarely diagnosed and treated when this condition is the cause of the trouble. On the other hand, organic is mistaken for functional disease, though this is not as frequent. If one complicates the other, an exact diagnosis is still more difficult to make.

Enteroptosis is usually congenital and can frequently be traced in one or both lines of ancestors for several generations, though a direct cause, as heavy lifting and straining, trauma, and childbirth may mark the beginning of suffering. Statements are often made, however, of nervousness and pains

since childhood, which with advancing years have become more and more severe and have driven the patient from physician to physician and from sanatorium to sanatorium, looking for relief. These patients, never feeling well, are always ready for an operation, hoping for a cure from the surgeon that the medical adviser has not been able to give, and not rarely they are freed from their suffering by surgical measures, for a time at least, owing, I believe, to rest treatment, diet, and suggestion, after the operation.

In extreme cases almost every organ of the body may be dislocated. The lower border of the lungs is displaced downward, the heart, the kidneys, the stomach, the intestines, especially the transverse colon, iliac flexure, cecum, uterus, and in some rare instances, liver and spleen may be found displaced and abnormally movable. In most enteroptotics the liver drops when the patient is standing up; in other cases, only one organ, especially the right kidney or stomach, may be the sole cause of pain. It is a well known fact that the severity of symptoms does not correspond to the degree of displacement. Even in pronounced cases, organs may adjust themselves and function well. I have a patient with the right kidney firmly lodged just above the pubic bone, which does not cause the slightest pain or inconvenience, nor interfere with perfect function of the organ.

Two distinct types of enteroptosis may be recognized, one in the well known paralytic patient, gaunt, emaciated, usually with a bad complexion, anemic look, and palpably contracted arteries, which leave one often under the impression of sclerosis; the blood pressure normal, above the normal or below it, notwithstanding the arterial contraction; the pulse, usually rapid, but occasionally intermittent or slow, hands and feet cold and clammy or hot and dry, the face flushed or extremely pale. The other type of patient is short and fat, with protruding, pendulous abdomen, eyes bright, occasionally with more or less exophthalmos, sometimes more on one than on the other side. This symptom as well as the pendulous abdomen and those caused by nervous and visceral disturbances are common to both. The latter I have called the lordotic type. This is more difficult to recognize than the former, as palpation in many of these patients, on account of the mass of fat deposited in the abdominal walls, is impossible, and percussion must be relied upon with history and symptoms to make a diagnosis. The most characteristic and constant feature of the paralytic type is a long spine with absence of the lumbar curve, whereas, the lordotic type is characterized by an excessive lumbar curve.

Nervous disturbances are prominent in both and are characteristic of the disease. They are the symptoms of hysteria, neurasthenia, and the visceral neuroses. As in hysteria, the disease is more frequent in women than in men, and its onset is often the time of puberty, though children are not free, and as in this disease, heredity can be traced in a large number of patients. Irritability and lability of temper are prominent features, and pains which may have their seat in any part of the body, are always present; they may be neuralgic or rheu-

*Read before the Louisiana State Medical Association, April 27, 1914. All experiments on the cadaver were made jointly with Professor Oestreich, of the University of Berlin.

matic in character. Headache is usually complained of and migraine is frequent. The sudden pains of angina pectoris, I have found associated with a movable heart. The clavus hystericus is

cannot be differentiated; contraction and paralysis, when found, are hysterical in character. Neurasthenic complaints are as often met with as hysterical complaints. A beginning paresis is occasionally mistaken for neurasthenia. The symptoms are alike and even the stammering, when present, reminds one of the paralytic speech. The error is serious, and careful examinations are necessary to avoid it. Ziehen stated in his lectures that individuals who under taxing conditions become neurasthenics, contract paresis when they have had syphilis, which is readily explained by the circulatory disturbances of the enteroptotic. The cerebral circulation suffers, which means a lowering of defense against spirochete invasion.

It is of special note that heredity is a prominent feature in this affection as it is in hysteria and enteroptosis. Irritability, mental depression, and fatigue after slight exertion when muscular strength is but little impaired is characteristic of the trouble, and headache, dizziness, and sleeplessness or a broken restless unrefreshing sleep is complained of. Tendon reflexes are usually exaggerated; corneal and uvula reflex may be absent; backache is, like headache, a constant symptom. Sensory disturbances, cribbling, and itching of the skin are

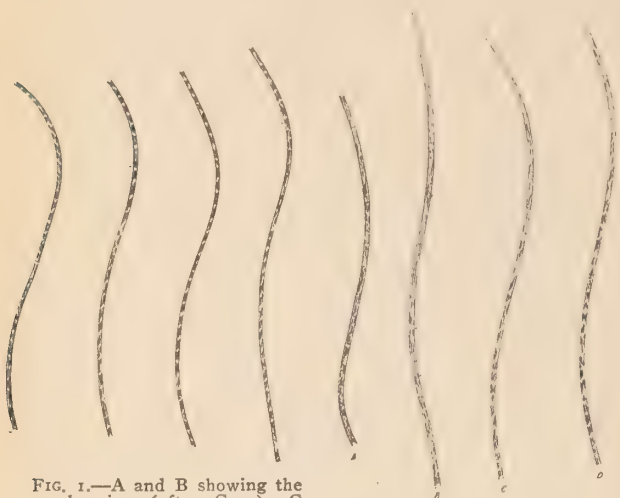


FIG. 1.—A and B showing the normal spine (after Gray); C and D showing spines of paralytic type of enteroptotics.

FIG. 2.—Spines of lordotic type of enteroptotics.

well known and backache is as frequent as headache. Severe pain in the end of the coccyx, "the pseudococcygalgia," is occasionally met with and mastodynia, pain in the breast, may be very severe and lasting and accompanied by swelling.

Paresthesias are frequent and hyperesthesia, pain on touch or pressure, often causes severe paroxysms of pain or cramps, which, however, may be relieved by deeper pressure upon the same or other points. The region of the ovaries, the appendix, and the gallbladder are especially the seat of this symptom, though many other points are well known and hypersensitiveness of the special senses is not rare. Diversion of attention diminishes the pain or may stop it altogether.

Anesthesia is seldom absent and is usually associated with the sensory organs, diminution of sight, of hearing, of smell, and of taste. The distribution of anesthesia is characteristic, it never follows a nerve or nerve plexus, but is found over one extremity or a portion of it, for instance, the foot or the hand with a sharp division line at the wrist or ankle; or it may appear as hemianesthesia, spreading over one side of the body. Sometimes only the sensation to pain is entirely or partially lost, affecting the skin alone, or the deeper structures may

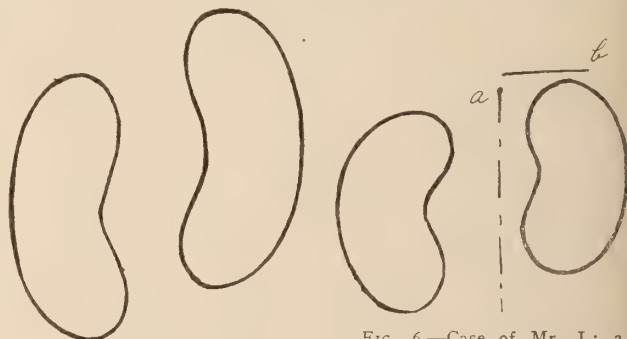


FIG. 5.—Case of Mr. B.

FIG. 6.—Case of Mr. J.; a, spinal column; b, diaphragm.

often noticed and vasomotor disturbances, hot flushes, and cold chilly sensations creeping down the spine, dermatographia and urticaria are frequently seen, and disturbances in the sexual sphere, impotency, nocturnal pollutions, etc., are not rare. Secretory disturbances are prominent, a hot and dry skin, or excessive perspiration, especially local. The temperature may be slightly increased, especially at night, and remain so for weeks and months, fluctuating between 99° and 100° F. Occasionally it is slightly below the normal, though I have observed a woman patient in whom the temperature fell to 94° F. when taken in the rectum, gradually rising to the normal in thirty-six hours. The skin was cold and slightly cyanosed, the pulse eighty, regular, and tense; conversation was vivid and no collapse symptoms accompanied the sudden drop of temperature, which followed worry and emotion. She complained of precordial anxiety during the attack.

Neuroses of the heart are closely connected with vasomotor disturbances. Palpitation is frequent; the patients complain that they hear the sounds of the heart or that it stands still; or pain, that may resemble angina, and arrhythmia, tachycardia and bradycardia, and systolic murmurs may be ob-

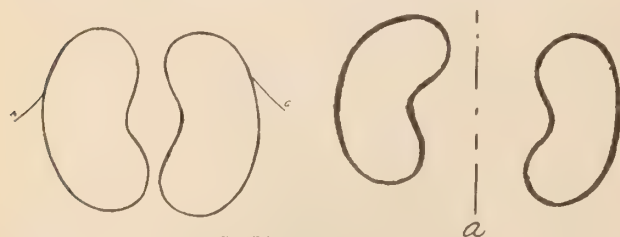


FIG. 3.—Case of Mr. G. Lines show borders of ribs.

FIG. 4.—a, Spinal column.

be involved as well. In other cases thermoanalgesia may be present.

Cramps, convulsions, and tremor are as frequent in the enteroptotic as they are in the hysterical, and

served, due to a movable heart, invariably found in these cases. The vessels pulsate, especially the abdominal aorta, a symptom which has been mistaken for aneurysm. The superficial arteries, as mentioned, are usually contracted and roll under the finger, a defensive measure to increase blood pressure and aid the heart under these altered and difficult circulatory conditions. This explains also the anemic appearance with normal blood. The respiration may be rapid and paroxysmal in character, owing to cramps; it comes and goes just as in asthma, which is a frequent symptom of enteroptosis. In patients suffering from it I have always found a distended thymus, overfilling with blood and lymph, causing pressure and intoxication.

Enteroptosis, especially the paralytic type, predisposes to tuberculosis, and symptoms of this disease must always be carefully looked for. Cogwheel respiration, which I have observed in these cases at the base of the left lung, and the roughened breathing, described by Cabot in the same locality, may give rise to serious error. The predisposition to tuberculosis is explained by the circulatory disturbances, too much blood in the

lower curvature below the navel. Elderly persons may occasionally present symptoms of carcinoma.

The patients suffer usually from constipation since childhood and a history of this trouble existing in the family may be obtained. Some of them

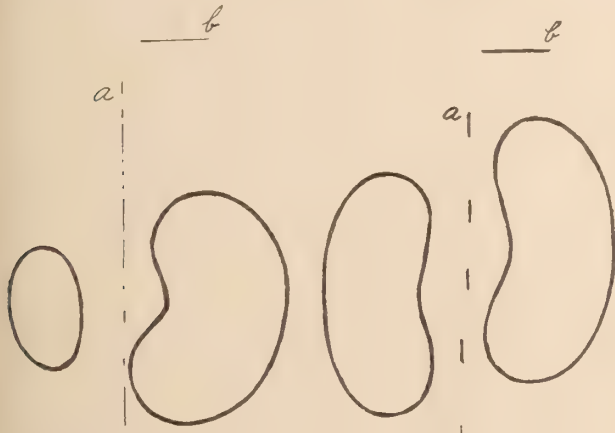


FIG. 7.—Case of Mr. J.; kidney dullness after patient has turned himself around; a, spinal cord; b, diaphragm.

FIG. 8.—Case of Mrs. McC., March 20, 1914; a, spinal cord; b, diaphragm.

abdomen and not enough in the chest; such a condition furnishes a favorable soil for Koch's bacillus to grow.

Disturbances of the gastrointestinal tract are hardly ever absent and nervous dyspepsia is a common diagnosis. Office and clinic specialists of the stomach are frequented by these patients. Rosenheim speaks of these patients as the army of the neurotics. Appetite is capricious or entirely absent, or a fear to eat may be present, fullness after eating, sour eructations, or explosive belching of odorless and tasteless gas, vomiting without effort, and meteorism are often complained of. Others feel nauseated without being able to throw up, or vomit with effort. All these symptoms may have nothing to do with the character of the food; on the other hand a slight error in diet may be the cause of a severe attack. Examination of stomach contents reveals hyperacidity or anacidity or both conditions alternating. A constant disturbance of function may lead to gastritis, erosions, and ulcer. Not so rarely do we find enteroptosis the original cause of these organic affections. In the emaciated the stomach can be seen standing out like a bladder, the

may get diarrhea after slight excitement or emotion. I have treated such a patient, a cotton speculator on the bull side, whose bowels would run off whenever there was a drop in the market. Others complain of passing mucus in large flakes; "they shed their intestines" as they express it. This may be accompanied by colicky pain. One patient of mine passed large quantities of jellylike mucus without pain for weeks.

Constipation forces the use and abuse of purgatives, which in time cause inflammation; first constipation, then constipation and diarrhea alternating and the last stage is a continuous diarrhea.

The liver is usually full, border palpable, often hard and sharp and occasionally painful on pressure.

Both kidneys or right kidney alone can be in a number of cases palpated; in all the dislocation and undue mobility can be made out by percussion by my method, the patient lying on his stomach. Pain caused by a displaced kidney may be a dull or an aching sensation in the side below the border of the ribs,

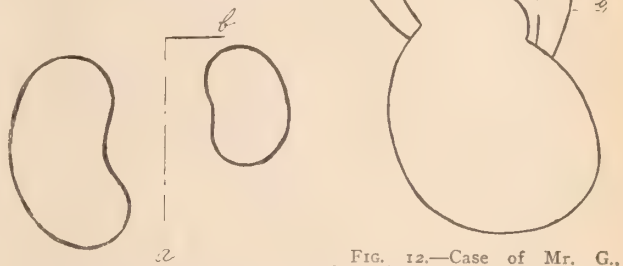


FIG. 11.—Case of Mrs. Cr.; showing kidneys after patient had turned in horizontal position; a, spinal column; b, diaphragm.

FIG. 12.—Case of Mr. G., forty-eight years of age, general tuberculosis; a, thymus; b, vena cava superior and aorta; c, clavicle; d, aorta; e, pericardium; f, second rib; g, pulmonary; h, thymus; i, right auricle.

or it may be paroxysmal in character, giving rise to Dietl's crisis, accompanied by nausea and vomiting. These crises may last for hours or days, owing to twisting of the ureter. The urine, usually

normal in nephroptosis, may contain albumin, which appears at certain times often only in the upright position after meals or it may be present for a short period or continue for years. This symptom, as well as the palpable full liver, is due to the congestion of these organs

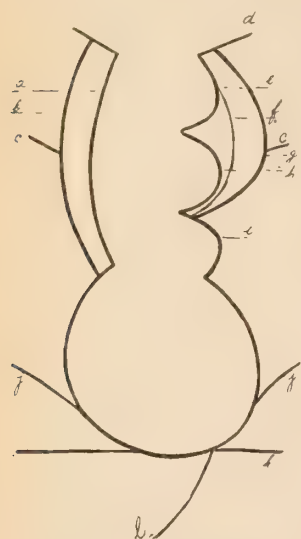


FIG. 13.—Case of Miss E. R., twenty-seven years of age; ulcer of stomach; thymus as usually found in adults; a, aorta and vena cava superior; b, thymus; c, second rib; d, clavicle; e, aortic arch; f, pericardium; g, thymus; h, pulmonary arch; i, left ventricle; j, dome of diaphragm; k, diaphragm fixed; l, liver border.

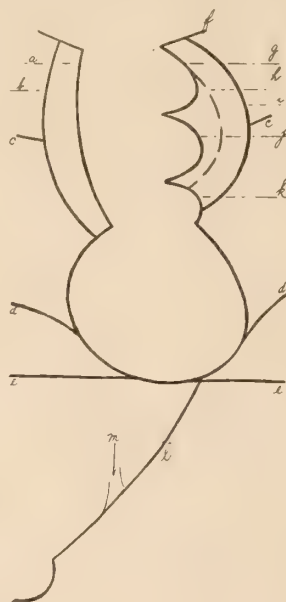


FIG. 14.—Case of Mr. D. S. A., forty years of age, five feet ten inches in height, weight 120 pounds; thymus distended; a, aorta and superior vena cava; b, thymus; c, second rib; d, dome of diaphragm; e, diaphragm fixed; f, clavicle; g, arch of aorta; h, pericardium; i, thymus; j, pulmonary arch; k, left ventricle; l, border of liver; m, median line.

and may in certain cases be accompanied by high blood pressure and contracted arteries and so lead to an erroneous diagnosis of Bright's disease. On the other hand, if not relieved by treatment, it may cause a cirrhotic kidney in the course of years.

In women the uterus is a frequent seat of pain and the specialist is often called upon for relief. Prolapse and flexion, irregular menstruation and leucorrhœa are the symptoms. Nervousness is almost invariably increased during the time of menstruation. The patient complains of pain and dragging down sensation in the lower part of the abdomen, and often will date back her trouble, if she is married, to the birth of her child, and if she has passed the age of thirty years, she will want to know if the menopause is approaching.

The symptoms of hysteria, neurasthenia, and the visceral neuroses, the entire absence of an explanatory pathology for any one of these, notwithstanding the diligent search for cause by the pathologist, the heredity that can be traced through generations, the enormous frequency in both sexes, prevalence in women, the beginning of marked symptoms of pain and of suffering at the time of puberty and the menopause, their great variety and constant change, their occurrence in childhood, their increase during the time of menstruation, and their direct cause, overwork, worry, trauma, and childbirth are features common to the neuroses and to enteroptosis. This striking resemblance or rather identity of symptoms

in both suggests the hypothesis that the mental and the visceral neuroses and enteroptosis are one disease, or better, that enteroptosis is the cause of the neuroses. I have found it in all the hysterics and neurasthenics I have examined. This explains the symptoms; they are due to circulatory disturbances and tax upon heart and vessels, caused by the upright position of man, representing the last stage of evolution. They are of central origin, when no local cause can be found, due to pressure of the new position the organs occupy, pulling and tearing on their own bloodvessels and nerves, or organic disease. They are due to direct central irritation, or produced by light stimulation from the periphery.

That these are the most frequent symptoms can be understood when it is considered that blood is a liquid and follows the law of gravity, and that in the upright position with the additional cause of relaxed abdominal walls, disturbances of the cerebral circulation must be of common occurrence.

The diagnosis is usually readily made, the paralytic or lordotic type of the patient, the heredity of the disease in the majority of cases, its onset usually at the time of puberty, after trauma, childbirth, or some other cause that taxes the system, the chronicity and never failing symptoms of hysteria, neurasthenia, and visceral neuroses, coupled with a dislocation of organs, make a positive diagnosis. As mentioned, however, the neuroses may imitate organic disease to perfection, and this constitutional anomaly is the predisposition to organic disease which in every instance must be looked for. The emaciation, the tall and gaunt figure, the cogwheel and roughened respiration at the base of the left

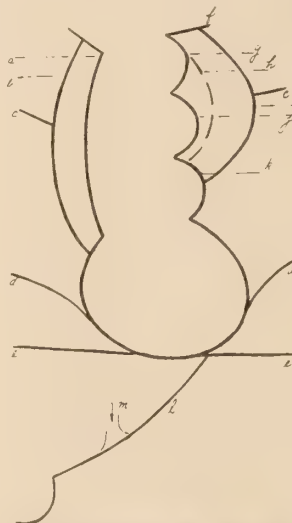


FIG. 15. Case of Mr. N.; forty-four years of age; height, five feet seven and a half inches; weight, 114 pounds; thymus distended; a, aorta and vena cava superior; b, thymus; c, second rib; d, dome of diaphragm; e, diaphragm fixed; f, clavicle; g, arch of aorta; h, pericardium; i, thymus; j, pulmonary arch; k, left ventricle; l, border of liver; m, median line.



FIG. 16.—Case of Mr. Gl.; forty-three years of age; height, five feet, nine inches; weight, 297 pounds; small thymus in obesity; a, arch of aorta and vena cava superior; b, thymus; c, second rib; d, dome of diaphragm; e, diaphragm fixed; f, clavicle; g, arch of aorta; h, thymus; i, pericardium; j, pulmonary arch; k, left ventricle; l, border of liver.

lung, a cough and slight rise of temperature may suggest tuberculosis. A movable heart with apex beat outside the mammary line, a systolic blow, an arrhythmia, tachycardia or pseudoangina may imi-

tate heart disease, and an albuminuria, due to congestion, coupled with palpable arteries that roll under the finger, rise of blood pressure, and heaving apex beat, may suggest nephritis.

The full liver with palpable border sometimes felt, hard, sharp, and painful on pressure, may suggest structural disease of this organ. Dietl's crises have been mis-

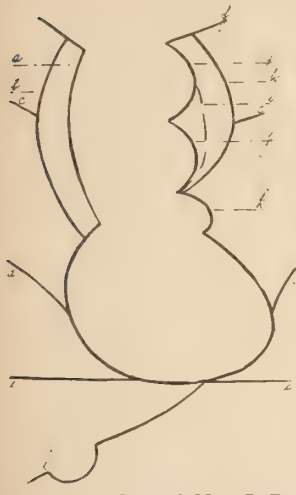


FIG. 17.—Case of Mrs. J. P.; sixty-three years of age; movable heart; gallstone colic; patient in horizontal position; a, aorta and vena cava superior; b, thymus; c, second rib; d, dome of diaphragm; e, diaphragm fixed; f, clavicle; g, arch of aorta; h, thymus; i, pericardium; j, pulmonary arch; k, left auricle; l, liver border; m, umbilicus; n, lower curvature of stomach.



FIG. 18.—Case of Mrs. J. P.; sixty-three years of age; movable heart; patient in upright position; a, aorta and vena cava superior; b, thymus; c, second rib; d, dome of diaphragm; e, diaphragm fixed; f, clavicle; g, arch of aorta; h, thymus; i, pericardium; j, pulmonary arch; k, left ventricle.

taken for gallstone colic, renal calculi, for gastric crisis, and appendicitis. The frequently high acidity of the stomach may cause spasmodic contractions of the pyloric orifice, and severe pain may suggest ulcer and biliary colic, and an acidity seen in an elderly patient with muddy skin and emaciation, may be mistaken for malignant disease.

Appendicitis is not rarely diagnosed in cases with movable cecum¹, which condition is characterized by pain in the cecal region, spontaneous and colicky or felt only on palpation, gurgling and a tumor that feels like an air cushion coupled with intestinal disturbances. Appendectomy does not relieve the pain. The gynecologist treats these patients for displacement of the uterus, leucorrhea, etc. The offices of the eye specialist are frequented by them for headaches, the ear, nose and throat specialist treats them for roaring in the head, hay fever, and catarrhs, and they are the majority of patients that seek relief from the neurologist.

It is clear that this great variety of symptoms cannot be successfully treated when the underlying constitutional anomaly is not recognized or disregarded and that is true for those organic disease as well which have developed upon this basis.

The following cases will illustrate these conditions.

I. This chart illustrates the spine of enteroptotics of the paralytic and lordotic type.

No. 1. The normal spine after Gray, three times enlarged.

Nos. 2, 3 and 4. Spines of patients of the paralytic type. The lumbar curve is in all of them absent.

Nos. 5, 6, 7 and 8 represent spines of the lordotic type, characterized by an excessive lumbar curve. It commences at the sixth and seventh dorsal vertebrae.

PERCUSSION OF THE KIDNEYS; MOVABLE KIDNEY.²

Percussion of the kidneys is not taught and very little is said in the literature about this subject. If mentioned in textbooks, the author comes invariably to the conclusion that it is useless or impossible. It is usually said that dullness of the kidneys cannot be differentiated from the dullness of the muscles of the back, though it is admitted that a large tumor or an entire absence of one kidney can be diagnosed by percussion. This is of little consequence. A large kidney tumor can be palpated, and a floating kidney, which in most cases is the cause of such an absence of dullness, can usually be felt when lying in the lower portion of the abdomen. The great importance of determining the size of the kidneys when diseased is clear. The changes in the urine, in vessels, and organs are not always sufficient to make a diagnosis, when a determination of the size of the kidneys would clear up the subject.

Considerable diminution of one kidney is frequently observed in contracted kidneys, important for the prognosis, or both kidneys are found small when the urine is free of sediment, and only repeated examinations reveal a few hyaline casts and traces of albumin. On the other hand, the reverse may be seen. A diagnosis of the large white sclerotic kidney is usually difficult without knowing its size, and a movable kidney, even with an examination in the warm bath and with all other methods, is often impossible to palpate, although with my method of percussion it can be readily mapped out. In such cases, one or both kidneys may be found small or disfigured, and to avoid error it is necessary that the patient in a horizontal position turn about several times, which changes the position of the kidneys and the dullness changes accordingly; it becomes smaller or may entirely disappear. The kidneys have a tendency to return to their normal position if the patient jumps from a chair. The percussion figure becomes larger. I find that these patients usually sleep without a pillow and often face downward, probably to improve circulatory conditions, to free the spinal column

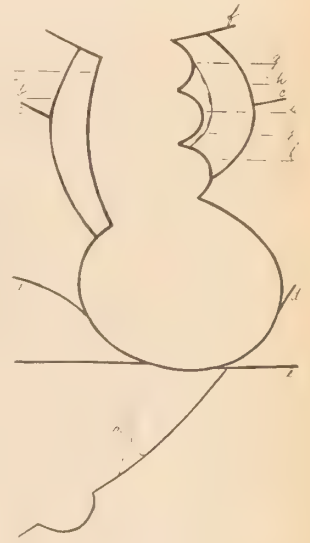


FIG. 19.—Case of Miss L. B.; patient in recumbent position; asthmatic, movable heart; a, arch of aorta and vena cava superior; b, thymus; c, second rib; d, dome of diaphragm; e, diaphragm fixed; f, clavicle; g, arch of aorta; h, thymus; i, pulmonary arch; j, pericardium; k, left ventricle; l, border of liver; m, median line; n, umbilicus; o, lower curvature of stomach.

¹Movable Cecum and Typhlotomy, *Medical Record*, October 14, 1911.

²On Percussion and on Percussion of the Kidneys, *Medical Record*, February 4, 1911. A New Method of Percussion, *NEW YORK MEDICAL JOURNAL*, December 30, 1911. Ueber eine neue Perkussions Methode, *Deutsches Archiv für klinische Medizin*, December 12, 1912.

from pressure, and because in this position the kidneys and other displaced organs return to the normal. It is of importance not only in Bright's disease, but in every disease to determine size, form, and location of the kidneys. I do not think that anybody would like to dispense with this

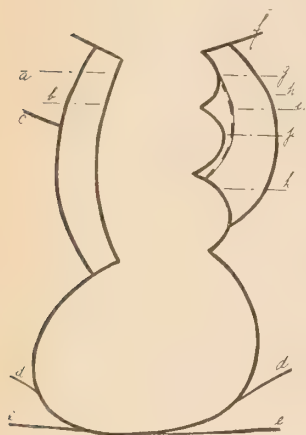


FIG. 20.—Case of Miss L. B.; patient in upright posture, after rolling herself about; movable heart; a, aorta and vena cava superior; b, thymus; c, second rib; d, dome of diaphragm; e, diaphragm fixed; f, clavicle; g, arch of aorta; h, thymus; i, pericardium; j, pulmonary arch; k, left ventricle.

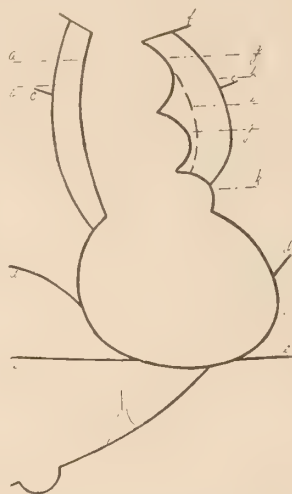


FIG. 21.—Case of Mrs. Cr.; forty-two years of age; height, five feet, two inches; weight, 91 pounds; movable heart; patient in recumbent position; a, aorta and vena cava superior; b, thymus; c, second rib; d, dome of diaphragm; e, diaphragm fixed; f, clavicle; g, arch of aorta; h, thymus; i, pericardium; j, pulmonary arch; k, left ventricle; l, liver border; m, curvature of stomach inflated.

means of diagnosis for any organ. My method of percussion allows everybody to do this for the kidneys in a few moments.

The kidneys, enclosed in a fat capsule, and resting at an angle to the spine, do not give exactly the anatomical measure, owing to their projection upon the surface. Freed from the fat capsule and measured upon the post mortem table they appear larger. The error is relative, remains the same, and is, for practical purposes, of little consequence.

The average size of the percussion dullness in the adult is usually 10 by 4 cm. and if found larger or smaller, other organs correspond in size. The cadaver is placed face downward, then carefully turned, and pins are pushed through from the front. In every instance the percussion was found correct. That the dullness really represents the kidney can be recognized on the living. Form and location of the dullness correspond to form and location of the kidneys, the left a little higher than the right, and pole corresponds to pole. In a movable kidney, which can be palpated, the dullness changes after the patient turns around.

It is possible, but more difficult, to percuss the kidneys from the front, and it is therefore advisable to use this method only in case the patient cannot be placed face downward. Kidneys can be percussed with accuracy and ease, and it is of no consequence whether the patient is fat or lean, and whether the abdominal cavity is filled with liquid or not, and whether the bowels are full or empty.

AN ATYPICAL CASE OF LAENNEC'S LIVER CIRRHOSIS.

CASE III. Mr. G., aged sixty years, showed cirrhotic changes in every organ, with kidneys normal in size, shown by percussion. Adhesive pericarditis, sclerosed coronary

arteries, fibrous myocarditis, dilatation of the right and aneurysm of the left ventricle. Aorta slightly sclerosed. Bronchopneumonia and bronchiectasis in both lungs. Liver hard with typical appearance and cirrhotic changes. Spleen large, chronic hyperplasia. Abdominal cavity filled with serum. The kidneys practically not changed.

CASE IV. Kidney dullness of a baby eight months old, that died of a severe bronchitis and intestinal catarrh. (Fig. 4.)

CASE V. Mr. B. This case is of interest as it shows the displacement of the left kidney and the small kidneys due to sclerosis. The autopsy showed advanced arteriosclerosis, hemorrhages into the left hemisphere, hypertrophy of the left ventricle and characteristic contracted kidneys.

CASES VI and VII show the change of form and position of the kidneys on turning of the patient around, when in the recumbent posture. The form of the dullness and its diminution in size is due to the projection upon the surface. The kidneys lying under an angle or vertical to it. (Figs. 6 and 7.)

CASE VIII. Mr. R. J., aged forty-two years. This patient was seen March 14th. He states that eighteen months ago, he felt suddenly an intense pain in the small of the back on the left side of the spine, the pain radiating to the front and ending in his penis. During the day he had difficulty in urinating; the urine was dark, scanty, and contained a red sediment. The next day he was well. Since that time he has had four similar attacks of more or less severity. During each attack morphine had to be administered to relieve his pain. Repeated x ray examinations negative. The kidneys are movable. The urine is free from blood, albumin, sugar, and sediment. All organs normal. The attack is due to twisting of the ureter. (Dietl's crisis.)

CASE IX. Mr. McC. This case resembles the foregoing. The patient, aged forty-four years, was seen March 5, 1914, when he was taken with a severe pain in the lower portion of the back to the right of the spine, radiating to the front and ending in the penis. He complained also of pain on slight pressure in the appendix region, and of constipation. The temperature ranged between 99° and 100° F., no tumor palpable, abdominal muscles relaxed, urine scanty and dark colored, all organs normal. After three days he was well. X ray examination of kidneys negative. This attack of kidney colic is due, like the former, to twisting of the ureter. He states that he had several similar attacks since he commenced to crank his automobile.

CASE X. Mrs. C., aged forty-two years, five

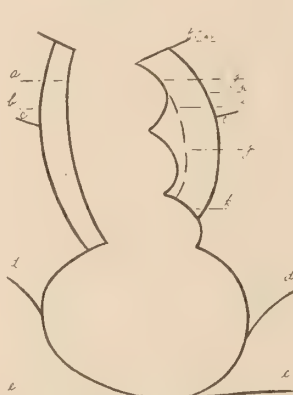


FIG. 22.—Case of Mrs. Cr.; forty-two years of age; height, five feet, two inches; weight, 91 pounds; movable heart; patient standing after rolling herself about; a, aorta and vena cava superior; b, thymus; c, second rib; d, dome of diaphragm; e, diaphragm fixed; f, clavicle; g, arch of aorta; h, thymus; i, pericardium; j, pulmonary arch; k, left ventricle.

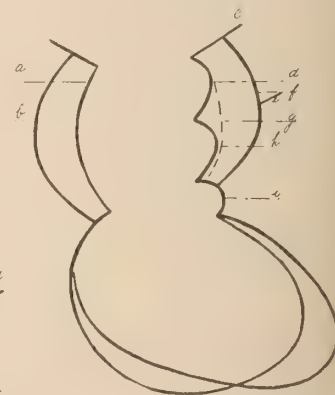


FIG. 23.—Case of Mrs. S.; thirty-eight years of age; movable heart; pseudoangina for eighteen years; asthma; chart taken June, 1912; patient in upright position; percussion made at an interval of several hours; a, arch of aorta and vena cava superior; b, thymus; c, clavicle; d, arch of aorta; e, second rib; f, thymus; g, pericardium; h, pulmonary arch; i, left ventricle.

feet two inches in height, weight ninety-one pounds, very pale, a doctor's wife, was seen March 21, 1914. She was an enteroptotic with dislocation of every organ. She had suffered for fifteen years from gastrointestinal troubles.

headache, backache, choking sensations, shortness of breath, and a number of hysteric and neurasthenic complaints, and had been treated by a number of physicians and in various sanitariums without permanent benefit. The organs were normal, the kidneys movable. Sugar had been occasionally found in her urine, owing to the enteroptosis (congestion of abdominal organs) with consequent nervous and visceral disturbances.

These cases may be sufficient to demonstrate the movable kidney mapped out by my method of kidney percussion.

A large retrosternal thymic fat body distended with blood is frequently found associated with enteroptosis, causing symptoms of pressure and of intoxication. I call attention to my publication, A Contribution on the Thymus, *Medical Record*, April 11, 1914, on this subject, and will only give here a few cases for demonstration.

CASE XII. Mr. G., aged forty-eight years. Autopsy showed fatty degeneration of the heart. Pleura and lungs showed advanced tuberculosis. Spleen, liver, kidneys, and peritoneum tuberculous, general tuberculosis. Vessels, heart, and pericardium determined by percussion and mapped out with the dermatograph. As always in such cases, no dullness was found beyond the borders of the pericardium. An injection of about 3 litres of formaldehyde solution was then made into the femoral artery, and percussion done again. A dullness corresponding exactly in form and size of the thymus could now readily be made out. This experiment showed that the dullness found in the living was due to the filling of the gland with blood.

CASE XIII. Miss E. R., aged twenty-seven years, enteroptotic, a factory girl, complained of severe bearing pain in the epigastrium, one half hour after eating, and of sour belching. The pain radiated in every direction. She had had several hemorrhages from the stomach and had vomited the blood, accompanied by severe pain. Pain on pressure in the epigastrium and at the eleventh dorsal vertebra, to the left of the spine; other organs normal.

This is a typical case of ulcer of the stomach and presents thymus dullness as usually found in adults.

CASE XIV. Mr. A., aged forty years, five feet ten inches in height, weight 120 pounds, enteroptotic, with movable heart. Had suffered for many years from gastrointestinal troubles, shortness of breath after slight exertion, tightness in the chest, constipation, and a number of neurasthenic complaints. Organs normal. Heart movable, pulse very irregular and intermittent, 110 when standing, 80 and regular in recumbent position. The thymus was stretched and the percussion figure resembled closely that made out on the cadaver after injection.

CASE XV. Mr. S. N., aged forty-four years, five feet seven and one third inches in height, weight 104 pounds. A merchant, standing all day behind the counter. He came from a nervous family. Mother especially very nervous and so were all her people. He complained of headache, backache, shortness of breath (asthmatic attacks) and fatigue. Had been to many physicians to get relief, without avail. He was an enteroptotic of the paralytic type. His face was wrinkled, chest narrow and elongated, heart small, pulse 86 and regular, arteries palpable. The stomach, lower curvature a hand's width below the umbilicus; the kidneys were both movable. Blood pressure 132, blood, urine, and organs normal. The chart shows a small heart, distended vessel, and thymus.

CASE XVI. Mr. G., aged forty-three years, five feet seven inches in height, weight 297 pounds, complained of sour stomach, organs normal, urine free, excess of free hydrochloric acid in stomach. The chart shows a small thymus in an obese person.

The movable heart, meaning thereby excessive mobility, is frequently found with enteroptosis. I have only seen this condition accompanying other organic displacements. Glénard was the first to call attention to it, in 1885. A number of clinicians have confirmed his observations. In 1905, I described a typical case in a woman five feet three inches tall, weighing eighty-nine pounds, suffering

from splanchnoptosis with downward displacement of a normal heart, with a systolic blowing at the apex, and no symptoms of heart disease. (*Medical Record*, December 6, 1905.)

My assistant, Doctor Fossier, reported a number of similar cases in the *New Orleans Medical and Surgical Journal* for November, 1910, p. 342. The support of liver and stomach by the diaphragm fails when the patient is in the upright position, the domes more or less flattened, causing the cardiopneumosis, and the heart, suspended by the large vessels, moves freely. The circulation is seriously disturbed and arrhythmia, palpitations, and occasionally severe pain in the region of the heart are frequent symptoms.

CASES XVII and XVIII. Mrs. J. P., aged sixty-three years, mother of thirteen children, had passed through attacks of jaundice in 1883, and had always suffered from stomach troubles. In December, 1913, she was suddenly taken with severe pain in right side, radiating to the shoulder, fever, jaundice, biliary urine and gray colored stools, a typical case of gallstone colic. Patient was an enteroptotic of the lordotic type, five feet two and one half

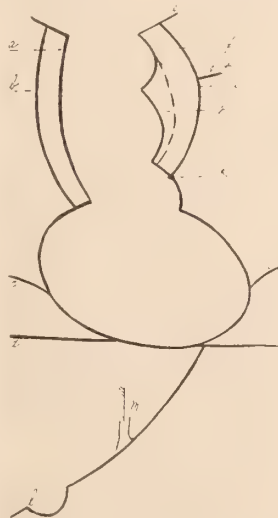


FIG. 24.—Case of Mrs. S.; thirty-eight years of age; movable heart; pseudoangina and asthma; chart taken April 11, 1914; patient lying down; a, arch of aorta and vena cava superior; b, thymus; c, dome of diaphragm; d, diaphragm fixed; e, clavicle; f, arch of aorta; g, thymus; h, second rib; i, pericardium; j, pulmonary arch; k, left ventricle; l, border of liver; m, median line.

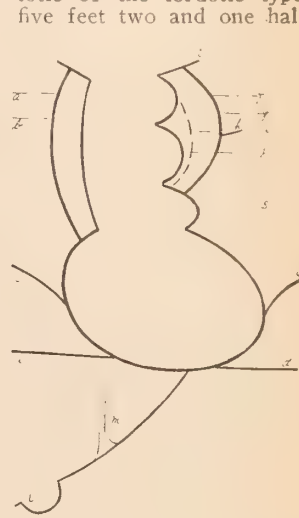


FIG. 25.—Case of Mrs. S.; aged thirty-eight years; movable heart; chart taken April 11, 1914; patient in upright position; a, arch of aorta and vena cava superior; b, thymus; c, dome of diaphragm; d, diaphragm fixed; e, clavicle; f, arch of aorta; g, thymus; h, second rib; i, pericardium; j, pulmonary arch; k, left auricle; l, liver border; m, median line.

inches tall, and weighed 132 pounds. She lost twenty pounds during her illness, before she came for treatment. She had an intermittent pulse in the upright position, regular in the recumbent posture. Arteries were palpable, blood pressure 172. The heart was movable. The liver border was palpable below the border of the ribs and was full, round, and not hard. The urine was acid, specific gravity 1.020, free of bile, albumin, sugar, and casts. The charts were made after clinical recovery. Kidneys movable, organs normal.

The domes of the diaphragm and heart were flattened, and the vessels narrow when patient stood up. In the horizontal position they were highly vaulted, the heart was round and the vessels appeared wider and shorter, as illustrated by the charts.

CASES XIX and XX. Mrs. L. B., aged thirty-five years, neurotic family history, had suffered from asthma and gastrointestinal troubles and headaches since childhood. Patient had movable heart; pulse 80, arteries palpable, kidneys movable; liver border could be felt below border of ribs; organs, blood, and urine normal. The heart was

large and round, when patient was lying down, domes of diaphragm high, vessels wide. When patient was standing up, they were flattened, the vessels were narrower. The heart had changed its form and appeared smaller.

CASES XXI and XXII. Mrs. C., aged forty-two years. This case differed from the foregoing; in the recumbent position the vessels were wide, the heart distended and round, the domes of the diaphragm normal, higher on the left side than on the right, higher than usual. After she had been moving round, heart and vessels were mapped out while standing and an entire change could be noticed. The right dome of the diaphragm was higher than the left and the heart of the same size as before; when patient was in the horizontal position had changed its form, it was flattened to the right, resting upon the pushed up liver. The thymus was distended.

CASES XXIII, XXIV, and XXV. Mrs. S., aged thirty-eight years, enteroptosis hereditary in the family, lordotic type, large thymus. Patient had hysterical stigmata and up to her twentieth year had suffered from severe migraine, attacks lasting several days at a time, accompanied by fever. For the last fifteen years she had suffered from attacks of asthma and angina pectoris. Pulse 90, had become irregular and intermittent after a fright several years ago; organs normal. The percussion was made in the upright position in June, 1911, and repeated after a few hours. The chart shows a distended thymus, wide vessels, and change of position and form of the heart. The attacks of angina were due to the movable heart.

These are a few cases of a large number I have on record. In all, the heart and vessels follow freely the movements of the patient when, in the recumbent posture, he turns over from side to side. All have improved under treatment and many are clinically cured.

After studying 2,700 patients in private practice during the last ten years (my first article on this subject was published in 1905, in the *Medical Record*) I have come to the conclusion that enteroptosis is due to an abnormal form of the spine and that hysteria, neurasthenia, and the visceral neuroses are caused by circulatory disturbances in this constitutional anomaly.

Hysteria and neurasthenia are not mentioned in textbooks on nervous diseases in connection with enteroptosis, neither have I heard of it in lectures by a number of eminent neurologists, though it is well known that nervous symptoms, neurasthenic and hysteric in character, are constant in enteroptosis.

A few days after this paper was written, I had a chance to examine Glénard's original articles to find that my work confirms his in every particular. He states that ninety per cent. and more of all patients that call on a physician, are enteroptotics and that is the percentage I have found. He classifies them as gastropnoes, enteroptoses, and neurasthenia, which he calls a constant syndrome of his disease, including hysteria, the unclassified psychopathies and the visceral neuroses in the term. My records give enteroptosis with gastric symptoms with gastrointestinal and nervous symptoms, the last including the various neuroses.

Glénard thinks that enteroptosis ought to be the diagnosis in all of them and it is the diagnosis I have made. He states that Weir Mitchell and Playfair unconsciously treated enteroptosis with rest and to show this I have quoted Weir Mitchell's first case that suggested rest treatment to him in this paper. Among the various affections described he mentions pseudogallstone colic and I have described pseudo-angina and pseudoappendicitis as symptoms of his disease. He states that local troubles get well by treating enteroptosis (and mentions 750 women suf-

fering from various uterine affections getting well under such treatment), and that has been my experience. I mention this as a curiosity, believing that my work independently done is of greater value to confirm Glénard's views, which seem to have been discarded and forgotten, than it would have been if I had known them before.

I have added the lordotic type of enteroptosis and, as a hypothesis, that the form of the spine is the cause of it, and that the neuroses are due to central irritation and slight peripheral stimulation caused by circulatory disturbances in this constitutional anomaly. Glénard thought the relaxation of the abdominal walls and the pulling of the organs on their ligaments to be the cause. Abrams adds congestion of the abdominal organs. I have given a new method of percussion to diagnose, with ease and accuracy, the displacement of the viscera, and have shown the retrosternal thymic fat body filled with blood during life and distended in a large number of enteroptotics, the cause of asthma and of importance for the cerebral circulation, causing nervous disturbances. The small thymus of the obese and the large overdistended thymus of the enteroptotic confirm Waldeyer's and Hanmar's views that the thymus functions up to old age, a conclusion drawn by them from microscopical findings.

TREATMENT.

An important, if not the most important feature of the treatment of these patients, is to restore intraabdominal pressure, which assists to keep organs in place and free of overfilling with blood. I have seen kidneys of adults and children drop considerably on opening the abdomen. Suitable exercises must be prescribed to restore muscular tone to the abdominal recti, which are usually found relaxed. In some patients, we find them hard, like large cords, but more or less widely separated. The best exercise to remedy these conditions is abdominal breathing, which must be properly taught, though other exercises may be added. It strengthens the abdominal muscles and relieves congestion. Contracted abdominal muscles with the ascending and descending movements of the diaphragm, act like massage upon the organs, improve the general circulation and assist the heart.

A suitable bandage must be worn as a substitute, till muscular tissue can be made. The bandages on the market are mostly useless; they are curved and do not exert pressure. Thin patients cannot be fitted at all, and fat patients are merely supported, as the bandage fits them like a glove. I have designed a bandage which suits the purpose, that is, it restores the pendulous abdomen to the normal or nearly so.

It consists of a shield made of cloth, with three whalebones set straight to give it stability, and it is placed above the pubic bone. This shield is buckled by three or four straps to a second one, worn across the spine. The lower strap is tight, the second less so, and the third is loose, restoring the normal form of the abdomen and exerting the desired pressure upward and backward. I described this bandage in 1905.

Sufficient rest in the recumbent posture is of equal importance. It is interesting to read Weir Mitchell's report of the case that suggested the rest

treatment to him. The history is typical for a large number of these patients. He thus describes an enteroptotic of the paralytic type: "In 1874 Mrs. G., of B., Maine, came to me in the month of January. She was a lady of ample means, with no special trouble or annoyances, but completely exhausted by having had children in rapid succession, and from having undertaken to do charitable work to an extent far beyond her strength. When first I saw this tall woman, large, gaunt, weighing under a hundred pounds, her complexion pale and acneous, and heard her story, I was for a time in a state of therapeutic despair as usually fell upon physicians of that day, when called upon to treat such cases. She had been to spas, to physicians of the utmost eminence, passed through the hands of gynecologists, worn spinal supporters, and taken every tonic known to the books. When I saw her she was unable to walk upstairs. Her exercise was limited to moving freely up and down the room, a dozen times daily. She slept little and being very intelligent, felt deeply her inability to read and write. Any use of the eyes caused headache and nausea. Conversation tired her and she had by degrees accepted a life of isolation. She was able partially to digest and retain her meals, if she lay down in a noiseless and darkened room. Any disturbance or the least excitement, in short any effort caused nausea and immediate rejection of her meal. With care she could retain enough food to preserve her life and hardly do more. Anemia, which we had no accurate means of measuring, had been met by half a dozen forms of iron, all of which were said to produce headache and generally to disagree with her. Naturally enough her case had been pronounced to be hysteria" (*Journal of Mental and Nervous Diseases*, June, 1904, p. 369).

Blood and lymph have to be kept in the upper portion of the body by heart force and muscular tone. Heart and muscles tire when taxed too long, the blood follows the laws of gravity; it drops, the abdominal organs become congested, and the chest organs do not receive a sufficient amount of blood. The general circulation is disturbed, veins are full and arteries empty, though sometimes both may show an insufficient amount of blood. This condition is still more pronounced in a hot climate, in which the toning effect of the cold is missing, and after a heavy meal, when the stomach draws the blood to digest the food. A cup of hot coffee is usually taken to stimulate the heart. Rest in the recumbent posture relieves this condition and restores the equilibrium. Continued rest in bed, as advised by Weir Mitchell, is costly; it requires the skilled attendance of nurse and masseur, and I have found that in all, with the exception of the most advanced cases, intermittent rest is sufficient, one to two hours after noonday meal, to interrupt the long hours of the day, and early bedtime. Fresh air, day and night, is perhaps more necessary in this disease, than in any other. The patient ought to be treated like a consumptive, as this anomaly is a predisposition to consumption.

Diet has to be prescribed according to climate, and seasoned to the state of nutrition of the patient, his financial condition, his work, his assimilating power and the affections of the gastrointestinal tract which are rarely absent. Drugs are needed in almost

every case. Asafetida, valerian, and atropine, to relieve cramps and to quiet, tonics to stimulate appetite and to tone the system, the bromides and other hypnotics to procure sleep, purgatives to evacuate the intestines, etc. There is not one that will cure, all must be used to effect and with caution, in addition to the physiological methods, hydrotherapy, electricity, massage, and psychotherapy and only after they have failed.

It is a chronic affection and no drug ought be used on that account for any length of time. Arsenic is a valuable tonic given in small doses. In animals it increases their weight, stimulates bony growth, and beautifies the fur. A habit can be established and an individual commencing with small doses, may finally take quantities far exceeding a lethal dose. This is shown by the inhabitants of the Styrian Alps, who take arsenic to enable them to climb their mountains with greater ease and to increase their resistance. Symptoms of intoxication are not observed in them and they live up to old age. Arsenic dilates the capillaries, depresses and soothes the nervous system, acts as a stimulant upon the bloodmaking organs, and possesses germicidal properties. The organic compounds are less toxic than the inorganic compounds; the arsenic is not contained in their solutions as ions and they possess therefore no germicidal property *in vitro*, but acquire this within the organism by gradual chemical decomposition. I have given arsenic in every chronic disease that requires toning with excellent results. It makes pure and richer blood, strengthening the defensive powers of the organism.

Eyestrain has to be relieved by the oculist, who often succeeds in curing headaches by this means, though in a number of cases he fails altogether. There is hardly anybody with both eyes alike, but these patients feel the trouble sooner on account of their disturbed circulation, and that is also the reason why in many cases they are hard to fit. Glasses that will give perfect satisfaction one day may be useless the next. Organic diseases have to be treated as in other cases.

1628 UPPERLINE STREET.

GONORRHEAL EPIDIDYMITIS AND ITS NONOPERATIVE TREATMENT.

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Epididymitis is one of the most frequent, most serious, and at the same time most preventable of all the complications of gonorrhea. It is in fact a complication that, under proper management, should not happen. And if it does happen rather too frequently in the practice of a physician, we can be quite certain that it is the physician who is at fault and not the disease. Strong injections, prolonged irrigations, meddling with the urethra, passing instruments in the superacute stage, overzealous massage of the prostate are undoubtedly causes of epididymitis. When I hear a physician assert, or I see one make the statement in print, that epididymitis is a complication in thirty per cent. (!) of all

cases of gonorrhea, I cannot help thinking that there is something wrong with his method of treatment. Of course the patient is very frequently at fault; for by walking, lifting, working, dancing, drinking, indulging in sexual intercourse, straining at stool, using injections forcibly, etc., in short by doing things he should carefully avoid, he himself brings about this painful complication, which is so dangerous to the perpetuation of the race. And while we are at this point, we may state that it is epididymitis that renders gonorrhea in the male a social, a racial disease. Were there no such complication as epididymitis, gonorrhea would be nasty, painful, dangerous, but it would be an individual disease. But on account of epididymitis, which renders thousands and thousands of men sterile, thus endangering the perpetuation of the human species, the gonococcus acquires the dignity of a racial poison, and gonorrhea that of a racial disease.

One of the first things the physician has to bear in mind, therefore, when treating a case of acute gonorrhea—and also chronic for that matter—is to *avoid* everything and to prohibit everything that may be conducive to this complication. Some cases will occur in spite of the utmost care. You cannot forbid the gonococci to penetrate into the vas deferens and then into the globus major or minor of the epididymis. But these unavoidable cases should not be more frequent than two or three in the hundred. In the last nine years I have not had a single case of epididymitis of my own making, and I have treated plenty of cases of acute and chronic urethritis, which goes to show that with care and common sense you can avoid many complications.

SYMPTOMS AND COURSE.

When a man has epididymitis, he knows it. Some times he knows it several hours before he has the epididymitis, by a severe pain in the groin. The pain in the groin is particularly severe when the spermatic cord is involved in the inflammation. As the swelling of the epididymis proceeds, the pain gets more intense and the patient can walk only with great difficulty. There is a general feeling of malaise (this feeling may precede the actual development of the epididymitis by several hours), there is fever, which may go up as high as 104° F., and the patient feels undoubtedly sick. Sometimes you do not have to tell the patient to go to bed; he is unable to do otherwise. In milder cases the patient may be able to walk about, but each step is accomplished with pain, and with a terrible feeling of heaviness and dragging down in the scrotum. Quite frequently the patient, if of what we call a nervous temperament, shows a tendency to faint. Occasionally he feels as if he had been hit in the stomach, is nauseated, vomits, and in some cases there may be convulsions.

In acute gonorrhea the onset of an epididymitis generally takes place in the second or third week, but it may occur as early as the first week or as late as the sixth. When it is due to rude instrumentation, to forcible injections, or to the patient's carelessness in lifting, dancing, etc., it may take place at any time.

Epididymitis is usually unilateral, but in a large number of cases it is bilateral. The swelling of

both epididymides, however, rarely occurs at the same time; usually one epididymis swells a few days before the other. It used to be thought that epididymitis is more common on the left side. This, however, is not so. In my own practice I have seen quite as many cases of epididymitis of the right testicle as of the left; and careful researches of other investigators give the same conclusion.

Whether epididymitis occurs by direct extension of the inflammation from the posterior urethra or prostate, etc., or whether it occurs by microbic invasion, or whether it may occur through the lymphatics, is of little importance, and I have taken little interest in the discussions pertaining to this question. In my opinion it may occur in any of the three ways. The principal thing is to know that it occurs and to know how to prevent and to cure it. The method of its origin does not influence its prophylaxis or treatment.

A very peculiar phenomenon, which is present in almost every case of epididymitis, is the complete cessation of the urethral discharge as soon as the epididymis swells. The discharge may be ever so profuse, it almost invariably stops with the establishment of this complication. Some times it stops several hours before. When the epididymitis subsides or is cured, the discharge starts up again. The rationale of this phenomenon has puzzled urologists for many years, and is still puzzling us. The most likely explanation is that the high temperature (104° F. or 40° C.) either destroys or deadens the gonococci. This explanation would leave nothing to be desired, but for the fact that the cessation of the discharge also takes place in cases in which there is a very slight elevation of temperature. In its favor is the fact that a gonorrheal discharge also often stops in systemic diseases accompanied by high temperature.

The usual duration of epididymitis is one to three weeks. It is, however, to be borne in mind that a not completely cured epididymitis, a nearly cured epididymitis, is very liable to relapse; and if a patient begins to work or walk about before he is completely cured of the acute attack, or if injections and instrumentation are started, a recurrence is very likely, and then the epididymitis may last, with greater or lesser severity, for two or three months.

Gonococcal epididymitis very rarely ends in supuration, much more rarely than an epididymitis due to infection with other bacteria. But there is one legacy that a gonococcal epididymitis leaves much more frequently than other kinds do, and that is an induration of the globus major or globus minor of the epididymis, with partial or complete occlusion of the lumen of the vas deferens. And if this condition occurs in both epididymes, the patient becomes sterile. In fact it is very seldom that a gonorrheal epididymitis heals so smoothly as to leave absolutely no induration. Very often the hardening in either the globus major or the globus minor remains with the patient through life, and by feeling it we can know absolutely that the patient has had gonorrhea ten or twenty or thirty years before, when there are not other symptoms to indicate it. Of patients who suffered with unilateral epididymitis, about twenty per cent. are sterile. Of those who had bilateral, from forty to forty-five

per cent. remain sterile. This is natural and easy to understand.

There is one phenomenon that requires a little discussion: People who have had several attacks of double epididymitis are less apt to be sterile than those who had one attack. The reason is not difficult to understand. When a man has had a double epididymitis just once and never had a recurrence, it can be readily assumed that the lumina of his vasa deferentia are completely clogged up, so that no gonococci can penetrate them; in short, the way is completely blocked. People who have recurrent epididymitis show by this fact alone that their vasa deferentia are permeable to a certain extent to noxious agents, and so permeable the other way to spermatozoa. It is also quite likely that a recurrent attack, in subsiding, causes the resolution or absorption of some of the inflammatory products of the first inflammation, and this causes the previously obstructed lumen to become permeable. I have had two very instructive cases in brothers, which I have reported elsewhere.

TREATMENT.

The first and most important thing is to put the patient to bed. As stated before, in many cases the physician does not have to, because the patient is unable either to sit or to stand. Even in cases in which the patient is able to walk, he ought to be put to bed, for an apparently mild epididymitis may in a few hours become a very formidable one, and it is just the walking and being about that may change it from the former into the latter. We know that there are cases in which it is impossible for the patient to go to bed; by doing so he may risk losing his position, his bread and butter. There we have to do the best we can, but that does not mean that it is right. The patient simply chooses what is to him the lesser of two evils, but this choice has not the sanction of medical science. It is only too often that medical science finds itself opposed by economic conditions, and under our present economic system it is the patient's economic condition that conquers. But medicine must not cease to protest, and it must keep up this protest until such time as the dicta of medicine shall be supreme, both in the prevention and the cure of disease.

So, then, the patient is put to bed and the testicles are elevated. To accomplish this in the simplest manner, we put a broad strip of adhesive plaster across the patient's thighs, close under the scrotum, and on this plaster the scrotum rests comfortably as on a shelf. The scrotum and the thighs are shaved. This makes the removal of the plaster easier and less painful, while the removal of the hair from the scrotum permits the applications that we are to order to penetrate more readily and thus to act more efficiently. The relief, which the patient experiences on the testicles being raised, is remarkable. Not only the sense of "sickness" and faintness disappears, but every sensation of pain is usually gone also. To prevent the scrotum and perineum from sticking to the upper edge of the adhesive plaster, that portion of the plaster which comes in contact with the scrotum has to be folded over with another piece of adhesive plaster, or a gauze pad may rest under the scrotum.

Instead of the adhesive plaster we may use as a makeshift a cigar box wrapped in several thicknesses of flannel or toweling. This is put between the patient's thighs and the scrotum rests on it.

Having raised the testicles, the question arises, what application are we going to use, hot or cold? It is quite true that the cold application, and even an ice bag, very frequently gives the quickest relief. Nevertheless I am not in favor of them, because I cannot get rid of the impression that induration, with its subsequent sterility, is more common in cases in which ice cold applications have been used. I therefore prefer frequently changed hot applications. My preference is for large gauze compresses wrung out of a hot solution of aluminum acetate containing some glycerin:

℞ Liquoris aluminii acetatis, / āā ʒviii;
Glycerini, ...
Aqua, ...Oj.
M. ft. mistura.

The compress is to be covered with oil silk and, if the patient must be up and about, the whole put into a well fitting suspensory bandage. The compress should be wrung out of the hot solution every hour.

These applications have a decided effect in reducing the swelling and moderating the pain, and if continued for several days have, in my opinion, a decided effect in preventing any permanent induration in the epididymis.

The application of compresses is very troublesome, as it requires a special nurse, and we therefore must sometimes get along altogether without them, or after using them for twelve to twenty-four hours we change off to ointments. A good ointment properly applied is also very beneficial. My favorite formula is:

℞ Unguenti hydrargyri, ...ʒii;
Guaiaecolis, ...
Ichthyolis, ...
Unguenti belladonnae, ...ʒss;
Adipis benzoati, q. s. ad.....ʒii.
M. Sig.: Apply externally twice or three times a day.

Very delicate patients are sometimes hypersensitive to guaiacol. I have seen it bring on a condition very near collapse. Where the patient is very young and delicate, I therefore frequently replace the guaiacol with methyl salicylate.

Again, there are cases, where the foregoing ointment cannot be prescribed for an apparently trivial, but to the patient all important reason: it soils the underwear and the bed linen. In such cases the following ointment will be found very useful:

℞ Hydrargyri ammoniati, ...ʒss;
Methylis salicylatis, ...ʒj;
Morphinae sulphatis, ...grs. iv;
Atropinae sulphatis, ...gr. j;
Adipis lanae, ...ʒss;
Adipis benzoati, ...ʒi.
M. ft. ung.

The diseased testicle, with its epididymis, is drawn down so that the scrotum is tense over it; the ointment is gently but thoroughly rubbed in; some is then spread thickly on a layer of cotton, in which the testicle is enveloped, some oiled silk is put over it, and the whole is kept in place by a few turns of a gauze bandage, or a well fitting suspensory bandage may be used. At first this ointment is to be changed twice or three times a day, but later a good

application of it once in twenty-four hours is sufficient.

One other useful method of dealing with the testicle may be mentioned. That is the injection of colloidal silver (collargol or electrargol, the latter being preferred by Hamonic and Asch, as being in a finer state of subdivision) directly into the epididymis. I have tried it in a few cases and the results seemed favorable. No anesthetic is necessary, but one of my patients fell in a dead faint, from which it took him two or three minutes to come out. The skin over the epididymis is made tense, painted with iodine, and the sharp fine needle is plunged directly into the globus major or minor, whichever happens to be the most affected part. My usual treatment has proved so uniformly successful in my hands, however, that I have recourse to this procedure in only exceptional cases.

Internally I order fifteen grains of sodium salicylate four times a day, or eight grains of acetylsalicylic acid three times a day. The value of salicylic preparations in epididymitis is beyond question. They not only reduce the fever and the local pain, but also induce a condition of euphoria. Where the fever is very high, aspirin may be combined with phenacetin or antipyrin. Morphine should be guarded against and should be used in very rare and extreme cases only, for not only does it keep up the fever and lock the secretions but it induces constipation, a condition against which we must guard particularly in epididymitis, because constipation has a decidedly bad effect on this complication, and if prostatitis happens to be coexistent, it also aggravates that. It is therefore my practice always to order some magnesium sulphate in all cases of epididymitis. It seems to me to exert more than a laxative effect, it aids in reducing the inflammation.

A hot enema is not only good for any existing constipation to clear out the rectum, but it does the local condition good, that is, it improves any existing prostatitis and posterior urethritis, and incidentally also the epididymitis. So that a small but hot enema at night, containing perhaps fifteen grains of antipyrin and five minims of tincture of opium, is a good thing.

Where the patient is extremely restless and cannot fall asleep, chloral or veronal should be given. If morphine is ever decided upon, it should be given in the form of rectal suppositories.

SHOULD THE URETHRA BE TREATED?

We come now to the question of the treatment of the urethra. Should the urethra be treated during an attack of epididymitis? Locally, absolutely no, under any circumstances. This was a universally accepted dictum for many years, but recently some ultraactive urologists have thought that they didn't see any reason why the urethra should not be treated, if the injections, irrigations, etc., are only done gently and carefully. Let those urologists settle the matter with their own consciences. I repeat that under no circumstances whatever should the urethra be treated locally during an attack of epididymitis. There is no injection or irrigation so gentle that it may not aggravate matters, cause a relapse, or turn the declining stage of the epididymitis into a furiously

acute stage. To treat the urethra with any injection, irrigation, or instrument during an acute epididymitis is criminal folly, but internally we may keep on giving the same medicines, demulcents, hexamethylenamine, sandalwood oil, or preparations containing it, etc., though even these are best given in smaller doses than when no epididymitis is present.

Where the patient cannot go to bed, then we start at once with the application of the ointment above described; ointment, big layer of nonabsorbent cotton, oiled silk, the whole supported by a well fitting suspensory or jockstrap. A home made T bandage from a waistband and a towel, while not elegant, answers the purpose and is much cheaper, which to the poor is an item.

STRAPPING THE TESTICLE.

Strapping the testicle is a very beneficial measure. It not only relieves the pain, but it helps in the absorption of the inflammatory exudate, and if properly applied the swelling diminishes rapidly under its influence. In six to eight hours the diminution in the size of the swollen epididymis may be so great as to be clearly apparent. The strapping with overlapping strips of adhesive plaster, as originally introduced by Fricke, was very popular for a long time, and if properly applied it did its work well; but it was troublesome, its removal every day (because the testicle having diminished in size it was no longer useful) caused the patient a great deal of pain, and if applied improperly, it was apt to do more harm than good. It is, therefore, now used by very few genitourinary surgeons. In this country, at least, it has been to a great extent superseded by the rubber bandage suggested by Chetwood. A piece of light rubber bandage, about two inches wide and three to four inches long, is taken, and a small piece of adhesive plaster, one half an inch wide and two inches long, is attached to one of its ends. The diseased testicle is pushed down to the scrotum until the skin is made as tense as possible over it; the rubber bandage is wrapped around the testicle, and is held in place by the strip of adhesive plaster. It may be changed daily, which is easily done; it is simply a matter of a minute. Care must be taken, however, that the strip of adhesive plaster is attached above the largest circumference of the testicle. If it is attached under it, the testicle will naturally slip out and up.

The epididymis may swell to the size of a fist or even larger, in fact the size in exceptional cases is hardly believable. While on superficial examination it seems that it is the testicle that is swollen, still by careful manipulation, when the scrotum is raised and the patient is in bed, we can find that the testicle is intact, of the normal size, and merely semisurrounded by the enlarged and inflamed epididymis. Occasionally, however, there is an effusion of fluid into the tunica vaginalis, and the testicle itself may participate in the inflammation. We then have to deal not with an epididymitis but with an orchiepididymitis or epididymoorchitis.

SEQUELÆ OF EPIDIDYMITIS.

The induration of the epididymis and the occlusion of the lumen of the vas deferens have for their result, as stated before, sterility of the male. They

either permit absolutely no spermatozoa to pass, the condition being one of aspermia, as much so as if the patient had been castrated; or the spermatozoa that pass are very few in number and deformed, and do not possess enough vitality to impregnate the ovum. But, strange as it may seem, this sterility is not accompanied by any impotence or diminished libido. The latter may even be increased. Nor does the patient's general health seem to be in any way influenced for the worse. I say this is a strange phenomenon, because we know of no other gland in the human organism whose excretory duct can be completely obliterated without any damage to the system. We can only assume that in some manner some of the products of the testicular function are absorbed into the general circulation, even though the ducts which give exit to the spermatozoa are obliterated.

Beside the induration of the epididymis with the consequent sterility, to which epididymitis is apt to give rise, its only other sequel is a neuralgic pain in the testicles, which may be very difficult to get rid of. This pain is apt to make itself particularly noticeable in run down sexual neurasthenics.

A tendency to tuberculosis of the testicle is also mentioned as one of the sequelæ of epididymitis. Personally I have not noticed any such tendency, although *à priori* it is not difficult to understand that in a patient predisposed to tuberculosis, tuberculosis of the epididymis and the testicle may develop after those organs have been subjected to a severe inflammation.

OPERATIVE TREATMENT OF EPIDIDYMITIS.

Of late years considerable has been written concerning the treatment of epididymitis by puncture and epididymotomy. I am not enthusiastic about the operative treatment of epididymitis. It will always remain almost exclusively a hospital procedure. It requires general anesthesia and the patient must stay in bed a week or two—so where is the gain? Suppose the patient does recover a few days earlier than he does by nonoperative treatment; the dangers of general anesthesia, the postoperative vomiting, the fear of the operation, are not worth the difference. And, besides, I do not believe in operating in any condition where we can get along without an operation, and I have not seen a single case of epididymitis which needed an operation. If properly treated from the start the patient is well in a week or two, and only in rare cases in three weeks, and without the shock and the expense of an operation. I repeat, therefore, that epididymotomy will most probably always remain a hospital operation—particularly recommended for soldiers and sailors, whose time is so "valuable" to the country. It will not become the method of choice in general practice.

12 MT. MORRIS PARK WEST.

Treatment of Acute Röntgen Ray Dermatitis.

—W. J. Dodd (*Journal A. M. A.*, October 10, 1914) found the following efficacious in the treatment of acute x ray dermatitis:

℞ Zinci oxidi, ... 3i (30 grams);
Phenolis, ... 3ss (2 grams);
Glycerini, ... 3i (4 grams);
Liquoris calcis, ... 5viii (240 grams).
M. Sig.: Shake well before using.

CIRRHOSIS OF THE LIVER IN WILD ANIMALS.

BY HERBERT FOX, M. D.,
Philadelphia,

Pathologist to the Zoological Gardens.

The material in this paper is taken from the records of this garden for the past eleven years, during which time 3,200 animals have come to autopsy. It is the intention to present all the cases of chronic alterations in the liver in which a disproportion existed between the supporting and parenchymatous tissues, and which seem to bear a relation to cirrhosis in man. I have presented the whole material in comparison with the changes seen in human hepatic cirrhoses, since not sufficient material is at hand to permit classifying the animals in orders or families. The subject will appeal most to those interested in the strict pathology or etiology of cirrhosis. The long debate as to the primary factor in cirrhosis, primary parenchymatous change with replacement fibrosis, or primary connective tissue aggression, is interestingly met in studying this material. It appears from the records herewith presented, that in the pathology of cirrhosis of the liver the infectious origin is commonly responsible. Certain it is that the common systemic causes given for cirrhosis do not hold for these wild animals. Alcohol, syphilis, lead, and the like can be excluded, while infections emanating from the gut tract are exceedingly frequent in captive animals. Ulcerative lesions are more common in the intestines than is the case with man. This may permit of food or protein poisonings, which if repeated favor cirrhosis. It is obviously impracticable to make comparisons of animal with human cases because of the paucity of records of the latter from which may be excluded organic and inorganic poisonings. It is held on many sides that the biliary cirrhoses are all infections, and no less than ten of our seventeen cases present either a frank progressive inflammatory condition or a biliary fibrosis with enlargement, atrophy, or obstruction. Of these biliary forms not one was found jaundiced and naturally none showed varices. The frank infectious biliary forms were progressive, with active interstitial cell and fibre growth, but with little tendency to intralobular penetration. When this was found it was near the capsule or hylus.

The portal cirrhoses are represented by four cases, of which all showed notable hepatic pigmentation but no jaundice; one had intestinal varices, but no hemorrhages are recorded. The odd cases are to be diagnosed as perihepatitis and passive congestion fibrosis, atypical Laennec's or Pictou cirrhosis of Adami, and perilobular fibrosis. In the accompanying chart I have tabulated the cases to show the various data, either not given in the detailed notes or unnecessary to them.

Especially to be emphasized is the small percentage of the cases showing disturbances of the gastrointestinal tract (two of the frankly infectious cases and two of the four portal cirrhoses). On the other hand, ten of the seventeen cases showed changes in the spleen. In the biliary type, five cases of splenic inflammation existed, four being chronic and one acute hemorrhagic. In the four portal

cirrroses, three chronic and one subacute cases of splenitis are noted. All cases of portal cirrhosis had chronic interstitial nephritis, while six of the biliary type had chronic change and one had acute change in the kidneys. In none of the cases was there disease of the pancreas.

The animals were fully developed and therefore classed as adult. There were seven males and nine females; of one the sex is not recorded. The time in the garden is not significant, as it does not indicate their time of captivity. It is introduced here to show how long they have been under fairly uniform conditions of life.

None of the cases here recorded were diagnosed or even suspected before death. The clinical data about wild animals have so far availed little in internal diagnosis.

In preparing this material I have used a system of classification which seems to embrace all the chronic lesions seen in the liver and to be practical for etiology and pathology, and, if necessary, for clinical work. The names given in the table refer to the following headings of cirrroses of the liver:

a. Scar tissue, therefore an end or result following toxic degeneration in the liver (so called toxic cirrhosis).

b. Pigment cirrhosis.

c. Portal cirrhosis with enlargement or atrophy of the alcoholic or Laennec type.

d. Biliary or Hanot cirrhosis with enlargement or atrophy or obstruction, with manifest inflammatory lesions within and around the biliary canaliculi.

e. Specific cirrroses, tuberculous, syphilitic, and Pictou cattle cirrhosis of Adami (?).

f. Perihepatitis and perilobular fibrosis.

g. Passive congestion cirrhosis.

CASE I (421). Bubaline antelope (*Bubalis buselophus*, female.) Parasitic cysts of kidneys, chronic diffuse nephritis, chronic enteritis, infectious cirrhosis of liver.

Liver small and firm and the surface slightly roughened. It had a brownish color and a dull, dry, opaque section surface. The surface contained numerous, small whitish areas which resembled small tubercles although probably scar tissue. One small (one cm.) cyst containing clear fluid.

Histological notes.—The naturally irregular lobules well preserved, but the cells only slightly increased in granularity. Nuclei of the liver cells, of the Kupffer cells and the vessel walls all clear. Interstitial tissue conspicuous for its richness in bile ducts and young connective tissue cells, which were strictly confined to the interlobular spaces. The bile ducts showed here and there a catarrhal inflammation, at some places entirely normal, but everywhere abnormally numerous. Fibres not much increased and delicate. No mitoses seen. Bloodvessels not conspicuous. No pigmentation. Evidence of an infective process about the bile ducts and this condition seemed to be a result of an acute process coming along the bile passages. No assistance found in the gross appearance of the liver hilus.

CASE II (754). Common raccoon (*Procyon lotor*, female). Beginning biliary cirrhosis of liver, chronic diffuse nephritis, chronic gastroenterocolitis. Liver apparently normal in size and firm. Surface smooth, tawny brown, and edges sharp. Section surface dull, moist, slightly granular, and opaque. Surface of a pale rosy pink, smooth, regular except at the lobulations and mottled by fine indistinct cream colored spots.

Histological notes.—Lobules of the liver very distinctly marked out. Connective tissue cells did not seem to be increased. Central vein rather large and the connective tissue about it plain. Divisions between the lobules, however, marked. Protoplasm of the liver cells very fatty, being occupied in many places by large globules of fat, and in some places nucleus obscured by granules of same. Liver cells moderately fatty in some places and extremely so in others; this fat of the so called degeneration type.

No.	Common name.	Type of cirrhosis.	Age.	Sex.	Time in garden.	Gastro-intestinal lesions.	Spleen.	Kidney.	Vessels.	Liver.		No evidence of tuberculosis in liver.	Myocarditis or ascites.
										Size.	Fatty.		
141	Bubaline antelope...	Biliary	Adult	Female	11 yrs.	Chronic	Moderate chronic splenitis	Chronic diffuse nephritis	.....	Small	.....	.....	.....
142	Common raccoon...	Portal	Young adult	Female	Few days	Chronic	Moderate fibrosis	Chronic diffuse nephritis	.....	Normal	.....	.....	.....
969	Japanese macaque (tuberculous) ...	Biliary	Adult	Male	Few mos.	.....	.....	Chronic interstitial nephritis	.....	Normal	.....	.....	.....
1112	Levaillant's amazon.	Biliary	Adult	?	?	Chronic tuberculous enteritis	.....	?	.....	Small	.....	+	.....
1153	Gray wolf.....	Perihepatitis and passive congestion	Adult	Male	6 yrs.	Chronic	Moderate fibrosis and congestion	Subacute diffuse nephritis	Intestines	Large	+	Slight	.....
1416	Fallow deer (tuberculous) ...	Biliary	Adult	Male	1 yr.	.....	Fibrosis and pigmentation	Chronic parenchymatous nephritis	?	Large	.....	Normal	.....
1461	Indian elephant....	Portal	Adult	Male	20 yrs.	.....	Hemorrhage	Chronic parenchymatous nephritis	.....	Normal	.....	.....	.....
1539	Red brocket.....	Biliary	Adult	Female	4 yrs.	.....	Chronic splenitis	Chronic parenchymatous nephritis	.....	Small	Slight	.....	.....
1669	Virginia deer.....	Biliary	Adult	Male	2 yrs.	.....	.....	Chronic parenchymatous nephritis	.....	Small	.....	.....	.....
1857	Capybara.....	Atypical Laennec or Pictou	Adult	Female	9 mos.	.....	.....	Chronic interstitial nephritis	.....	Small	.....	.....	.....
2510	Clonied leopard....	Portal	Adult	Male	11 yrs.	.....	Chronic splenitis	Acute parenchymatous nephritis	.....	Large	.....	.....	Chronic ductitis
2526	Black tailed walaby.	Biliary	Adult	Female	2 1/2 yrs.	.....	Chronic splenitis	Chronic parenchymatous nephritis	Intestines	Small	.....	.....	.....
2500	Texas skunk.....	Portal	Adult	Female	4 yrs.	Acute gastritis	Subacute splenitis	Chronic diffuse nephritis	.....	Large	.....	.....	.....
2850	Indian paradoxure...	Biliary	Adult	Male	12 yrs.	.....	Chronic splenitis	Chronic interstitial nephritis	.....	Normal	.....	.....	.....
2950	Mexican guan.....	Biliary	Adult	Female	4 yrs.	.....	.....	.....	.....	Normal	.....	.....	.....
3119	Common raccoon....	Perilobular fibrosis	Adult	Female	7 yrs.	.....	.....	Chronic parenchymatous nephritis	.....	Small	.....	.....	.....
3199	Aoudad.....	Biliary	Adult	Female	10 yrs.	.....	Congestion	Chronic parenchymatous nephritis	.....	Small	.....	+	.....

Slight biliary pigmentation, irregularly disposed, and here and there at the periphery of the lobules, a lighter clearer pigment, probably of blood origin. Interstitial tissue slightly increased, but conspicuous in being made up of abnormally wide acellular strands. Parenchyma bordering

infiltrations, liver cells had disappeared and left bare nuclei. Bile ducts increased and tortuous. A little dark granular pigment, seemingly of blood origin. No tubercles to be found in the liver. This seemed to be an acute exacerbation of a more chronic interstitial hepatitis, most likely of infectious origin. No evidence of regeneration.

CASE V (1,153). Gray wolf (*Canis lupus mexicanus*, male). Myocarditis, chronic gastroenteritis, cirrhosis from perihepatitis and passive congestion, subacute diffuse nephritis, edema of lungs, pericardium, and peritoneum. Liver much enlarged and extended over to left kidney. Capsule thickened and showed old adhesions between the lobes. Organ firm and friable and of a dark purple color, many large veins seen on the surface. Upon section, color the same, but mottled by pink areas near bloodvessels. Bile ducts apparently increased in number near the partially regenerated areas.

Histological notes.—Liver architecture disturbed by severe passive congestion with areas of edema, necrosis of liver cells in irregular areas, fatty metamorphosis in large droplet form, and irregular overgrowth of connective tissue; this last from the hepatic capsule, dipped down to the nearer portal spaces, and was continuous with an irregular overgrowth both interlobular and intralobular. Bile ducts slightly increased in number. No regenerative areas seen. Where the passive congestion and parenchyma destruction were most marked, connective tissue nuclei were quite prominent, more so than these architectural changes would seem to warrant, therefore seemed part of the cirrhosis. This condition seemed to be primarily a cirrhosis from a perihepatitis, aided and increased by chronic passive congestion.

CASE VI (1,416). Fallow deer (*Cervus dama*, male). Fibrocaseous tuberculosis of lungs, liver, and peritoneal glands, biliary cirrhosis of liver with duct obstruction. Liver involved in a caseous tuberculosis. Organ firm and tough. Capsule firm, irregular, indented in some places, and parenchyma showed very irregular, nutmeg appearance. Tubercles caseous, surrounded by a zone of fibrous tissue, and situated immediately beneath or near the surface. Lobules very irregular and in some places reached the width of two mm.

Histological notes.—Liver lobules clearly outlined. Cells practically normal and distinct. The striking feature was the enormous increase and irregularity of the bile ducts.



CASE VII.—1461. Indian elephant.

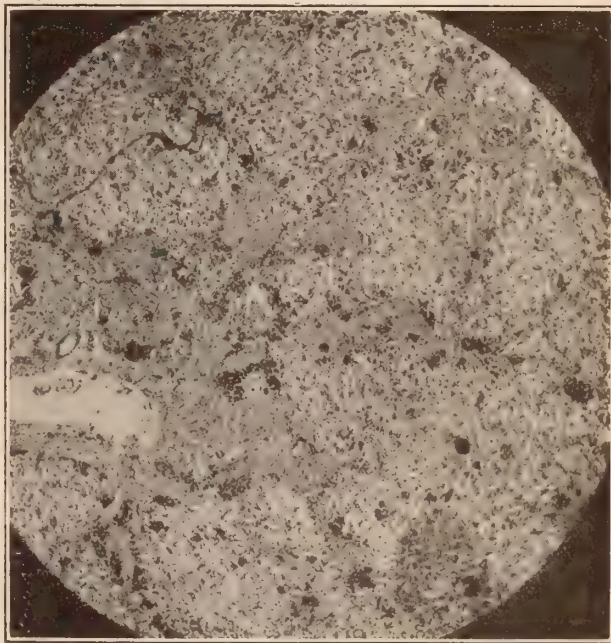
on the connective tissue being infiltrated by young connective tissue cells. Where the pigmentation was greatest, attempts at regeneration of the liver cells were observable. No increase of the bile ducts. Bloodvessels negative. Slight inflammatory reaction about one large bile duct in the section.

CASE III (969). Japanese macaque (*Macacus fuscatus*, male). Tuberculosis of lungs, peritoneum, prostate, and seminal vesicles, chronic interstitial nephritis, catarrhal pneumonia, biliary cirrhosis of liver. Liver normal in size and firm. Surface smooth, deep reddish brown, and edges rounded. Section surface glistening, moist, and smooth.

Histological notes.—The liver showed an excess of interlobular connective tissue. Liver cells compressed at the margins of the lobules but cells within apparently normal. Liver columns separated partly by degenerated blood, but no prolongations of the connective tissue could be followed between them. Although this was true it was likewise noteworthy that the connective tissue increase at the portal spaces tended to spread out and involve the adjacent portions of the liver columns and was not restricted to the bipolar or tripolar arrangement normal for the monkey liver. Some new bile duct formations and here and there an attempt at regeneration, condensation of the liver cells into ductlike channels in the ends of the liver columns caught in the above mentioned tissue. None of the connective tissue old or hyaline and process seemed like an early stage of a Hanot cirrhosis, but there was little recent cellular reaction or infiltration.

CASE IV (1,112). Levaillant's amazon (*Chrysotis levaillanti*). Chronic general tuberculosis, tuberculosis of the orbit, chronic tuberculous ulcerative enteritis, biliary cirrhosis of liver. Size of the liver decreased; firm, had smooth, pinkish brown surface and rounded edges. Section surface smooth and dull. Organ quite firm and suggested cirrhosis.

Histological notes.—Liver architecture altered by a marked infiltrate of plasma cells and small round cells, chiefly about the bloodvessels in the stroma. Some of these accumulations compact and accompanied by red blood cells. Others loose or diffuse and eosinophiles found. In still other places, cellular infiltrate less, but connective tissue more prominent than in the normal parrot liver. In the vicinity of both the acute and more chronic



CASE XVI.—2050. Mexican guan.

The first impression was that of adenocarcinoma of bile ducts, but they could be followed in continuity. They seemed to be regular in their multiplication and did not encroach upon the lobules. Connective tissue which separated them from the lobules increased, but no marked

incursion of the multiplied bile ducts or new tissue into the parenchyma. No regeneration of the bordering liver cells.

CASE VII (1,461). Indian elephant (*Elephas indicus*, male). Chronic polyarthritis, chronic myocarditis, portal cirrhosis, parenchymatous nephritis, chronic tuberculosis of lungs partly encapsulated, pigmentation of spleen. Liver smooth, firm, and tough; when cut it preserved these characteristics. Vessels empty. Surface presented indistinct nutmeg appearance. The interstices contained rather an abundance of connective tissue but there seemed to be no destruction of tissue or loss of normal topography of the lobules.

Histological notes.—Interlobular ramifications of the capsule very prominent. Consisted of pale hyaline areas, poor in cells, most of which were fibroblasts. This connective tissue increase had distorted but not cut off some lobules. Columns of the liver cells rather distorted, but maintained their general relations. Cells laden with a pale coarse granular pigment, slightly in excess of what would seem normal. (Elephant liver cells are normally multinuclear and contain pigment.) No increase of the bile ducts. The intercellular capillaries contained large quantities of cellular detritus and pigment.

CASE VIII (1,539). Red brocket (*Mazama rufus*, female). Abscess of jaw, abscesses of kidney and liver, biliary cirrhosis of liver, chronic parenchymatous nephritis, congestion edema, and emphysema of lungs. Liver of normal size, soft and friable, of a deep red brown color, with smooth surface and sharp edges. Section surface glistening, moist, and granular.

Histological notes.—Capsule and the interlobular connective tissue in various stages of active hyperplasia, the former apparently having been chronically thickened for some time. Interlobular tissue increased and accompanied by round cell infiltration at places where bile ducts were increased in number, while where these structures were not seemingly increased, a very slight fibre increase appeared and round cells were not so numerous. Some of the ducts showed catarrhal changes while others were being compressed to extinction. Liver columns well preserved, the cells well stained. No pigmentation or reduplication to be found, while here and there a bile duct found pushing into the lobules. Veins not perceptibly altered.

CASE IX (1,669). Virginia deer (*Mazama virginiana*, male). Biliary cirrhosis of liver, chronic parenchymatous nephritis, hypertrophy of heart, chronic splenitis, chronic pleural adhesions, calcareous tuberculous of mesenteric glands. Liver decreased in size, firm, tough, and of a deep red brown color. Surface smooth and edges rounded. Section surface glistening, moist, granular, and opaque. Marked increase in connective tissue with production of pale lines enclosing the lobules, forming a true nutmeg liver; greater in some places than in others, especially marked beneath the capsules and around the great vessels. Bloodvessels increased, but no increase of bile ducts to be seen.

Histological notes.—Great increase of the capsule of Glisson and of round cells, associated with increase of bile ducts, compression of lobules, and extension of connective tissue toward the hepatic vein, without any visible signs of regeneration. Moderate pigment. Process one of mild interstitial inflammation of frankly infective origin, which later would have lost the rather recent appearance and progressed to an ordinary Hanot cirrhosis.

CASE X (1,857). Capybara (*Hydrochoerus hydrochoerus*, female). Portal cirrhosis of liver, passive congestion of all viscera, edema of lungs, dilatation of heart, caseous tuberculosis of lungs and bronchial glands, focal myocarditis. Liver small, measuring 18.5x13x7 cm. Firm and tough and of a dull brown color. Surface rough and irregular and edges sharp. Section surface glistening, smooth, moist, and opaque. Organ of irregular shape. The two main divisions differed in that the left side was more nearly normal, showing slight whitish connective tissue increase beneath the capsule, having the parenchyma of dull homogeneous purple color just beginning to show gray lines running out from the portal spaces, while the right and posterior portions showed an advanced cirrhosis, with much destruction of the parenchyma as evidenced by small lobules, pale opaque homogeneous dull brown color and irregular nodular surface.

Histological notes.—Section at hand showed well marked

connective tissue increase with very slight involvement of bile ducts and bloodvessels. Connective tissue for the most part young, cellular, actively growing. Liver lobules being surrounded, invaded, and compressed, so that in many islands bare, whole, or necrotic liver nuclei were seen. This section was not taken from the most advanced part of the process, because the liver was saved for exhibition. Connective tissue not limited to the space between the lobules, but might be seen in the outer layers of the lobules between the liver columns. No increase of bile ducts and a very slight pigmentation. This was an atypical cirrhosis of the Laennec type and suggested the pericellular fibrosis of Adami. It was, of course, a recent process.

CASE XI (2,516). Clouded leopard. *Felis nebulosa*, male). Endothelioma of pleura, mild chronic interstitial nephritis, portal cirrhosis of liver, chronic splenitis, chronic lymphadenitis. Liver relatively small. Firm and tough and of a brown color. Surface smooth and edges sharp. Section surface smooth, glistening, and moist. Organ homogeneous. Vessels and connective tissue not increased.

Histological notes.—Organ very uniformly, deeply pigmented with light brown granules. Definite connective tissue increase in a very irregular fashion. It seemed to enter lobules, but much less than in the portal spaces. Usually hyaline, unaccompanied by cellular infiltrate. Also to be seen about the veins. There was a suggestion of bile duct increase.

CASE XIII (2,536). Black tailed wallaby (*Macropus ualabatus*, female). Infectious cirrhosis of the liver, chronic cholechochitis communis, chronic splenitis, acute parenchymatous nephritis, chronic myositis (gluteal). Liver slightly large. Surface rough and edges sharp. Organ firm and tough and mottled gray and purple. Section surface glistening, moist, granular, and opaque. Gray lines coursed over the surface and through the tissue, dividing the organ into very irregular lobulations. When sectioned, organ was anemic.

Gallbladder normal in size and contained fluid brown bile. Common duct not patulous, because of fibrotic thickening at the intestinal end. The whole wall for a distance of 3 cm. from the gut, was 4 mm. wide. Papilla prominent and firm; no inflammation about it. Duct of Wirsung apparently not thickened. Mucous membrane of the bile duct smooth, soft, firm, yellow, and opaque.

Histological notes.—Picture altered by enormous increase in the connective tissue which was interlobular; a tendency to bile duct increase and distortion. The large masses of connective tissue enclosed sometimes groups of cells midway between typical liver cells and endothelial cells. Some groups had undergone central necrosis. These cells were accompanied by round cell increase. Lobules showed capillary congestion with compression and distortion. The process seemed subacutely inflammatory and to accompany the bile ducts. The bile ducts were not formed in pseudocolumns nor was there evidence of regeneration within the lobules. It seemed that the endothelial cells mentioned above were derived from the perivascular lymph spaces. This seemed like a biliary cirrhosis with enlargement, but not strictly the Hanot type. This was probably correct, since an inflammation of the gallduct had been present some time. To this was added a thickening of the duct at the papilla of Vater.

CASE XIV (2,590). Texas skunk (*Mephitis mesomelas*, female). Subacute general infection, acute catarrhal ethmoidal and frontal sinusitis, chronic diffuse nephritis with acute exacerbation, subacute splenitis, lymphoma in spleen, portal cirrhosis of liver, emphysema of lung, acute serous pericarditis, acute fermentative gastritis. Liver of normal size or slightly small. Surface pebbly and edges rounded. Consistence firm, tough, and resilient. Color fawn brown. Section surface glistening, moist, granular, and opaque. Fine gray lines between the dull brown, rather diffuse and ill outlined lobules.

Histological notes.—The capsule where present seemed normal. The liver cells were fairly well preserved, although the liver capillaries were distended and compressed them slightly. Here and there fat globules. Portal spaces occupied by irregular rather edematous infiltrate of round, plasma, and connective tissue cells. This was more abundant about the bloodvessels, bile ducts, and their surroundings being practically unchanged. Little adult connective tissue, but much of the tissue which went on to fibre form-

ation. No pigmentation. No evidences of regeneration. No increase in bile ducts.

CASE XV (2,850). Indian paradoxure (*Paradoxurus niger*, male). Adenocarcinoma of pancreas, anemia, biliary cirrhosis of liver, amyloid of liver and kidney, chronic interstitial splenitis, chronic parenchymatous nephritis, chronic interstitial nephritis (arteriosclerotic kidney), cloudy swelling of heart muscle, congenital cysts of liver, hypertrophy of prostate. Liver very large and hard. Surface uneven and edges rounded. Pale and waxy on the surface, while the section surface was glistening, smooth, and dry. The organ showed patches of mahogany brown on adding Lugol's solution. There was a confluent multi-locular cyst, the size of a soup bean, at the lower edge of the left lobe. It had a smooth, glistening lining and clear fluid.

Histological notes.—Fibrous tissue everywhere overgrown, separating the lobules into distinct islands, with a tendency to penetrate toward the median vein. Bile capillaries increased in number, showing marked proliferation. In some places abundance of bile pigment in this fibrous tissue. Liver cells themselves had very pale granular cytoplasm and indistinct nuclei. They were sharply outlined and seemed to compress and occlude the blood capillaries.

CASE XVI (2,950). Mexican guan (*Ortalis vetula*, female). Localized purulent peritonitis (recent), probably related to traumatism, nodular caseous tuberculosis of right lung, biliary cirrhosis. Bulk of the liver normal or slightly less. Surface smooth and edges sharp. Organ firm and resilient, despite post mortem changes; mottled green and brown. Cut surface glistening, moist, smooth, and opaque. Surface nearly all green, with some brownish mottlings and of dense dark green on section. No regular architecture on section or surface. Connective tissue seemed increased. Vessels open and contained clot. A few small grains of inspissated bile near the hilus.

Histological notes.—The whole architecture destroyed by enormous increase in connective tissue, inclosing within it an increase in irregular bile ducts and some masses of black pigment. Parenchyma nearly entirely destroyed. Few cells remaining, either with or without nucleus, showed granular degeneration and pigmentary deposits. Masses of black pigment, chiefly around the periphery of the lobules.

CASE XVII (3,119). Common raccoon (*Procyon lotor*, female). Injury, parenchymatous goitre, perilobular fibrosis of liver. Liver normal in size, surface smooth, edges rounded, color mottled brown and yellow, consistence extremely firm and friable. Pericystic tissues bile stained. Gallbladder distended with fluid green bile, and duct patulous. Capsular surface practically homogeneous. The section surface showed a fine reticulum of brown lines around the darker areas.

Histological notes.—Liver showed slight perilobular fibrosis, very distinct demarcation of the lobules, but no increase in bile ducts. Marked biliary pigmentation of the liver columns, the cells of which were changed by decomposition. The process did not seem progressive.

CASE XVIII (3,199). Aoudad (*Ovis tragelaphus*, female). Shock from abdominal hemorrhage, ruptured parovarian cyst, normal right side pregnancy, biliary cirrhosis of liver, chronic parenchymatous nephritis, atheroma of aorta, chronic pleural adhesions, wound of right intercostal muscles (tenth rib). Old comminuted fracture of metacarpal bone, chronic arthritis of metacarpal joint. Liver normal in size or slightly less. Surface smooth and irregular with rounded edges. Firm and tough and of a deep red brown color. Section surface glistening, moist, and granular. Lobular architecture irregular and indistinct. Veins distended. Considerable perivenous connective tissue increase in star arrangement, more marked in the depths and less so near the surface. No jaundice, although some of bile ducts filled with cloudy bile.

Histological notes.—Capsule wide, with slight fibrillar increase beneath the wide true capsular membrane. Parenchyma fairly well preserved, slightly granular, here and there showing a fine pigmented stippling. Connective tissue irregularly increased. Bile ducts much increased in number, large, and tortuous. About these there was a very cellular interstitial tissue increase with as yet little fibre formation. In some bile ducts there was epithelial degeneration and desquamation, with increase in their fibrous tissue wall.

PENETRATING GUNSHOT WOUNDS OF THE ABDOMEN.*

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Chicago,

Lieut.-Colonel, Surgeon General of the State of Illinois.

Civil and military surgeons differ widely in the treatment of penetrating gunshot wounds of the abdomen. The practice of the civil surgeon is to enter the abdominal cavity and look for perforations as soon as possible after injury, no matter how received, while the military surgeon's treatment is not to interfere, but to leave these injuries to Nature. The authorities and experienced military surgeons profoundly impress it upon medical officers not to interfere. Military surgeons in their teachings, writings, and discussions say that to operate on a combatant shot in the abdomen means death, and that conservative treatment, such as rest, nothing per os, and the administration of opium will often save life.

Why should there be such a difference of opinion between military and civil surgeons in treating the same class of injuries? Let us endeavor to inquire into this difference of opinion, from an unbiased and neutral standpoint.

It is not so many years ago that the civil surgeon held the same views as our military colleagues do today. The civil surgeon's treatment changed with modern enlightenment in operative work on the intestines, with the evolution and advances in our knowledge of appendicular work for septic peritonitis, and the inauguration of drainage with the proper posture, whereby the fluids laden with septic material gravitate and are distributed to the outer dressings.

I will now mention some of the crucial arguments of the army surgeons in favor of the leave it to Nature treatment.

1. Operative treatment in war time has proved disastrous, as statistics show that all cases operated in ended fatally.

2. Asepsis cannot be carried out in the field.

3. The wounded cannot be cared for during the battle.

4. There is great danger of tetanus.

I believe the statements just enumerated present concretely the reasons given by expert military surgeons for declining operative interference in penetrating wounds of the abdomen.

In answer to the first argument—that operative treatment in war times has proved fatal—let me state that I fully agree as to the mortality, but I do not believe it was due to the operation that these patients died. We must not forget that the wounded often have to be transported over rough roads, and that in many instances a day or more after the receipt of the injury may elapse before treatment can be administered. Peritonitis has been developing during this period; the protective power of the peritoneum is weakened by the large amount of intestinal bacteria that have entered into the free peritoneal cavity, these bacteria overwhelming by their number the protective power of

*Read before the Chicago Medical Society, October 21, 1914.

the peritoneum. We can readily understand that these patients at the time of operation were *in extremis*, and would have died with or without operation.

In answer to reasons Nos. 2, 3, and 4, namely, the lack of asepsis on the battle field; the difficulty of caring for the wounded; and tetanus. I am satisfied that asepsis can be carried out as completely in the field as in civil life.

Military surgery must necessarily adapt itself to meet not only the demands of modern tactics, but the advance in surgical technic as well. I maintain that there is no borderline between military and civil surgery; the only consideration is the environment during an engagement, and this can be thoroughly organized to meet demands and to correspond to the usual civil surroundings. I think it is wrong to believe that wounds received in battle are more susceptible to infection than those received in civil life. Let us not overlook the fact that a battlefield is relatively a much cleaner place than a metropolis teeming with all kinds of pathogenic bacteria.

Injuries of all descriptions, as seen by the civil surgeon in time of peace, do not differ materially from injuries peculiar to warfare; therefore, the management and treatment of these wounds must necessarily be the same.

From experience and knowledge gained in hospital work in the past thirty years, I offer the following rule for all gunshot wounds of the abdomen, not immediately fatal and which cannot receive the immediate care of a dexterous surgeon in a well equipped hospital.

In every gunshot wound of the abdomen, irrespective of size and irrespective of whether perforation of the viscera is evident or not, the patient is to be guarded against peritonitis, not by protecting him against ectogenous infection by covering the wound, but by deviating from the peritoneal cavity the substances and bacteria certain to produce an endogenous infection.

What do we accomplish by the application of a first aid dressing to the external wound, which has penetrated the abdomen and injured the intestine? I will say here that I am of the firm belief that ninety-nine per cent. of all gunshot wounds penetrating the abdominal wall do some injury to the intestine. True, by using the first aid packet, we no doubt keep the external wound from becoming infected, but what else do we do? We seal up a cavity that represents a huge test tube, with the most favorable media for growth, placed in an incubator where incalculable numbers of bacteria are developed every second, resulting positively, if they are not released, in death. Now, what I propose is the following, and to obtain good results the procedure must be carried out within the first few hours after injury; the greater the delay after this time, the poorer the results will be. Instead of sealing the opening, by some means, a drain should be placed in the opening or openings, and if this cannot be accomplished, a small incision should be made above the pubis, a drain carried into the pelvis, and the patient kept in the upright position until he arrives at a suitable station, where the attending surgeon may use his judgment as to

further procedure. In my opinion, by this method, the gases and bacteria are encouraged to escape to the outside; the distention of the bowel is lessened, and transportation will necessarily be less uncomfortable and less dangerous. Any resulting fecal fistula can be operated upon later.

In closing let me suggest that the rule I have advanced depends for its success upon cooperation on the part of the national authorities, therefore, if we must have war, let me urge upon the medical department of this and of all other humane nations to keep pace with the advance to be found in all other modern military departments.

Since it is the aim and purpose of all nations to discover methods and means to kill and wound combatants in unmerciful numbers in time of war, why, let me ask, should not the authorities grant the medical department the means to organize a suitable plan to save more lives and afford greater relief to the unfortunate sick and wounded who offer up their all for the preservation of their country?

25 EAST WASHINGTON STREET.

PHENOLSULPHONEPHTHALEIN RENAL FUNCTION TEST.

A Simple Technic and a Method to Eliminate One Source of Error.

By J. I. FANZ, M. D.,
Philadelphia,

Demonstrator of Biology, Jefferson Medical College.

(From the Laboratories of The Daniel Baugh Institute of Anatomy
and Biology of the Jefferson Medical College.)

Irrespective of the criticisms of the phenolsulphonaphthalein test as a renal function gauge, there are many of the profession, especially in institutions, who use and have learned to depend on it as one of the routine tests, both in genitourinary and medical cases.

The prices of good standard colorimeters are high, and results, even with these, vary according to personal equation and accuracy of work. During the writer's service as hospital resident, a number of these tests were performed, using but the cheapest self devised apparatus. The results varied but from two to four per cent. from those obtained with high priced colorimeters. The apparatus used in a test consists of the following:

1. Two ampoules Hynson Westcott phenolsulphonaphthalein.
 2. One graduated 2 c. c. glass hypodermic syringe and needles.
 3. Two 1,000 c. c. glass cylinders 4 inches in diameter, graduated at least to 50 c. c.
 4. One stock bottle (250 c. c.) of a ten per cent. potassium hydroxide solution.
 5. One quart glass funnel and filter papers.
- (The graduated cylinders are used as the colorimeter and both must be exactly of the same diameter.)

The functional activity of excretion of the kidneys is put into figures by the following method: By careful aseptic catheterization, the patient's bladder is completely emptied. This urine is put aside to be used in making up the standard color solution, it being desirable to get as large an amount as possible.

After emptying the bladder, sterilize the skin of the back of the patient just above the posterior superior spine of the ilium by rubbing vigorously with an alcohol sponge. While the alcohol is drying, carefully draw up one c. c. of the phthalein from the ampoule into the graduated hypodermic syringe. The needle is then plunged into the lumbar muscles and the contents of the syringe are injected, thereby placing the chemical indicator in the circulation. Note the exact time of injection. In five minutes, reinsert the catheter into the bladder. Collect the urine as it drips from the catheter into test tubes, in each of which there is about five c. c. of the ten per cent. potassium hydroxide solution. Note the exact time when the dripping urine tinges the solution in the tubes, pink. This denotes that the elimination of the drug is about to begin, which in normal cases should be in about seven to eleven minutes from the time of injection. One hour from the time of the drug's first appearance catheterize completely, measure in c. c. and label specimen as first hour's output in c. c. At the end of a subsequent hour, catheterize for the last time, measure, and label the bottle as the second hour's output in c. c.

LABORATORY TECHNIC.

In ordinary technic the standard, when prepared according to the directions of the makers of the phenolsulphonephthalein, is a beautiful, bright, deep

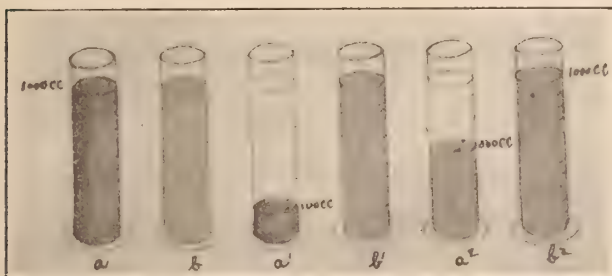


FIG.—a, Standard 1,000 c. c., 100 per cent. phenolsulphonephthalein solution; b, b¹, b²=1,000 c. c. solution first hour's urinary output of phthalein; a', 100 c. c. standard solution (a unit of the standard); a'', 100 c. c. standard solution diluted up to 500 c. c. at which point it matches the solution of first hour's urinary specimen; a'' and b'' in color amount.

scarlet color. The urine, when compared to the standard, although diluted, alkalinized, and filtered, is not absolutely transparent, and, what is worse, has a yellowish tinge from the urinary salts. It is on account of this peculiar condition that attempts to compare it to the bright transparent standard solution usually result in error, sometimes ten per cent., even in the elaborate instruments. To obviate this error in technic, when making up the 1,000 c. c. standard 100 per cent. phthalein solution, add a quantity of the patient's urine, obtained just before injecting the indicator, equal in amount to the first hour's urinary output after the injection. The standard solution now will have approximately the same amount of urinary salts as the specimen solution, and the standard and urinary solution will equal each other in opaqueness and yellowish tint, making color comparison easy.

To make up the standard solution, use one c. c. of the contents of an ampoule of the phthalein, add the patient's urine (obtained before injecting the indicator) in amount to equal the first hour's urinary

output after appearance of the drug. Alkalinize this mixture with twenty-five c. c. of ten per cent. potassium hydroxide, filter, and add sufficient distilled water to make up 1,000 c. c. This is the standard and contains 100 per cent. of the indicator in 1,000 c. c. (Fig. a.)

The first hour's urinary output after injection of the one c. c. phthalein is now alkalinized with twenty-five c. c. of the ten per cent. potassium hydroxide and filtered. To this is added enough distilled water to make 1,000 c. c. This is the test specimen (Figs. b, b-1, b-2 and is much lighter in color than the standard a). By diluting a unit of the standard, say fifty to 100 or 200 c. c. (a) with distilled water until it matches the 1,000 c. c. solution of the first hour's urinary output (a₂ and b₂) the direct percentage of the indicator in the first hour's specimen can easily be estimated. Say, 100 c. c. of the standard had to be diluted up to 500 c. c. before it matched the first hour's specimen dilution, then the standard would be five times as strong as the specimen, or the specimen would contain twenty per cent. of phthalein. The second hour's output of indicator (phthalein) is estimated precisely like the first.

The color readings are best made on a frosted window background in daytime in order to get diffused light. At night the ordinary light with a piece of white paper held before it, will serve as a background. The solutions must always be filtered carefully, and graduated cylinders of equal diameter used. By balancing the opacity due to urinary salts, by using urine to make up the standard, the yellowish tint, which is very troublesome in making comparisons, will also be balanced.

The plain technic and simple apparatus, together with the correction of opacity and tint, make the test more practical with but a sacrifice of about two per cent. error for crude apparatus.

In the normal individual the indicator should appear in from seven to eleven minutes. The first hour's excretion of indicator should be about forty per cent.; the second twenty per cent.

The comparative urinary output of the right and left kidneys is obtained by the use of ureteral catheters or segregating devices. Colorimeter estimation is performed as described. When urine is not obtainable before injecting phthalein, a urine of the same specific gravity and reaction as the patient's is the next best thing in making up a standard.

2914 WEST ALLEGHENY AVENUE.

Curative Treatment in Acute Diffuse Myelitis.

—A. Netter, in *Bulletin de l'académie de médecine* for April 7, 1914, reports a case of acute diffuse myelitis in which a cure was effected by injection into the spinal canal of blood serum from patients who previously had acute poliomyelitis. In the case under treatment characteristic symptoms of acute inflammation of the cord were present, with complete anesthesia up to the breasts; the lower limbs were paralyzed. Spinal fluid under high pressure contained much fibrin, albumin, and lymphocytes. The serum injected was obtained from eight different former poliomyelitis cases, and ten injections were made on successive days.

AUTOSERUM INJECTIONS IN STREPTOCOCCIC ENDOCARDITIS.

Report of a Case with Recovery.

BY ROBERT ABRAHAMS, M. D.,
New York,

Adjunct Professor and Adjunct Attending Physician, New York
Post-Graduate Medical School and Hospital.

(From the medical service of the New York Post-Graduate Hospital,
Edward Quintard, M.D., Medical Director.)

This case is reported because: 1. Recovery from streptococcic (viridans) endocarditis is a rare occurrence; 2, the very rapid recovery; 3, the employment of autoserum in streptococcic infection, which, I believe, is novel; and, 4, I plead for its further use in infections of similar nature and origin.

I saw the patient through the courtesy of Dr. Isidor N. Kahn, on the evening of August 16, 1914. The diagnosis of streptococcic endocarditis was agreed upon and the next morning the patient was admitted to my service at the Post-Graduate Hospital.

CASE. Miss Fannie R., aged twenty-two years; duration of illness ten weeks; chills, fever, headache, and pains in the joints. Family history, negative. Personal history: When a child, had whooping cough and measles. After the age of seven years she suffered repeated attacks of sore throat, but never had diphtheria. She weighed 108 pounds when she took sick and lost twenty pounds during her sickness.

Present history: Ten weeks ago the patient had an attack of tonsillitis which was associated with chills and fever. The fever continued for two weeks. At the end of this time the temperature which ranged between 102° and 104° fell to 100° F. Synchronous with the reduction of the temperature, she experienced pain, stiffness, and swelling of the ankles, wrists, and some fingers. The swelling of a new and unaffected joint was always accompanied by a chill and high temperature.

The patient passed two weeks in comparative comfort and freedom from pain. Four days before she was admitted to the hospital, she was taken with a violent headache, distressing restlessness, severe pain over the precordium; marked rigidity of the neck, vertigo, and vomiting.

On examination, the patient was found to be a well developed but poorly nourished, anemic and looking very sick. Pupils equal and reacted to light and accommodation. Teeth clean, well preserved; no pyorrhea. Tongue, slightly coated and moist. Hypertrophied tonsils; no marked inflammation. Neck, no abnormal pulsations; no enlarged glands; thyroid normal. Heart, apex in the fifth interspace, in the mammillary line; second pulmonic sound accentuated; other sounds muffled; slight systolic murmur over the apex. Pulse, 120; tension, normal. Temperature, 104° F. Respiration, 28. Knee jerks, exaggerated; moderate rigidity of the neck; slight Kernig sign. Lungs and abdominal viscera negative. Microscopic examination of the feces and urine, negative. Widal, negative. Throat culture, negative. Blood count: Erythrocytes, 4,500,000; leucocytes, 15,700; polynuclear leucocytes, 77; lymphocytes, 23 (count of 200).

Laboratory report New York Post-Graduate Medical School and Hospital: Blood culture. Broth showed positive streptococci. About 400 small green colonies on each plate. Very slight hemolysis. Gram positive cocci in long chains. Diagnosis, streptococcus viridans infection.

On August 20th the patient's temperature was 102° F., pulse 100. Had been vomiting a good deal during the previous twenty-four hours, complained of severe precordial pain; looked and felt miserable and distressed. The same day twenty c. c. of the patient's serum was injected intravenously. Six hours after the injection the temperature went down to 100° F. and the pulse to 90. The patient felt very comfortable. The next day (August 21st), another twenty c. c. of autoserum was injected. After this injection the temperature went down to 99° F. and pulse to 80. The patient was in fine condition.

A third injection was made, August 22d. This injection

was followed by a subnormal temperature, 96.5° F., and a pulse of 60.

The next morning, August 23d, the temperature rose to 99° F. and pulse to 80. From this time on to the discharge of the patient from the hospital, pulse and temperature remained normal.

With the beginning of the autoserum treatment, the patient's condition began to improve. This improvement continued uninterruptedly until she was discharged, which was at the end of three weeks; she was completely cured.

In a letter which I recently received, the girl writes that she has gained ten pounds in two weeks. Further observations of the blood are interesting. Two days after the first injection of autoserum, blood cultures were made upon which the laboratory reported: "Streptococcus viridans present from second blood culture." Two days later, a blood culture of the serum was made, upon which the laboratory report reads: "Blood serum culture, plate show six colonies Gram positive cocci, short chains." Apparently the original streptococci underwent a change; they lost their identity.

A third blood culture was taken, August 26, about nine days after the patient's admission to the hospital and after the third and final autoserum injection on which the laboratory report reads: "Plate after forty-eight hours shows very few colonies of staphylococcus. Streptococcus not found."

I am indebted to Doctor Hibbs, Doctor Lough, and Doctor Hill, of the resident staff, for their valuable assistance in the management of this interesting case.

257 WEST EIGHTY-EIGHTH STREET.

EYESTRAIN IN THE DEVELOPMENT OF TUBERCULOSIS.

BY FRANK D. W. BATES, M. D.,
Hamilton, Ontario.

While Dr. Abert Robin and Dr. Thomas J. Mays are discussing the efficacy of the present methods adopted to stamp out tuberculosis, I desire to say a few words along the same lines, but of a different nature. I have nothing against the fresh air treatment. It is good as far as it goes, but if we expect to stamp out tuberculosis we must not stop at that, but investigate everything that is a possible factor in its development. Unfortunately, the medical profession are an exceedingly conservative class of men, and it is difficult to get them interested in anything new, unless it be a new germ or a new surgical operation—concerning which they seem to be running wild at present.

About eighteen years ago, in 1896, I commenced looking into the eyestrain theory as a factor in the development of diseases of the general system. My attention was first called to it by a case of diabetes mellitus that was said to have been cured by an operation upon the eyes, after having been under treatment by a reputable physician of Brantford, Ont., for four years, without result. I wrote to the physician in Brantford, who was a man of high standing in the profession, and asked him if there was any truth in the statement. He wrote me a very nice letter in reply; he was glad to hear from me, as he was much interested in the case I asked him about. He said it was a true case of diabetes

mellitus, and had been under his care for four years without result. In fact, he said he had never expected to cure him, but had simply been giving him medicine to palliate his trouble while he lived. But somehow, he said, he got into the hands of this Chicago oculist, who performed an operation upon his eyes, and he could not attribute his cure to any other cause, as he had given him no medicine, and he, himself, had given him every remedy he could think of without result in the previous four years. The operation performed was for exophoria, and it had been a year since the operation was performed, and during the year he had examined him a dozen times, and there was not a vestige of diabetes about him; the man was perfectly well. If I made any experiments along those lines, he would be glad to hear from me.

I then had a correspondence with the Chicago oculist, which resulted in my going to see him. I remained for three weeks, then went to New York to see a man who I supposed was the originator of the theory. I found afterward that I was mistaken, as the originator of the eyestrain theory was Dr. George M. Gould, of Philadelphia, with whom I later got into communication. However, I remained with the New York advocate for three weeks, and came back home thoroughly convinced that the theory was sound, and that a great many of the diseases of the general system, attributed to other causes, were due either directly or indirectly to eyestrain. I have been working along these lines now for about eighteen years, and have never had reason to change my views; on the contrary, I have had hundreds of cases to verify them. But trying to introduce a new theory in medicine is pretty difficult work, as those who have had experience know; and the eyestrain theory is the most difficult of introduction that has ever been brought forward in medicine, for the reason that physicians have for so long looked upon eye troubles as being due to systemic troubles, that it is very difficult for them to believe that troubles of the general system may be due to strain upon the eyes. This paper, however, has to do with eyestrain only in its connection with tuberculosis. I first saw eyestrain mentioned as a factor in the development of tuberculosis in a book written by Dr. A. L. Ranney, of New York, in 1897.

CASE I. My first case of tuberculosis in this connection came under my care in 1899. It was in a girl, aged eighteen years, daughter of robust, healthy Scotch parents. They could not trace consumption on either side of the house—though one brother of this girl, out of a family of nine children, had died of it several years previous to her coming to me. Her trouble had been of short duration—only a few months, but she had run down rapidly, lost weight from 113 to eighty-two pounds, had profuse night sweats, coughed a great deal, had very little appetite, and was very weak. At the time she came to me the family physician had told her parents that she would probably not live three months. She came to me, as her eyes were troubling her considerably. I did not find much trouble with the refraction, slight hypermetropic astigmatism, but I found that she had about 10° of right hyperphoria. Upon covering the left eye, and looking with the right, the eyes were both in line; but upon covering the right, and looking with the left, the right eye turned up. Upon looking with both eyes, there was apparently nothing wrong. I put a pair of prismatic glasses on her as an experiment, 8° divided between the two eyes, base down in the right and up in the left eye, and told her to report in three days. In three days she reported, with conditions considerably improved. Night

sweats were less, cough less, appetite improved, and she felt stronger. She continued wearing the prismatic glasses and continued to improve. The night sweats stopped, cough grew less, and she gained four pounds in weight. I suggested an operation upon the muscles of the eye, but the parents objected and I did not press the matter, as I did not feel as sure of my ground as I would in a similar case today. The girl continued to wear the glasses, and remained in about the same condition for about fifteen months, when she became suddenly worse and died. After her death her mother regretted that she had not allowed me to operate upon her eyes, and said if ever another of her children became afflicted in the same way I might do as I liked with them.

CASE II. About two years later sister, aged twenty-one years, began to run down in health, and on taking her to their family physician the parents were told that she would likely go the same way as her sister had. I would say that this family physician did not take much stock in her sister's condition being caused by the trouble with her eyes, nor in her improvement being caused by wearing the glasses. However, the second sister was brought to me, and I found simple myopic astigmatism, for which I prescribed as follows:

O.D.—0.75 D.C. 145°
O.S.—0.75 D.C. 160°

Suffice it to say that the girl began to improve immediately on wearing the glasses, and is alive and well today.

Since then I have had a number of cases of pronounced tuberculosis, but only such as have come to me in the ordinary routine of my practice as a specialist. I have tried to interest the general practitioners of this city, but have not been successful. Of all the patients who have come to me, all have recovered with the exception of one, a young lady, aged twenty-four years, who was running down rapidly when she came. She had had several severe hemorrhages. I found her manifest trouble with the refraction:

O.D.+1.0 D+0.50 D.C. 95°
O.S.+1.0 D+0.75 D.C. 80°

for which I prescribed glasses. She improved in health, gained in weight considerably, and had no more hemorrhages—excepting one very slight one. She lived for about two years.

About two years ago I wrote to the physician in charge of the sanitarium for consumptives in Muskoka, Ont., telling him of my experience, and asking the privilege of going up there and examining the eyes of all the inmates, so as to form an estimate as to what percentage of them had eyestrain, and to what extent it existed. I offered to pay all my own expenses and make no charge for my examinations. I received no encouragement at all, his opinion being that eyestrain had nothing whatever to do with tuberculosis. It is needless to say that he knew absolutely nothing about eyestrain. I then wrote to several members of the board of management, but did not succeed in interesting any of them.

Four years ago the health officer of Toronto, Ont., was intrusted with a large sum of money (I have forgotten the amount now) with which to use every endeavor to stamp out tuberculosis. I immediately wrote him a long letter, telling him of my experience, and suggesting an investigation. I received no reply. About a year later, I saw his name mentioned again in connection with tuberculosis, and wrote him again. I said I had written him a year previous and that he had not even done me the courtesy of acknowledging the receipt of my letter, but I was going to take the liberty of

writing again. This brought forth a reply. He said, yes, he had received my previous letter, but being very busy, and not thinking much of it, it had slipped his mind. However, he said, perhaps there might be something in the theory, and he would hand my letter over to the superintendent of the department for tuberculosis, and ask her to investigate the matter. I received a letter from the superintendent the same day, saying that upon reading my letter it had occurred to her there might be something in the theory; thereafter she would have the eyes of all applicants in her department examined, and report later. About a year after that I wrote her again asking what results she had had. She replied saying that, really, she had been so busy she had not had time to attend to the matter.

Now I write all this to show the efforts I have made to have this matter properly investigated, and the success, or the nonsuccess I have met with. What are the medical profession for anyway, if not to investigate important theories that come up? Very true, there are theories come up every year in which there is nothing, but no man would spend eighteen years of his life in trying to develop a theory unless he got results from his experiments, and when such a man asserts that the thing he is trying to develop is a factor in the development of a disease that is so destructive to the human race as tuberculosis, I think it is up to the medical profession to make a thorough investigation, and find out how much truth there is in his statements. From the experience I have had in my own practice, I feel absolutely certain that the time will come when eyestrain will be recognized, not only as a factor, but as a very great factor in the development of tuberculosis, and the sooner we find out to what extent it exists in such cases, the better.

It will be asked: How can eyestrain produce tuberculosis? Is it by direct connection with the lungs or the organs involved? No, it is by using up the nerve force, lowering the vitality, and placing the system in a condition where the germs of the disease can find a suitable habitat. From the time we open our eyes in the morning until we close them at night in sleep, the eyes do more work than any other organ of the body, and if there is trouble with the refraction or muscular equilibrium we are using up a certain amount of nerve force all the time. It may not be much, but the drain is going on continuously, and it depends on the amount of nerve force possessed by the individual, his or her predispositions or susceptibilities, how long before it will show its effect and what that effect will be. If a person is manufacturing more nerve force every day than he is using up in his ordinary vocation, eyestrain may exist for years and never show its effects other than by headaches or slight nervous affections, and perhaps not even those, but if he is manufacturing only just as much as he is using up every day, the additional nerve force used up by eyestrain is sufficient soon to place the system below par, where the disease to which he is predisposed is liable to develop, and that may be tuberculosis. In fact, I think any person whose system is below par is liable to be infected by the germs of tuberculosis.

Now, at the present time, if a man discovers a

new germ, or invents a new surgical operation, he is hailed by the profession as a public benefactor. We are surrounded by millions of germs, and it is perfectly right to take every precaution against them by having everything about us as aseptic as possible, and we certainly are indebted greatly to improved surgery. But I would ask, which is the better to discover; a new germ, or a method by which the system can be placed in such a condition that germs will not be likely to take root? I say, do both; but do not exalt the one and ignore the other.

Now if we want to investigate this matter thoroughly, it must be done on a large scale, and good men appointed to do the examining; men who are not prejudiced, but who will approach the work with a desire to find out how much there is in the theory. It would not do to put careless examiners on the work; men who would pass over a case because the vision was perfect. Some of the worst cases of eyestrain I have ever run across have been in persons who had even better than normal vision. Perfect vision is no criterion as to whether there is strain upon the eyes or not; it simply means that if there is trouble with the refraction, the muscles of accommodation are strong enough to overcome it. I have one case in mind now where a person's manifest trouble is as follows:

O.D.+3.0 D+0.50 D.C. 95°
O.S.+3.0 D+0.50 D.C. 90°

and still, that person's vision with each eye separately, without glasses, is 20/15. Nor would it do to appoint men for such examinations who are in the habit of prescribing many spherical glasses. The fine points of astigmatism must be brought out in order to relieve eyestrain. A man's ability as a prescriber of glasses can be estimated by the percentage of cylindrical glasses he prescribes. Nor would it do to appoint a man for those examinations who would pass over a slight amount of astigmatism, thinking there could be no strain therefrom. I have known considerable systemic disturbance to be produced by as little as 0.12 D. of astigmatism. If the investigation is made, it wants to be done properly. It will be done sooner or later, and the sooner it is done the sooner we will find out to what extent eyestrain is a factor in the development of tuberculosis.

SULPHUROUS ACID IN THE TREATMENT OF FURUNCLES.

By P. G. SKILLERN, JR., M. D.,
Philadelphia,

Instructor in Anatomy and Surgery, University of Pennsylvania.

Sulphur in the form of the powder has long been a staple household remedy as a spring blood purifier, and as calcium sulphide is an ancient remedy for acne pustulosa. In 1897, Bulkley recommended Startin's mixture of iron and dilute sulphuric acid, ten drops to the dram, for furuncles. In 1913, Reynolds, of London, stated that he got good results from dilute sulphuric acid. In 1914, Tweddell (Cause and Prevention of Pyorrhoea alveolaris and Furunculosis, *Medical Record*, p. 16, July 4, 1914) treated furunculosis successfully with dilute sul-

phuric acid, but recommended larger doses, from thirty to sixty drops in water, three or four times a day.

It is known that a dilute acid decomposes in water, the reaction being manifested by the increased temperature of the liquid. Elixir of vitriol, or aromatic sulphuric acid, is preferable to any other form of sulphuric acid for internal administration. Syrup of lemon makes a good vehicle, and the elixir may be given in the same doses as the dilute acid.

Sulphurous acid has long been in use for certain skin diseases, and it occurred to the writer to try out this remedy in furunculosis. The dose decided upon was one teaspoonful in a large glass of water three times daily after meals. As much as three teaspoonfuls may be given. The mouth must be well rinsed after each dose, it being preferable to neutralize the remains of the acid in the oral cavity with milk of magnesia. The breath should be held while the dose is being swallowed, for the fumes are slightly irritating to the respiratory tract. The acid is also a good stomachic.

Many cases of furunculosis, perhaps thirty or fifty, have been thus treated by the writer within the last few months. The course of existing boils has been greatly abbreviated, and *in no case has recurrence been met with.* This is a point of great significance, for nothing would make the patient return sooner than the occurrence of another boil.

The usual hygienic directions must also be observed, as has been pointed out in a previous paper (The Rational Treatment of Furuncles, *Journal A. M. A.*, lvii, 968, 1911). Excessive ingestion of sugar seems to be of causative influence, for many sufferers have overindulged in pastries and candies. Francis (*British Medical Journal*, 402, August 17, 1912) writes: "I have known cases where abstention from eggs has resulted within a fortnight in freedom from boils, crops of which had previously succeeded one another without a break."

Of no less importance than the constitutional treatment is the local. The area involved should be shaved, the skin wide of the boil cleansed with benzine and sterilized with tincture of iodine. These measures should be carried out before actual handling of the boil itself. As to the latter, the writer has not changed his views as set forth in the paper referred to above and in a later paper (Surgical Aspects of Furuncles and Carbuncles, *Pennsylvania Medical Journal*, July, 1913), one of the conclusions of which, "incision in the early, hard stage is meddlesome surgery," has been met with widespread acceptance. Treat the boil by Bier's cup and drain poultice (i. e., hot Wright's solution) intelligently applied. Attention is focused upon bringing about evacuation of the core. The most that can be done in this early stage, and particularly for exceedingly painful boils with extensive inflammatory induration, is the method suggested in a paper by Cropper (*British Medical Journal*, 361, February 17, 1912), entitled Early Excision of Boils. The skin over and around the boil is well frozen. This renders it firm and easily cut. With a cataract (Graefe's) knife held perpendicularly to the skin surface, a circular disc of the whole skin the size of a small pea is removed by sawing movements from

the crater of the furuncle. If there is much inflammation, the diameter may be one fourth inch. The pain is trifling, and from the moment of the operation the pain and intense soreness are at an end. The resulting scar is minute. Of course, if the patient comes late, presenting a fluctuating circum-furuncular abscess, incision with evacuation is indicated. I still see boils squeezed by neophytes, who are ignorant of the facts that they are spreading infection into the surrounding lymphatics and cellular tissue, provoking hemorrhage which forms clots and interferes with drainage, and causing the patient excruciating pain and therefore a certain degree of shock. *A boil should never be palpated, not even touched.*

Now and then a case is met with in which successive crops of boils appear on the trunk, especially over the back. Here a useful wash for the skin is composed of equal parts of benzine and grain alcohol. An autogenous bacterin may prove beneficial.

By the administration of sulphurous acid, observance of hygiene, and rational local treatment, most cases of furunculosis will be cured in a very satisfactory manner.

241 SOUTH THIRTEENTH STREET.

THE TREATMENT OF CHRONIC LEG ULCERS.

Baking in a Dry Hot Air Oven as an Adjuvant.

By HARRY D. SONNENSCHNEIN, M.D.,
New York,

Orthopedic Department, German Hospital Dispensary.

Hyperemia in any form has been recommended and is highly successful in the treatment of slowly healing chronic leg ulcers, the old but efficacious method of immersing the part in a pail of very hot water being a good illustration. Passive hyperemia by means of an Esmarch bandage is another example.

The writer uses to very good advantage baking of the part by means of an electric dry air oven, the usual treatment consisting of raising the temperature to 250° or 300° and maintaining it for twenty minutes to one half an hour, depending upon the case and the patient. The number of treatments averages three a week.

Whenever pain is present in these cases, it disappears after two to three treatments. Sluggish granulations become healthy and active, and healing goes on with astonishing rapidity.

Three of the writer's cases are illustrated below, several types of ulcers being mentioned.

CASE I. C. H., aged forty-two years, bartender, had an ulcer on plantar surface of foot, following injury fourteen years ago. When first seen, two months ago, the ulcer was about an inch and a half square and three eighths of an inch deep. Edges were very hard. Patient had not had any medical attention for the ulcer in twelve years. Venereal history and Wassermann reaction negative. This patient consulted me chiefly in regard to the pain in his foot, which was unbearable. He was baked three times a week and ulcer treated according to conditions found, the usual treatment consisting of cleansing with peroxide and scarlet red ointment. The ulcer completely healed, the patient was entirely freed from pain and able to attend to his trade.

CASE II. A. R., aged forty-five years, was referred to me as suffering from thromboangitis obliterans. Both feet very cyanotic, very painful, and of a deep purple color. An ulcer covering the small toe of the left foot and extended for about an inch along the lateral border of the foot. Baking three times a week and dressings with scarlet red completely healed the ulcer in spite of the poor nutrition to the part. The cyanosis also disappeared to a great extent. The pain was markedly reduced.

CASE III. G. W., aged sixty-three years, had an ulcer, the size of the palm of the hand, on the tibial surface of the left leg. Urine showed the presence of sugar. Daily dressings with bakings at 120° to 130° F. The ulcer completely healed. Only a low temperature was used in this case on account of diabetes. In all cases the urine is examined, since diabetic and nephritic patients can stand only low degrees of heat, and are very susceptible to burns which are prolonged and difficult to heal.

1348 LEXINGTON AVENUE.

Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

- CLII.—How do you treat bedsores? (Closed.)
 CLIII.—What has been your experience with condensed milk as a substitute for the mother's milk? (Answers due not later than December 31st.)
 CLIV.—How do you treat prostatitis? (Answers due not later than January 15, 1915.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CLI, was awarded to Dr. Maxwell S. Simpson, whose article appeared on page 1121.

PRIZE QUESTION NO. CLI.

THE TREATMENT OF WHOOPING COUGH.

(Concluded from page 1123.)

Dr. E. de J. McSween, of Huntington, W. Va., writes:

The first thing to be considered is the isolation of the patient. If at school, the child should be immediately withdrawn, thereby precluding the possibility of spreading the contagion to other healthy children. He should be kept in a well ventilated room, as free from dust as possible and protected from draughts. If practicable, the room should be kept at a temperature between 68° and 70° F. Warm clothing is also essential, a shirt of red flannel worn with the other clothing being sufficient for that purpose.

The child's temper should be kept as even as possible, all sources of irritation removed, as any excitement or emotion tends to bring on a paroxysm. All utensils as cups, spoons, and drinking glasses used by the patient should be kept apart from those used in the household and sterilized after using.

The emunctories must be kept active.

The diet should consist of easily digested and assimilable foods, care being taken not to overload the stomach. It is better to feed a little at regular intervals than give a full meal at one time.

A number of drugs are recommended as efficacious, but, in my experience, I have found that better results may be obtained by using as few as possible and paying more attention to prophylaxis. I have found belladonna in full doses and ipecacuanha—syrup or wine—very efficacious. The former, by its stimulating action on the respiratory centre, also its antispasmodic action, lessens the number and severity of the paroxysms, thereby mitigating the strain on the heart and lungs of the patient. It is also of great service in arresting the profuse bronchial secretions in the catarrhal stage. Ipecacuanha is of service on account of its expectorant and diuretic effect. I usually give both in combination. The throat should be sponged with a mild antiseptic solution such as phenol. The child should not be confined to bed unless there is fever or after a severe paroxysm. For the attendant nervousness the patient should be sponged with tepid water as often as is necessary. I have had no experience with vaccines in the treatment of this affection.

As the complications are more dangerous than the disease *per se*, great care should be exercised, especially during the period of convalescence when such complications, especially bronchopneumonia and pleurisy, are liable to occur. The chest should be examined from time to time as a precautionary measure.

During convalescence tonics should be administered.

Dr. W. A. L. Styles, of Montreal, Canada, observes:

We divide treatment into: 1. General measures; 2, internal medication; and, 3, aftertreatment.

1. *General treatment.*—In consequence of a high initial contagiousness we isolate till this period of infectivity is passed, viz., catarrhal stage. Unfortunately the onset of pertussis is not particularly diagnostic, hence we should in all cases of acute respiratory catarrh examine the little patient's urine for high specific gravity and the blood for a possible lymphocytosis, a combination which, if present, will warrant the patient's being kept under observation and isolation till the diagnosis is fully established. Fresh air is indispensable, as the more fresh air, the less severe the paroxysms of the convulsive stage. Attention to the child's nutrition is important, and may often tax the resources of the practitioner—it is best to feed the little patient after a paroxysm, as the food will be more likely retained. In nervous patients, autosuggestion is of inestimable value in warding off convulsive spasms. A well fitting Kilmer's abdominal belt will be found markedly to diminish severity and number of paroxysms, whilst Nægeli's method of forward and downward traction in the lower jaw may at times abort an attack.

2. *Internal medication.*—Success with remedial medication rests upon a judicious use of drug therapeutics—a knowledge of when and how to employ drugs. When an attack is mild, let us say

under eight or ten paroxysms per diem unaccompanied by vomiting, we had best have no resort to drugs, excepting for a single dose of antipyrine at night.

I find that nothing seems to lessen the number and severity of paroxysms as does antipyrine. I employ half a grain every two hours at one year of age and one grain every three hours at two years. Sometimes I incorporate sodium bromide in treble the foregoing doses in an elixir vehicle. In the presence of a poor heart action, I add tincture of strophanthus, using one minim at one year up to five minims at ten years.

Next in efficiency I have found heroine hydrochloride, grain 1/120 every three hours.

Belladonna may be found efficacious in many cases. Children are quite tolerant of this drug, even in the larger doses. Commence with the tincture in dose of half a minim under two years and one minim over that age, every three hours, increasing gradually till physiological effects (pupillary dilatation, etc.) are observed, and keep the dose just below that point. There is no occasion for any further increase if paroxysms are controllable.

Chloroform may be tried only as a final resort after all other methods have been found wanting. I always have a record taken of the number and severity of spasms in the twenty-four hours as an indication of the efficiency of the treatment.

The treatment of the preconvulsive or catarrhal stage is best effected by inhalations of tincture benzoin compound, one teaspoonful to the pint of boiling water.

3. *Aftertreatment.*—Disinfect room and all clothing and bedding with formaldehyde solution, and during convalescence employ tonic medication, out of door life, and good food to combat the possible invasion of tuberculosis. Treat complications and sequelæ according to indications.

Dr. Robert Merriam Rogers, of Brooklyn, New York, writes:

The treatment of this disease is divided into two parts: 1. Preventive; 2, to relieve the cough, shorten its duration, and prevent complications.

1. Parents should be instructed that it is an infectious disease; that they should prevent their infected children from coughing in the faces of others, from spitting on highways, and restrict their presence from public places and vehicles.

Direct the parents' attention to the fact that much can be done to alleviate suffering and danger to the child. Bacterial vaccines of Bordet's bacillus alone or in combination with other bacteria found in nose and throat in this disease, are given to exposed children, fifteen million as a minimum dose, depending on age, and an increasing dose up to fifty million on the fourth day to produce immunity.

2. The child should be kept in the air and sunshine as much as possible, and away from dust; at night sleep in a cool, well ventilated room, free from draughts. Where it can be afforded the child should be taken to the seashore or on a sea trip.

A belladonna plaster on chest and between shoulders should be changed weekly. A snug abdominal binder with or without elastic to reach well up on

chest will lessen the cough, support the muscles, and help to prevent hernia. Steam inhalations, with or without the addition of menthol, creosote, turpentine, or eucalyptus, are resorted to only where the secretions are thick or lung complications threaten.

The food should be simple and easily digestible, prohibiting dry toast, crackers, some cereals, etc., which are liable to leave small crumbs on the mucous membrane of throat and produce coughing. For the same reason distention due to constipation or indigestion should receive prompt attention.

Avoid any mental or physical irritation or teasing of the child.

The nose and throat should be sprayed with warm saline, Dobell's, or a dilute solution of hydrogen dioxide twice daily, to be followed by a few drops of warmed petrolatum containing three grains of menthol to the ounce in the nostrils. Instead, a solution of lactic acid bacilli may be used, as it inhibits the growth of bacteria.

Depending on the age of the child, belladonna or atropine in small repeated doses should be given to physiological effect. Antipyrine, one grain to each year, up to three grains every three hours, alone or in combination with bromides. Bromoform, minim one to five, depending on age, in syrup, as an alternative. Syrup of castanea equina (horse chestnut) in teaspoonful doses, three to five times a day, will give great relief.

Severe paroxysms must be controlled by a few whiffs of chloroform, by holding the jaw forward and down, or by inverting the child to aid in expelling the mucus.

The anemia due to the loss of sleep and interference with nutrition, must be treated with iron, bone marrow, arsenic, and other blood forming drugs.

During the last two years I have had good results with preparations of thyme, teaspoonful three to four times a day, in conjunction with the vaccine mentioned under preventive treatment, repeated every four days for six or eight doses.

The amount of treatment naturally varies with the severity of the disease.

Dr. R. Wimenitz, of Philadelphia, states:

Prophylaxis. Children suffering from whooping cough must not be allowed to attend school or visit public places: the child should be separated from the rest of the family and placed in a separate room; the room must be kept clean and well ventilated and aired, and, if possible, fumigated several times during the sickness with sulphur; the bedding and personal clothing changed often, if possible every day. The mother or nurse should be instructed how to take care of the expectoration, especially after a paroxysm. It should be received in a paper napkin and burned, the vomitus treated with chloride of lime and disposed of. Quarantine should be insisted upon. Unfortunately in this disease it cannot be carried out in private homes, among the great mass of people living in congested districts, occupying a small apartment in a tenement house. The treatment of the disease directly contradicts quarantine measures, as the patient must be kept out of doors most of the time, and, among the poor, where the mother is busy with her household

duties, the child is let loose upon the street, coming in contact with other children. Quarantine, to be effective, must be complete isolation, and in this case it can be done only by the municipality, by having the patient removed to an institution outside of the city, specially constructed on a plan similar to that adopted for tuberculosis, where the child could be kept constantly in the open and away from the community.

Serobacterin vaccination is yet in its infancy. The reports in literature, though enthusiastic, are not very encouraging, the immunity is unreliable and short lived. It should be done, however, in order to give the patient and his family the benefit of every scientific possibility at our disposal. As a prophylactic measure it should begin early before infection takes place, as the vaccine has no power to check the disease when already in the incubation period, and in full doses. In very young children 50,000,000 sensitized bacteria should be injected every third day for ten days; in older children, 100,000,000 should be given in the same way. Saunders, Lahnsen, White, and Zaharsky report fourteen cases treated in this way with a certain amount of success. Seven had the disease in a mild form, with six or seven paroxysms a day; one had it for one week only; the rest were immune. My own experience is too limited to warrant opinion, but of the five patients I have injected, all but one contracted the disease within two weeks. In only one instance the immunity lasted six weeks; but this can be attributed to the fact that they were probably all in the incubation period and already infected. It should, however, not be relied upon to the exclusion of all other measures which must not be neglected.

Curative treatment with serobacterin should begin as soon as the diagnosis is made and according to the methods recommended by Professor Graham, of Philadelphia. He starts with 100,000,000 sensitized bacteria at once and repeats it every second day until eight doses are given. He reports twenty cases treated with good results in this way. My own failure in ten cases may be attributed to small doses.

But while the vaccine and the method of administration are being developed and perfected, fresh air is the only remedy to be relied upon to diminish the severity and number of the paroxysms. The mother must be instructed to have the child out of doors most of the time, dressed according to weather; the windows of the room occupied by the patient should be kept open day and night even in unclement weather. Infants and delicate children, especially those predisposed to tuberculosis, should be well covered to avoid too much exposure. The diet should be light and nourishing, the body kept clean by frequent bathing. In mild cases and in cases of moderate severity, the cough should not be interfered with. Whooping cough is a self limited disease, and if otherwise properly managed, and plenty of fresh air given, children get well without interference by drugs. In these cases, vaccine treatment alone should be given, with the hope of aborting the disease. By force of habit or association of ideas, we are accustomed to view cough from a pathological viewpoint only, leaving out of con-

sideration the fact that cough in itself is not a pathological function of a deranged organ, but an effort on the part of Nature to remedy an abnormal condition, and is physiological within certain limits. It is true that when driven to desperation Nature may carry her efforts to excess and cough will do harm by exhausting; only then we should step in and interfere. In whooping cough, according to our present view of the pathology of the disease, cough is the only method of elimination left to Nature to keep the pathway of respiration free and unobstructed, and should be interfered with only when carried to extremes, and then only to moderate it. For this purpose morphine combined with atropine is best, given in doses according to necessity and age. When asphyxia is threatening, chloroform inhalation should be given, avoiding anesthesia. Other antispasmodics may be given, but they seem to do no good. Supportive treatment is important, as the disease has a tendency to affect very young children; this part of the treatment should never be neglected. Arsenic, quinine, and syrup of iron iodide are the drugs of my selection.

In very severe cases, change of climate may at times save life; the seashore is the best. Complication should be treated according to the indications.

Therapeutic Notes.

A Simple Operation for the Removal of Spurs and Deflections of the Nasal Septum.—C. P. Linhart, in the *Ohio State Medical Journal* for March, 1914, asserts that the Killian and Freer septal operations are unnecessarily tedious and entail some danger of subsequent perforation of the septum. He has practically discarded the knives, chisels, and cutting forceps devised by various operators, and in the majority of cases employs the following saw operation: The septum is anesthetized with a four per cent. cocaine solution and one in 1,000 epinephrine solution, applied on either side with a cotton tipped probe. Occasionally a stronger cocaine solution may be required, but it rarely takes more than half an hour to secure complete anesthesia. The operation begins with a small incision on the convex side of the septum, perpendicular to the latter, and extending down to the cartilage and bone, just anterior to the base of the spur and of a size just sufficient to admit a dissector. The perichondrium and periosteum are next dissected loose over the entire field of operation. If the deformity extends well forward into the triangular cartilage, care must be taken to leave a supporting pillar in front and a horizontal strip of cartilage above the site of operation. The membranes on the concave side are then dissected off similarly to an incision in the other nostril, this incision being made, however, at least one fourth inch anterior to that on the convex side, or occasionally posterior to it—never directly opposite.

The next step in the procedure, the periosteum and perichondrium having been on both sides dissected free from the part to be removed, consists in making an incision on the convex side, perpendicular to the floor of the nose, from the level of the top of the deflection or spur down as far as neces-

sary. This incision should be so traced as to include the first small opening made for the introduction of the dissector. A horizontal incision is then made from its lowest point backward, so that a nasal saw may be introduced at the lowest part of the deflection. The obstruction is thereupon sawed off from below upward. The covering membranes having already been dissected away, the teeth of the saw do not injure them while the spur is being cut through or after the saw comes out at the top. Any membrane still remaining unloosened can be detached afterward and the piece of bone removed with the ordinary nasal forceps.

The final step consists in replacing the flaps against the septum. The redundant tissue over the spur or convexity easily makes up for the natural shrinkage of the membrane from the cut and dissection. A Simpson compressed cotton nasal plug, covered with rubber, is introduced on each side and left in place twenty-four to forty-eight hours. If thin dental rubber is used to cover the plugs they can be both easily inserted and later taken out with very little distress to the patient. The operation described by Linhart is applicable where the septal deviation is to one side only.

Treatment of Grave Anemias.—Pedenko, in *Semaine médicale* for March 18, 1914, is stated to have obtained good results in a number of cases of pernicious anemia by repeated blood letting. Thus in a man aged fifty-three years, suffering from this disease, six bleedings, practised at intervals between five days and three weeks, were followed by normal health and decided improvement in blood, an improvement persisting two and a half years after the treatment. In some other cases, ultimate death was not prevented, but a more or less lasting improvement of the blood followed each injection. In one patient, suffering from both anemia and chronic pyelocystitis, blood letting failed to improve the blood condition, which yielded only when the pyelocystitis had been adequately treated. In no instance did any untoward result follow the blood lettings in these cases. Wet cupping was sometimes employed in removing the blood. The amount taken each time ranged between fifty and 120 c. c. The benefit accruing from the treatment is to be ascribed chiefly to an exciting effect of the removal of blood on the hematopoietic organs and also in part, indirectly, to diminution of autointoxication which generally accompanies pernicious anemia.

Treatment of Dyspeptic Albuminuria.—Albert Robin, in *Progrès médical* for March 7, 1914, states that in this condition, held by Arnozan and Teissier to be irritation of the kidneys by toxic products arising from food imperfectly digested or fermenting in the stomach, the albuminuria is intermittent, viz., is shown in the urine excreted during the digestive period but not in the intervals. There are no casts or renal cells, but glycosuria coexists in twelve to fifteen per cent. of the cases.

As the condition occurs in heavy eaters, especially those using meat to excess, dietetic and other hygienic measures are in order in the treatment. Exercise is theoretically beneficial in general, but in many instances it increases the albuminuria. The patients should be required to walk in the open air,

but not after meals, and never to the point of fatigue. To prevent renal congestion flannel underclothing should be worn, the skin rubbed with a horsehair glove every morning, and constipation combated.

The diet should be rather low in proteins, the simplest plan to this effect being to order a vegetarian diet including such articles as beans, peas, and lentils. Eggs, however, providing they are not overcooked, are generally well borne and do not increase albuminuria. Even meats, if well done, can be given, but only in very small amounts. A pure, inert water should be used as beverage, and a small cupful of some hot aromatic infusion given after meals to promote gastric motor activity. The gastric disorder itself should be treated according to its nature. Thus, in the majority of cases, in which there is hyperchlorhydria coupled with secondary abnormal fermentation, the following combination may be prescribed with success:

℞ Sodii bicarbonatis, ... ʒiiss (6 grams);
Sodii phosphatis exsiccati, { āāʒi (4 grams).
Sodii sulphatis exsiccati, {
M. et pone in chartulam No. i.

These salts should be dissolved in one quart (one litre) of boiling water, the solution allowed to stand, decanted, heated on a water bath as required for consumption, and taken, a little at a time, in doses of two ounces (60 grams) upon awakening and three ounces (100 grams) an hour and a half before lunch, two hours before dinner, and two and a half hours after dinner. Whenever there is acute gastric discomfort, further alkaline medication may be resorted to.

In some cases, especially children and adolescents of the neuroarthritic habit, preliminary experimentation is necessary to ascertain precisely the type of diet indicated. On the first day a milk diet should be tried, as it is sometimes successful. Urine should be collected after each meal as well as upon awakening in the morning, and the albumin excretion quantitatively estimated. On the second and third days, respectively, meat and vegetarian diets should be tried, and that diet yielding the least albuminuria selected for subsequent treatment. Medicinal treatment in these cases consists in giving fifteen grains (one gram) of sodium sulphate in warm water at the time of awakening, next a tablespoonful of some strong carbonated water, then, in cases with hypersecretion, four to ten drops of belladonna tincture before meal time, a small dose of alkalies after meal time, and another dose of alkalies before retiring. Senna may be used with advantage to combat constipation.

Where the foregoing measures fail, abstention from solid food for two days should be ordered, which will generally cause the albuminuria to disappear and later render it more amenable to medication. In the most inveterate cases, remedies acting on general nutrition must be prescribed, e. g., arsenic:

℞ Liquoris potassii arsenitis, ... ʒi (4 grams);
Aquæ sterilisatæ, ... ʒiiss (96 grams).

M. Sig.: One teaspoonful to be given by rectum every morning.

Strychnine may be used after the arsenic. In anemic cases iron should be given. Oxygen inhalations—thirty to 100 litres daily—are of value in some instances.

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DRUG ADDICTION IN THE UNITED
STATES.

We have heard so much of the horrors of drug addiction and of the rapid increase in the number of drug users, that it is refreshing to read a clear, unvarnished statement of the actual conditions based upon statistics. Such a review of the subject is given in a recent issue of the reports of the Public Health Service by Dr. Martin I. Wilbert. The anti-narcotic law for the State of Tennessee, for example, requires the habitual users of narcotic drugs to obtain permits on which alone they are able to purchase supplies. The report of the operation of that law for the first six months shows that 1,403 such permits were issued. The average dose of morphine taken by the 1,226 people addicted to that drug is about eight and a half grains a day. By converting the quantities of the habit forming drugs imported into the United States, into average doses and comparing these with statistics furnished by Tennessee, Doctor Wilbert arrives at the conclusion that there are about 70,000 drug habitués in the United States, consuming approximately 850,000,000 doses annually. Doctor Wilbert admits that this is probably a low estimate, but even doubling it shows that the whole number of people addicted to drugs

is far below the one or two per cent. popularly supposed to be victims; still this is far too large a proportion of the population.

Nearly every State has a fairly adequate law regulating the distribution and sale of such drugs, but such laws have been partially nullified by the absence of any regulation of the transportation of drugs from one State to another. In the absence of such interstate regulation, even such stringent acts as the Boylan law, recently enacted in New York, do not completely stop the illegitimate sale; the drugs are now purchased by New York users in neighboring States. The Harrison antinarcotic bill, which has just been enacted into law by Congress, was drawn with a view to supplementing State legislation; it provides for the registration of all who import, manufacture, produce, or deal in such drugs, and requires a record of purchases and sales. While ostensibly a revenue measure, it will furnish an effective means of keeping track of narcotic drugs and, by cooperation between the State and Federal officials, enable the authorities to check if not altogether to stop their illegitimate sale. Objection has been raised to this measure because it involves the registration of physicians as well as others who deal in narcotic drugs. It is true that the bill will impose a nominal tax of one dollar on each physician and put him to some trouble in keeping records, but unless physicians are included, the way will be left open for any registered quack to enter into this nefarious traffic.

This is but another instance of the many ways in which the honest citizen must suffer inconvenience and expense to protect the community against those less scrupulous.

PSYCHOSES AMONG NEGROES.

A widespread belief that nervous and mental diseases have increased rapidly among negroes since their emancipation is not based on reliable data, but seems to be supported by a more rapid increase in the black than in the white inmates of hospitals for the insane. It is also a question of how far the psychoses in the two races correspond. Hence the paper by Dr. E. M. Green, Clinical Director of the Georgia State Sanitarium, in the *Journal of Nervous and Mental Disease* for November, is of unusual interest.

From the outset it has to be recognized that in the negro we have to deal with two distinct classes, one of comparatively pure, the other of mixed blood, the feelings of which differ, and in the latter of which there exists a certain mental conflict.

The records show that the psychoses treated may be divided into three groups: Those that are equally

frequent in both races; those that are more common among whites; those that are more frequent among negroes. The first group includes brain tumors, traumatic, epileptic, and infective-exhaustive psychoses and allied states, and those accompanying pellagra. The second group, affecting white patients mainly, includes those which accompany nervous or brain disease, alcoholism or drugs, involution melancholia, undifferentiated and symptomatic depressions, paranoiac conditions, psychoneuroses, constitutional inferiority, imbecility, and idiocy.

It appears that nervous diseases common in the white race, such as chorea, tabes dorsalis, and paralysis agitans, are rare among negroes. The prohibition law of Georgia comes in for a little quiet criticism, as there has been a steady increase in both alcoholic and drug psychoses during the five years since it went into effect, but the negro is less affected than the white, because as a rule the cost debar him from the habitual use of either liquor or drugs. Alcoholic psychosis is three times as common among the whites, and only six cases of drug psychosis in negroes have been admitted in five years. One of these six was addicted to cocaine, one to cocaine, morphine, and alcohol, one to laudanum, one to lead, one to quinine, and one to an unidentified drug. These figures are contradictory to the statements made from time to time concerning the enormous increase in the use of cocaine by the negro.

All forms of depression are rare among negroes because of their happy-go-lucky nature. Even in the manic depressive psychosis the proportion of depressed forms is much below that found in the white race, suicide is rare, and the expression of suicidal ideas is seldom heard. Inferiority and imbecility are probably overlooked until some episode renders commitment necessary. Cases of senile psychosis, general paralysis, dementia præcox, and manic depressive psychosis are more common among negroes than whites. The greater ratio of general paralysis is ascribed to the greater prevalence of syphilis among the negroes, the gravity of which they do not appreciate, and for which they rarely submit to proper treatment. Simple dementia is still more common. The diagnosis is now determined by Wassermann's test and spinal puncture.

As to dementia præcox, certain factors usual in whites are conspicuously absent. The shut in personality is rare, except in mulattoes. Self study does not appeal to the negro; while he gratifies his sexual inclinations whenever opportunity offers, he has no apprehension as to results, so sexual difficulties and ruminations are excluded. He is afraid of ridicule, but he loves society, seeks companionship and pleasure, is extremely emotional, capable of excessive religious excitement, but has no realiza-

tion of the basic principles of religion and no conception of true morality. Factors that are favorable to the development of the affection are fear of the supernatural, suspicion of his fellows, and the need the negro feels to guard himself against bad luck and the machinations of enemies. Toward members of his own class the black is suspicious, fearing bodily harm; he believes every misfortune and illness to be the result of witchcraft; he is brought up in an atmosphere of fear of the supernatural; the meaning of signs is instilled into him, and he watches his every act that he may escape bad luck. The ruminations of the negro child deal only with such matters. When he reaches puberty sexual ideas enter and are not handled in a normal manner, but charms and herbs are used to bring his desires to fruition. His life is made up of invoking the aid of the agencies of witchcraft and of guarding against such efforts on the part of others.

The difference in the ratio of manic depressive psychosis is still greater than in dementia præcox, but it is less a matter of surprise. The negro race is highly emotional; in grief it is noisy and obtrusive, but the feeling is superficial and soon passes; in happiness it is active, boisterous, aroused with little provocation, and suffers excessive reaction. Slight pleasures cause exaggerated evidence of elation. Life is wholly in the present, with no thought for the morrow, no reflection over the past. A stronger foundation for an affective psychosis could hardly be found. Continued depression is foreign to their natures, and the manic forms of psychosis occur in a much larger proportion to the depressive than is the case with the white race.

ANTISEPTICS VERSUS ASEPSIS.

A number of years have elapsed since Pasteur gave to the world the results of his epoch making investigations concerning the role played by microscopic organisms in causing abnormal conditions in animals and plants. In consequence of these same investigations, it was but a short time before the late Lord Lister applied destructive agents to minute forms of life. It was then that antiseptic surgery was brought forward by its brilliant originator, and the carbolic acid spray became famous. Many conditions that had been the terror of the operator at once became amenable to treatment, and quite unforeseen results were obtained. Antisepsis ruled for many years.

There was, however, a new school arising, that of asepsis. Its sponsors took the stand that if these contagious maladies were due to the presence of living atoms, it would be better to get rid of them before beginning operation. This seemed logical,

proved practicable, and eventually asepsis relegated antiseptics to a secondary position. For many years much time was devoted to the elaboration of technique, to the perfection of the operating room and to the cleanliness of both operator and patient. A lowering of mortality and morbidity followed, and it seemed as if the pinnacle of perfection had been attained, that asepsis was the one and only method.

That this is not entirely true seems to be indicated by the reports that are coming to us of the surgery on the battlefields of Europe. Modern methods are truly wonderful, but no amount of human energy or forethought could have provided sufficiently for the appalling number of wounded that now need attention. It is no longer a matter of operating upon aseptic wounds, but of treating injuries that are in a state of infection that defies description. Asepsis has had to give way to its predecessor, antiseptics, and many are the lessons that are being learned by many surgeons. The discussion going on at present in England as to the use or nonuse of pure carbolic acid—always the favorite British antiseptic—is but one phase of the question. Probably, when this war is over, certain discarded methods will have been found very valuable in times of stress. Asepsis, of course, can never be discarded, but antiseptics evidently will reappear on a more solid footing.

THE HEALTH DEPARTMENT AND RECENT CRITICISM.

Some reason and excuse does probably exist for every criticism spoken, and it is not particularly difficult to justify moderate opposition to the activities of technical and health experts in the sphere of the family physician. Under present conditions, the personal influence of the general practitioner is not to be lightly regarded. For what is more wonderful than the sensation of confidence and hope which his presence, backed by sound knowledge and experience, can inspire in the sick room! It is sometimes worth all the technical science in the world. We hope that the health department will not take offence when we say that it is influencing many people, through its circulars and publications, to think that it performs benefits to the public which are usually done in a competent way by the family physician. People get too comfortable an impression that disease can be treated without his aid, or at all events, with a minimum of his attendance. For example, we have heard from correspondents that the health department makes such examinations as blood tests, urinary analysis, at a cheaper rate than the doctor in private practice. The attitude of these people is somewhat as follows: Since every-

thing can be done in medicine by a health officer or doctor paid by the public, go to him when you need advice. We are certain that a great body of opinion, distributed in all classes, recognizes the gravity of the position. There is no doubt that the more modern school of doctors are beginning to equal the technical and official expert, and the family physician, if he also acquires this training, will have a great advantage over others. We expect to discuss this subject more fully in an early issue.

The day may be coming when the family physician will give way to the State or Federal health inspector or therapist; but until the public, possibly under more enlightened conditions, votes to impose such a régime upon itself, it seems unwise to subtract one by one the professional factors which make the existence of the general practitioner a possibility.

BLINDNESS AFTER CAMPAIGNING.

A curious phenomenon of the present war was communicated to the Medical Society of London at a recent meeting, by W. H. H. Jessop (*British Medical Journal*, November 28, 1914), who had been impressed by the extraordinary number of patients brought over from the front who were blind. Nothing was observable by the ophthalmoscope, and without treatment other than rest, perfect sight had been regained. In two cases the blindness was accompanied by blepharospasm; these ended in recovery. All the patients had been exposed to shell fire and Jessop considered this a factor. He cited also a case of a man who had formerly suffered from miner's nystagmus; on enlisting, this man had been employed as a driver and his nystagmus returned.

ABBOTT'S METHOD IN SCOLIOSIS.

After more or less acrimonious discussion here and abroad, the method of Dr. E. G. Abbott of treating scoliosis, first set forth in the *NEW YORK MEDICAL JOURNAL* in an elaborately illustrated communication in our issue for April 27, 1912, seems at last to be coming into its own. In the *Journal A. M. A.* for December 12th, Doctor Abbott discusses the mechanics of the plaster of Paris cast used in fixed lateral curvature of the spine. Especially gratifying is the report of the discussion following the reading of the paper at Atlantic City last June. Dr. Paul A. McIlhenny, of New Orleans; Dr. Roland Meisenbach, of Buffalo; Dr. Henry W. Frauenthal, of New York; Dr. H. Winnett Orr, of Lincoln, Neb.; Dr. Charles A. Parker, of Chicago; and Dr. James K. Young, of Philadelphia, all speak in the highest terms of the general success in their hands of the method when applied in suitable cases, and acknowledge their indebtedness to the distinguished inventor, while one surgeon speaks of the enthusiasm and loyalty of his patients, upon whom he had tried other measures in vain.

News Items.

Changes of Address.—Dr. M. T. Siegel, to 871 East 170th Street, New York.

Dr. R. Savine, to 1249 Simpson Street, New York.

Harvey Society Lectures.—The next lecture in the course will be given on Saturday, January 16th, by Dr. Edward R. Baldwin, of the Adirondack Cottage Sanatorium, on Immunity in Tuberculosis, with Special Reference to Racial and Clinical Manifestations.

A Hospital for Huntington, Long Island.—Miss Cornelia Prime has presented to the Huntington Hospital Association a five acre plot of ground on which is a concrete house of six rooms and a bath for the use of the association. She has also given \$3,000 to be used in fitting up the house for hospital purposes.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, December 21st, Philadelphia Clinical Association; Medical Society of the Woman's Hospital; Tuesday, December 22d, West Philadelphia Medical Association; Wednesday, December 23d, Philadelphia County Medical Society.

St. Louis Society of Medical Research.—Dr. J. Martin Kershaw was elected president of this society, at the annual meeting held on the evening of December 1st; Dr. L. M. Ottofy was named first vice-president, Dr. T. M. Counzelman, second vice-president, and Dr. C. C. Greenfield, secretary and treasurer.

Research Work in Pellagra.—The George State Sanatorium, at Milledgeville, has been selected by the United States government as a station for experimental work in pellagra. The patients will be segregated and given special diet and treatment, the work being done under the supervision of two experts of the United States Public Health Service.

Bronx Maternity Hospital, Incorporated.—This institution, situated at 1668 Bathgate Avenue, New York, will be opened in a few days. It is designed solely to furnish maternity aid to the poor, and only such cases as have been recommended by either the Charities Organization Society or the United Hebrew Charities will be received. Dr. Julius Weiss is in charge.

Southside Virginia Medical Association.—At the forty-seventh annual meeting of this association, held in Petersburg on Tuesday, December 8th, under the presidency of Dr. W. D. Kendig, of Kenridge, the following officers were elected: President, Dr. E. R. Hart, of Suffolk; first vice-president, Dr. H. A. Burke, of Petersburg; second vice-president, Dr. T. F. Jarratt, of Sebrell; third vice-president, Dr. M. H. Treadway, of Emporia; fourth vice-president, Dr. William T. Moore, of Valentine; secretary-treasurer, Dr. E. F. Reese, of Courtland. The next meeting of the association will be held in Suffolk.

British Medical Corps to Fight Typhoid in Army.—The British medical authorities are vigorously attacking the problem of a typhoid outbreak in the Belgian army. Orders have been issued assigning a ship for duty as a floating hospital in the harbor of Calais. Major Stedman, who is in charge of the antityphoid campaign, has selected a site in Calais for an isolation hospital on land. As soon as possible this equipment will be supplemented by the erection of a number of small waterproof shelters as isolation units. The floating hospital will be supplemented by a number of barges. A thorough inquiry is in progress regarding the water supply and sanitation with a view to stamping out the source of the epidemic.

The Week's Mortality in New York.—The most noteworthy feature of last week's mortality compared with that of the corresponding week in 1913, was the large increase in the deaths from acute respiratory diseases, especially lobar pneumonia, there having been 149 deaths reported during the week against 86; the deaths from bronchopneumonia increased from 81 to 95. This increase in the mortality from the acute respiratory diseases occurred in each of the boroughs, and probably was due to the atmospheric conditions prevalent during the past fortnight. The number of deaths reported during the past week was 1,338 with a death rate of 12.50 per 1,000 of the population compared with 1,343 deaths and a death rate of 13.04 for the corresponding week of last year. The death rate since January 1st and up to and including Saturday, December 12th, was 13.42 in 1,000 of the population against a rate of 13.75 for the corresponding period of last year.

Philadelphia Clinical Association.—At the annual meeting of this association, held on the evening of December 7th, the following officers were elected: President, Dr. J. O. Arnold; first vice-president, Dr. B. F. Davitt; second vice-president, Dr. L. C. Peter; secretary, Dr. William Ruoff; treasurer, Dr. William McKeage; directors for three years, Dr. E. S. Saylor and Dr. J. C. Attix.

Mayor of Santa Monica Must Be a Physician.—Santa Monica, Cal., by charter amendment, has limited the selection of the next mayor of the town to a physician. The new charter provides that the mayor shall serve as health officer, whose requirements include graduation from a reputable medical school and at least five years' practice of medicine. The municipal election will not take place until December, 1915.

Advisory Council to the State Commissioner of Health of Massachusetts.—The Board of Health of Massachusetts was recently organized and now consists of a State Commissioner of Health and a Public Health Council composed of six members, three of whom must be physicians. The following appointments have been made to this council: Professor George Chandler Whipple, head of the sanitary engineering department of Harvard University; Professor William T. Sedgwick, of the Massachusetts Institute of Technology; Dr. Milton J. Rosenau, professor of preventive hygiene in Harvard University; Dr. William J. Gallivan, of Boston; Dr. David L. Edsall, Jackson professor of clinical medicine in Harvard University, and Dr. Joseph E. Lamoureaux, of Lowell.

Medicohistorical Loan Exhibit.—At the Jefferson Memorial Building, St. Louis, there has been on exhibition since December 4th a most interesting collection of rare and valuable books in Latin, dating from the fifteenth and sixteenth centuries, as well as paintings, engravings, medals, and autograph letters. Contributors outside of St. Louis are Dr. Edward C. Streeter, of Boston, Army Medical Museum and Library, Washington, D. C., Rush Medical College, University of Pennsylvania Medical School, and John Crerar Library (Nicholas Senn Collection), Chicago. The exhibit covers a wide range of the history of medicine and graphically illustrates the interest manifested today in this important subject. The exhibit will close December 24th.

Federation of Medical Economic Leagues of New York.—The central organization, consisting of delegates from affiliated district leagues, for medicoeconomic research and protection and promotion of the economic welfare of the medical profession, meets on the second Tuesday evening of each month. The annual meeting will be held on January 12th, under the presidency of Dr. T. Dixon, of Brooklyn. The following district leagues will be represented: Physicians' Protective League, of New York, Dr. E. L. Spitzer, president; Medical Alliance, Dr. S. A. Tannenbaum, president; Downtown Physicians' Protective League, Dr. M. O. Magid, president; West Side Physicians' Economic League, Dr. Ralph Waldo, president; Physicians' League of the Bronx, Dr. J. Leiner, president; Brooklyn Physicians' Economic League, Dr. L. D. Volk, president; Yorkville Physicians' Economic League, Dr. N. Goodfriend, president. Dr. O. Rotter, of 217 East Seventy-ninth Street, New York, is corresponding secretary of the central organization and will be glad to furnish information regarding the leagues.

Personal.—It is reported that Dr. George W. Crile, of Cleveland, is to go to Europe as a Red Cross Surgeon, and establish in Paris a branch of the Lakeside Hospital, of Cleveland.

Dr. Theodore L. Hazlett, of Pittsburgh, has been appointed to field service abroad by the American Red Cross Society and has accepted the position of assistant surgeon in the unit to be placed in Russia.

Dr. Franklin P. Mall, professor of anatomy in Johns Hopkins University, has been appointed head of the new department of embryology of the Carnegie Institute in Washington, D. C.

Dr. Thomas McCrae has been made consulting physician to Girard College, Philadelphia.

Dr. J. Herbert Claiborne, of New York, has been appointed surgeon to the Veteran Corps of Artillery.

Dr. William J. Mayo, of Rochester, Minn., was the guest of honor at a banquet given by the Pathological Society of Des Moines, Iowa. More than two hundred physicians of Des Moines and vicinity were present and Dr. William E. Sanders presided. Doctor Mayo spoke on the Septic Factor of Three Great Plagues.

Gifts and Bequests to Hospitals.—The board of directors of the Emergency Hospital at Warren, Pa., have accepted a gift of \$10,000 from Mr. J. P. Jefferson for the building of a maternity hospital as an addition to the institution. The new building will be a memorial to the late Alice Wetmore Jefferson, wife of the donor.

The will of Annie E. Matthews, late of Philadelphia, contains, among other bequests, one of \$1,000 to the West Philadelphia Hospital for Women and one of \$5,000 to the Howard Hospital.

Idaho State Medical Association.—At the twenty-second annual meeting of this association, held in Boise recently, the following officers were elected: President, Dr. J. N. Alley, of Lapwai; vice-president, Dr. F. M. Cole, of Caldwell; secretary and treasurer, Dr. Edward E. Maxey, of Boise; chairman of committee of arrangements, Dr. O. C. Carsow, of Lewiston. The next annual meeting of the association will be held in Lewiston.

St. Louis Medical Society.—Dr. L. Emmett Kane has been elected president of this society, at the annual meeting held on Wednesday, November 25th. Other officers elected are Dr. Emmett North, first vice-president; Dr. William H. Luedde, second vice-president; Dr. F. C. Kuhlmann, secretary, and Dr. A. M. Koetter, Dr. Joseph Grindon, Dr. G. Richter, and Dr. Ralph Thompson, members of the council.

Northern District Medical Society of California.—At the annual meeting of this society, held in Stockton on November 12th, which was said to be the most successful in the history of the organization, the following officers were elected: President, Dr. Dewey R. Powell, of Stockton; first vice-president, Dr. C. H. Fairchild, of Sacramento; second vice-president, Dr. R. F. Rooney, of Auburn; secretary, Dr. H. Barnard, of Sacramento; treasurer, Dr. O. Stansbury, of Chico; board of censors, Dr. C. R. Harry, of Stockton; Dr. R. A. Peers, of Colfax; Dr. J. A. Parkinson, of Sacramento, and Dr. W. E. Bates, of Woodland. Dr. Barton J. Powell, of Stockton; Dr. June Harris, of Sacramento, and Dr. Edward Twitchell constitute the committee on university extension course.

American Association for the Advancement of Science.—The preliminary announcement of the meetings of the American Association for the Advancement of Science and affiliated societies which will meet in Philadelphia during convocation week have been sent to members. The arrangements for the meeting are well under way and a local committee has been appointed, with Dr. Edgar Fahs Smith, provost of the University of Pennsylvania, chairman, Dr. J. H. Penniman, vice-chairman, Dr. Philip P. Calvert, secretary, and Dr. George D. Rosen-garten, treasurer. Among the national scientific societies which will meet in Philadelphia, is the Society of American Bacteriologists, of which Professor Charles E. Marshall, of Boston, is president, and Dr. A. Parker Hitchens, of Glenolden, Pa., secretary. The following societies will meet in St. Louis December 28th to 30th: American Physiological Society, Association of American Anatomists, American Society of Biological Chemists, and the Society of Pharmacology and Experimental Therapeutics.

Medical Society of the County of Chautauqua, N. Y.—There was a good attendance at the annual meeting of this society, held in Jamestown on Tuesday, December 8th, under the presidency of Dr. George F. Smith, of Falconer. Among the visitors were many members of the Medical Society of the County of Warren. An interesting program was presented, among those reading papers being four Buffalo physicians, as follows: Dr. Irving W. Potter, Dr. C. F. Goldborough, Dr. Frank E. Brundage, and Dr. Arthur G. Bennett. Dr. Grover W. Wende, president of the State society, who was to have given an address on the work of the society, was unable to be present. The following officers were elected: President, Dr. Fred C. Rice, of Ripley; first vice-president, Dr. A. William Dods, of Fredonia; second vice-president, Dr. J. H. Kellogg, of Bemus Point; secretary, Dr. J. W. Morris, of Jamestown; treasurer, Dr. George F. Smith, of Falconer; censor for three years, Dr. Morris N. Bemus, of Jamestown; delegate to the annual meeting of the Medical Society of the State of New York at Buffalo in April, 1915, Dr. V. M. Griswold, of Fredonia; alternate delegate, Dr. G. W. Cottis, of Jamestown. Favorable action was taken on applications for membership presented by Dr. Joseph Chilli, of Fredonia; Dr. Charles B. Mosher, of Dunkirk, and Dr. John W. Henderson, of Stockton.

Sanitary Officers of Chautauqua County Organize.—A special meeting of the sanitary officers of Chautauqua County, N. Y., was held in Jamestown on December 2d, called by Dr. John J. Mahoney, State sanitary supervisor, for the purpose of discussing the new milk law of the State Department of Health now in force. At the afternoon session there was organized the Chautauqua County Branch of the State Sanitary Officers' Association, which elected Dr. Guy Granger, of Sherman, president; Dr. Edward L. Hazeltine, of Jamestown, vice-president; Mr. A. F. Nelson, secretary of the Jamestown board of health, secretary.

To Prevent Spoiling of Blood Specimens.—The work of the serological laboratory of the New York board of health has been maintained at a high level of excellence, as frequent and thorough going investigations by individuals outside the department have proved. Aside from the reliability of results of the examinations, which is paramount, effort is directed to serve the convenience of the general practitioner. Of the blood specimens sent to the laboratory during the third quarter of 1914—9,518 for the Wassermann test and 2,992 for the gonorrhea complement fixation test—96 per cent. were received in a satisfactory condition. About three per cent. of all the specimens sent in were in a condition that made them unfit for examination because they had been allowed to remain for varying periods of time at an unsuitable temperature, and had consequently hemolyzed. It is urged that physicians who collect their blood specimens too late for collection on a given day, will take note of the new slip which will hereafter be attached to each serological outfit and which, printed in a vivid red, states how such an occurrence may be avoided, with a consequent greater percentage of satisfactory results. This new slip reads:

IMPORTANT.

To prevent its spoiling, allow the blood to stand at room temperature after collecting it, until firmly clotted; then place in an ice box until just before collections are made at the nearest regular collection station.

Keeping Watch on Careless Physicians.—All discovered instances of delinquency on the part of physicians and institutions in regard to the report of cases of infectious disease, as required by the provisions of the New York sanitary code, have been carefully recorded for many years. These records, however, were until recently separately filed with the respective heads of the divisions within the bureau of infectious diseases, under whose jurisdiction the particular disease happened to fall. It became apparent, however, that by reason of such dispersion of delinquency records, a particular physician's sins of omission and commission might be many times multiplied (seventeen in one instance), and yet knowledge of the extent escape observation. A recent order was issued, therefore, which amends the system of record, so that in addition to the files formerly kept, each division chief is required to forward a duplicate record of each delinquency discovered to the executive office, where close watch will be kept to discover persistent offenders in order that they may be properly punished.

Delay in Admission to Tuberculosis Hospitals.—In the past, criticism has frequently been made of the long delay sometimes occurring in admitting patients to public tuberculosis sanatoriums and hospitals. To some extent this has obviously been due to lack of sufficient accommodations; much of the delay, however, was charged to the social investigation made by the Department of Charities. That the latter was only a minor factor and that the delay was usually due to the patients themselves, was disclosed by an investigation recently caused to be made by the commissioner of charities. This showed that a large number of people on the waiting list had been offered admission to Sea View Hospital, which they had refused, electing to wait until they could be admitted into certain private hospitals which they preferred to enter.

This goes far to account, not only for the large number of patients on the waiting list, but also for the fact that patients have waited as long as six weeks before admission to an institution. The commissioner of charities is cordially cooperating with the health department in its tuberculosis work and in order hereafter to avoid all unnecessary delays in admitting tuberculous patients to the various city institutions, has modified the policy of the Department of Charities so that in the future cases of tuberculosis will be admitted as soon as a positive diagnosis has been made, leaving the social investigation to follow.

Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

October 5, 1914.

Recent Experiences in Treating Pock Scars, by P. Unna.—The objects to be sought in treating these scars are: To elevate the depressions, reduce raised scars, and soften the skin by the removal or reduction of scar tissue. Depending upon the condition present, it is necessary to modify the plan and scope of the therapeutic measures, but a general outline of the steps which may be required to secure good results may be stated as follows: Large scars should first be removed by the scarification process described by Vidal, and single specially marked elevated scars should be removed by electrolysis. Then the entire horny layer should be thinned by desquamative measures, such as one of the forms of salicylic acid application. After these steps have been completed the most important portion of the treatment remains to be undertaken. Carbon dioxide snow should be used to cause an elevation of most of the depressions, at the same time softening them. Simultaneously therewith injections of fibrolysin should be used to cause absorption of the scar tissue. The absorption of scar tissue thus begun can then be hastened and completed by application of salicylic acid plaster, or the introduction of thiosinamin by cataphoresis. Following this treatment, which has brought about the removal of the grosser lesions, the employment of some one of the friction, or polishing, processes is advocated to complete the removal of the last remaining evidences of scars. This last stage often yields the best results when one employs alternately all three methods—salicylic acid applications, thiosinamin cataphoresis, and friction. It has been the experience of the author that very material improvement can be secured by this plan of treatment in even the worst cases of pock scarring irrespective of the cause, whether from wounds, burns, variola, acne, or other affection.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

October 8, 1914.

Indications for Serum Therapy in Tetanus, by E. von Behring.—Citing freely from the published experiments of H. Meyer's, von Behring dwells specially upon two factors which relate to the success in the use of tetanus antitoxin. The first is the fact that the toxin in tetanus is produced locally at the site of the infection, from which it reaches the central nervous system by two channels. By far the greater proportion of the toxin is carried centrally directly along the nerve trunks, while a very much smaller portion enters the general circulation and, later, probably also reaches the central nervous system. The second fact depends directly on the first, namely, that by reason of the path of spread of the toxin, the antitoxin cannot reach and destroy any large portion of it when injected either subcutaneously or intravenously. Upon the basis of these observations the logical method of treating tetanus infections would seem to be the adequate, prompt, local treatment of the infected wound by

surgical means, and disinfection by coarsely crystalline iodoform and a solution of iodine trichloride. This should be followed by the injection of large doses of the antitoxin locally into the area of the wound, and also into the main nerve trunks from the infected region. With these injections there should be combined a systemic injection of the antitoxin to fix the toxin which is free in the circulation. Such means were employed by von Behring in the case of one of his laboratory men who had tetanic symptoms. The infecting wound was in the hand and the main nerve trunks in the axilla were exposed; the antitoxin was injected directly into them. Cure resulted. The relatively slow transit of the toxin along the nerve trunks makes this method of treatment feasible in most cases where it may be deemed necessary.

Keratitis in Rabbits from Pure Cultures of Spirochetes, by J. Schereschewsky.—Pure cultures were obtained from human syphilitic lesions by a method previously detailed, and these were kept growing by subculture for many generations. It was found that when these subcultures were rubbed into the scarified cornea and sclera of a rabbit, a typical parenchymatous keratitis arose after an interval of about forty days, although the portions of the cultures used were believed to contain no fully developed spirochetes. It was also found that the spirochetes retained their motility and virulence unimpaired in these cultures when kept for four weeks at 37° C., or five weeks at room temperature.

The Abderhalden Reaction, by R. Otto and G. Blumenthal.—Careful tests showed that the serums of pregnant women almost invariably gave strongly positive reactions. Serums of patients ill with any one of a variety of diseases also gave this reaction very frequently, but usually in slighter degree. Similarly, serums from men with dementia præcox gave a positive reaction in most cases with testicle and always with placenta. Serums of other diseases and from pregnant women also reacted to testicle. Positive reactions were never obtained with either substrate with serums from perfectly healthy persons. The reaction with placenta is therefore of very limited diagnostic value when positive, but rules out pregnancy with considerable certainty when negative. The same may be said of the reaction toward testicle in dementia præcox. The authors believe that the protective ferments are probably not specific in either case, but that the difference lies chiefly in their abundance.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

November 10, 1914.

Superinfection in Tabes, by A. Poehlmann.—Syphilis does not give immunity, as was formerly believed. A second infection may take place in the presence of syphilis, especially in the later stages of the disease. This infection may occur in two ways: Reinfection which occurs after syphilis has run its course and been healed, and a superinfection, when the new infection occurs in cases that have not been cured. The superinfection is rare compared to reinfection. A syphilitic patient may have a chancre which runs its course and in the beginning of the superinfection, the Wassermann may be nega-

tive, as it is in the beginning of a primary syphilitic infection.

Resinous Solutions Suitable for Dressings, by K. Dieterich.—Resinous solution for adhesive plasters must not be too dark; it must adhere well and quickly; the solution should have no odor and give rise to none after being evaporated; it should contain no resinous acids, or they should be neutral, so that no irritation is produced; the resin and the solvent should be of such a nature that the cost of the production of the preparation is small. The most satisfactory of the various preparations is one of colophony or violin rosin. The high acidity of this preparation is neutralized by the addition of sodium bicarbonate. The cost of preparation is small and the plaster possesses marked adhesive power and does not irritate.

Gas Phlegmons, by Franke.—In several cases of gas phlegmons, the onset was acute. A patient might feel well at night and in the morning high temperature, rapid pulse, and pain in an extremity might be present. The extremity is cold and in making the differential diagnosis, venous thrombosis must be considered. The presence of gas which extends beyond the bluish zone makes the diagnosis positive. Treatment consists in early amputation in healthy tissue.

Treatment of Traumatic Tetanus, by Albert Angerer.—Treatment with magnesium sulphate has not helped these conditions. Simultaneous injections of 100 units of tetanus antitoxin subcutaneously, into the vein, and into the lumbar region of the spinal column were given. The dose was repeated at intervals of twelve hours, the injections subsequent to the initial ones being made intravenously and until there was improvement. To control the symptoms chloral hydrate was used. No bad effects were noted. The dose of chloral hydrate was five grams twice daily, in the form of an enema. The results were very satisfactory.

Shrapnel Wounds of the Bladder, by Pitzner.—He observed that the soft parts of the pelvis and one wall of the bladder were penetrated, the shot resting in the bladder without causing any symptoms of bladder disturbance. There were no infiltrations of urine nor symptoms of peritonitis. The bladder was partly filled with urine, which may account for the fact that the shot came to rest there. No urinary symptoms such as burning, pain in the penis, or frequency of micturition were present. One of the two cases showed inflammatory symptoms, while in the other the urine throughout was perfectly clear. The cystoscope showed shrapnel in the bladder. As soon as the diagnosis had been made, the bullets were removed and the wounds healed by primary union.

November 17, 1911.

Treatment of Hypertrichosis with the X Ray, by Demetrius Chilaiddi.—A preliminary epilation of the hair renders the papillæ more sensitive to the action of the x ray. The soft, downy hair grows less, and is less sensitive to the action of the ray, and treatment of these cases is very unsatisfactory. The upper lid and the area of the beard offer good sites for treatment with x ray; permanent epilation can be secured here without damage to the skin. If desired, it can be accomplished at one sitting. The

epilation dose for well developed hair in the above regions which have previously been sensitized is that dose which causes a weak or moderate reaction of the first degree.

Treatment of Furunculosis, by Fried.—The best local treatment is the application of salicylic soap plaster. It should extend on to the healthy skin and should be changed every twelve to thirty-six hours, the part being thoroughly cleaned with benzine to remove the remnants of the plaster and then swabbed with alcohol. In addition to the local treatment, injections of opsonogens, solutions of dead staphylococci, have given very satisfactory results. One hundred million dead staphylococci are injected on the first and third days, 300 million on the fifth day, and 500 million on the seventh day. The subsequent doses depend upon the result obtained.

Megacolon sigmoideus, by Oscar Wiedhopf.—The patient was a man aged seventy years, in whom the condition had probably existed for some time. The right lobe of the liver showed atrophy with compensatory hypertrophy of the caudate lobe. This case probably belongs to the group described by Hirschsprung, in which the sigmoid flexure is congenitally long and predisposes to volvulus.

FOLIA UROLOGICA.

May, 1914.

Anatomy of the Prostate, by M. Porosz.—The spermatic ducts are closed by the sphincter spermaticus. The muscle apparatus proper of this sphincter is a part of the prostatic muscle and surrounds both openings of the ducts. This sphincter is situated within the colliculus. The colliculus has no corpora cavernosa and is unable to cut off the urethra from the bladder during ejaculation. The regurgitation of ejaculated fluid is prevented by the internal sphincter of the bladder. The course of the prostatic ducts shows that the prostatic glands should be emptied by pressure of the sphincter from the upper border of the lobe toward the apex of the prostate.

Vesical Syphilis, by Gayet and Favre.—The first case described was one in which a tumor in the bladder was revealed by cystoscopy. The Wassermann was positive and after antisyphilitic treatment cystoscopy showed the tumor to have nearly disappeared. The second case came with a history of hematuria, and a positive Wassermann reaction was obtained; cystoscopy showed ulcerations and inflammation of the base of the bladder; these all disappeared under antisyphilitic treatment.

Perineal Prostatectomy for Prostatic Carcinoma, by R. Proust.—The author through perineal section exposes the posterior border of the prostate and the seminal vesicles. Seminal vesicles with the vas deferens are dissected free and removed. The bladder is now opened posterior to the prostate, and the membranous urethra is cut at the summit of the prostate. The prostate and seminal vesicles are now removed, the membranous urethra ligated to the bladder, and the bladder drained.

Anesthesia and Urology, by Hugh Cabot.—In 409 cases the author found in examining the function of the kidney by phenolsulphonephthalein excretion, that the anesthesia caused a lowering of

thalein excretion of 18.8 per cent. The cases were divided into eight groups according to the time of injection of phenolsulphonephthalein. In the first group, thalein was injected during the time anesthesia was being administered and thus on up to forty-eight hours after anesthesia. Another group was made in which the effect to the quantity of anesthesia upon the thalein excretion was measured. In a third group of cases the author has measured the effect of the duration of ether anesthesia. In all of these groups the thalein excretion was progressively lowered. From this the author concludes that ether should not be used in cases in which the kidney is affected unless there is some spinal indication.

BULLETIN DE L'ACADÉMIE DE MEDECINE.

November 3, 1914.

Antityphoid Vaccine Sterilized with Iodine, by Netter.—The vaccine discussed was prepared by Ranque and Senéz, of Marseilles. Netter found it both effective and harmless in a small series of typhoid cases in which it was used. The various steps in its preparation are mentioned. A suspension containing 500 million typhoid bacilli per c. c. is used, and the organisms are killed by the addition of one per cent. of a solution consisting of iodine, twenty grams; potassium iodide, forty grams, and distilled water, 1,000 c. c. Contact with the iodine is maintained for thirty minutes, after which a sterile solution of sodium thiosulphate is added drop by drop until the iodine has completely combined with sodium to form sodium iodide. A general reaction, according to Ranque and Senéz, occurs only in 0.3 per cent. of cases upon injection of this preparation, and the local reaction is but slight. The iodine seems of value not only in killing the bacilli, but also in attenuating the toxins eliminated by them.

PRESSE MÉDICALE.

October 8, 1914.

Treatment of Wounds, by E. Delorme.—In three cases of secondary hemorrhage in infected wounds, ligation of the axillary, axillary and brachial, and posterior tibial arteries was required. Hydrogen dioxide, widely used in the treatment of infected wounds, dissolves catgut and may cause repetition of hemorrhage, especially if the ligature has been placed in a section of vessel that has suffered contusion. Hydrogen dioxide should therefore not be chosen where vessels have been ligated with catgut; silk should be used instead as a ligature.

October 22, 1914.

Treatment of Fracture of the Shaft of the Femur Caused by Firearm Projectiles, by Chaput.—Stress is laid on the fact that this variety of fracture is frequently very serious, because of local infection. In the cases in which, when the patient first comes under examination, the wound is found to be small and capped with a dry crust, with the body temperature normal, Chaput advises immobilization and expectant treatment. When, on the other hand, the wound is gaping, grayish, and discharging, with hernia of muscles, the evening temperature attains 38° C. on several successive days,

and the yellowish hue of the facial skin suggests septicemia, immediate operation is favored. Chaput makes an anteroexternal incision ten to twelve cm. long over the fracture, removes bone splinters, exposes the ends of the two bone fragments by bending the thigh, places long, curved forceps between the fragments and the skin, and saws off sections two or three cm. in length from these fragments. Zinc oxide gauze is then inserted and continuous extension of the limb provided for by wrapping cotton and gauze round the thigh, with especial tightness below, pinning pieces of bandage to the sides of the dressing, parallel to the axis of the limb, and attaching to their distal ends a cord from which a four kilogram weight is suspended, over the foot of the bed. In the event of gangrene involving large vessels, immediate amputation at the level of the fracture is advisable. Secondary amputation is considered to be indicated by Chaput where septic gangrene extends to involve muscle tissue, or where sepsis persists unchanged or becomes worse in spite of resection of the bone fragments. In gangrene involving only tissues superficial to the fasciæ, limitation of the treatment to large skin incisions and disinfection of the focus of infection in the bone is warranted.

REVUE MÉDICALE DE LA SUISSE ROMANDE.

October, 1914.

Hypertrophic Stenosis of the Pylorus, by L. Exchaquet.—Of the five cases reported in this paper, four presented quite typical symptoms. In the fifth, however, vomiting had ceased at the time the child was first observed, and the chief manifestation was a marked anasarca, which the moderate cardiac weakness failed to account for. The causes of the edema proved to be the barley flour, five grams, with Vichy water, 100 grams, which had previously been given as a remedial diet, both these articles actually favoring edema, and also a retention of chlorides in the system, as shown by the scantiness of the urinary output. Discussing the treatment in hypertrophic stenosis of the pylorus, Exchaquet deals particularly with the indications for operative intervention. The rapidity with which emaciation occurs is an important feature. In breast fed children of families in good circumstances, seen at the outset of the pyloric disturbance, and in whose cases careful hygienic management is possible, medical treatment is advised, and it should be persisted in unless a pronounced loss in weight takes place in the few days following, when operative treatment should be favored. In poor, including hospital, patients, however, prolonged medical treatment is much less easily borne, and surgical treatment should be urged after only twenty-four to forty-eight hours of medical management if the weight falls rapidly, and after eight or ten days, if the condition becomes only gradually worse. In breast fed children, Exchaquet advises that the medical treatment, if used, be that outlined by Heubner. The child is allowed to nurse ad libitum, disregarding the subsequent vomiting; warm compresses are placed over the epigastrium and a little opium or atropine is given by rectum to quiet peristalsis. In children for whom artificial feeding is alone practicable, he recommends the measures used by Ibra-

him. The child is given in fractional amounts rich but easily digested milk preparations, e. g., milk to which malt flour, buttermilk, or sugar has been added. Gastric lavage is instituted to remove residual food, and the spasmodic factor in the pyloric obstruction allayed with warm compresses, valerian, opium, papaverine, and atropine. The general condition is supported by means of saline enteroclysis or hypodermoclysis and nutritive enemas, and where possible, the pylorus mechanically dilated by Hess's procedure.

RIFORMA MEDICA.

November 14, 1914.

Serodiagnosis of Malignant Tumors by Abderhalden's Method, by A. Fulchiero.—The reaction cannot be considered specific in malignancy. Faulty technic is not the explanation, as the utmost care was taken. There seems to be a partial reason in the various cellular types found in malignant tumors. For instance, a serum from a patient suffering from a cylindrical celled carcinoma, or a round cell sarcoma, may not react with the serum of one suffering from squamous cell carcinoma, or fusiform cell sarcoma. In thirty-five cases of undoubted carcinoma from a clinical standpoint, and verified either by autopsy or microscopically, there was a positive reaction in twenty-one, giving a percentage of sixty. In forty-five serum controls in cases of various nature, there was a positive reaction in five cases, or 12.19 per cent. This shows that there may be a variation in two directions, as there may be failure to get the reaction in undoubted cases of malignancy, and, on the other hand, there may be obtained a positive result in conditions where it should not occur. The author thinks that if in practice this reaction is not specific, the reasons may be several, including a faulty technic, wrong interpretation, and, finally, the production, in various pathological conditions, of polyvalent, nonspecific proteolytic ferments which may interfere with the test.

Clinical Value of Noguchi's Luetin Reaction, by E. Curti.—Of the many proposed methods of cutaneous tests for syphilis, Noguchi's seems to be the most satisfactory. A series of twenty-seven cases were tested, in which there was, from a clinical standpoint, undoubted active syphilis. In two cases of primary lesion, one reaction was negative, the other doubtful. In twelve cases of secondary syphilis, there were seven absolutely negative, three doubtful, and only two positive. In five cases of tertiary syphilis, there were two positive, two doubtful, and one negative. In five cases of latent syphilis there were two positive, two doubtful, and one negative. In addition, in thirty-one cases of nonsyphilitic nature where the reaction was tried, there was a positive result in three, including one case of psoriasis, one of epithelioma, and one of scrofuloderma. The writer, consequently, arrives at the following conclusions: 1. The reaction is much inferior to the Wassermann. 2. A positive result of the test should be followed by other means of verification. 3. A negative result should not be taken as an absolute proof of the absence of syphilis.

REVISTA DE MEDICINA Y CIRURGIA PRACTICAS.

November 21, 1914.

Cellulitis of the Mastoid Prominence Preceding Bezold's Mastoiditis, by E. Botella.—The symptomatic triad of Bezold is: Cellulitis, particularly localized to the point of the apophysis; perforation of the inner table at the level of the digastric process, or of the external table; infiltration of pus between the muscular insertions, forming an abscess which according to the site of the perforation comes to the surface over the sternomastoid, the splenius, or the trapezius. The author describes a case of otitis media in the stage of resolution, with anterior perforation, and cellulitis of the point of the apophysis. Three weeks afterward there arose abundant suppuration from the ear with a stenosing inflammation of the aditus, marked tenderness over the mastoid prominence, pain over the insertion of the sternomastoid, with difficulty of movement of the head. There also developed an elevation of the inferior wall of the external auditory canal. Operation showed no pus or extravasation into the muscular insertions, but, on going into the antrum, there was found one single cavity the whole size of the mastoid, full of foul pus. The entire mastoid cortex was resected, and with drainage and packing the patient quickly lost all his symptoms. The noteworthy points of the case were the absence of perforation of the bone, with nevertheless a myositis, and periosteal congestion. In other words, all that was lacking was the leakage of pus to produce an abscess of the Bezold type. The author strongly urges immediate operation in all cases where there appears a myositis of the sternomastoid, and cautions against trusting in the benign nature of cellulitis of the mastoid apex.

THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

November, 1914.

Radium in Superficial Cancer.—C. M. O'Brien has used radium in the treatment of superficial cancer for eleven years, and reports eight cases treated in this way. Of the eight cases, seven resulted in cures, one case being observed as long as nine years after treatment had been stopped. The one patient died of recurrence affecting the cervical glands after a rodent ulcer of the face had apparently been cured seven years previously. The cases treated were, for the most part, rodent ulcers, a few being superficial cancers elsewhere. Radium bromide was used in two different strengths, five mgm. and fifty mgm., and the duration of the exposures varied from ten minutes to two hours.

X Rays in the Treatment of Graves's Disease.—T. Gillman Moorhead is of the opinion that treatment with x rays is more likely to take the place of surgical treatment in this condition than any other medical treatment in vogue. The activity of the thyroid gland is depressed, and repeated exposures lead to a fibrosis of the gland. Some of the cases operated in subsequent to the course of x ray treatment have shown fibrosis and contraction of blood-vessels. A preliminary short x ray course may be of advantage in reducing the hemorrhage at a subsequent operation. The author has observed nine cases treated by the x rays; these have remained

under his observation for a period varying from three weeks to five years. Five of the cases were completely cured as far as symptoms were concerned. In these cases there is still enlargement of the thyroid, but it is firm and fibrous instead of soft and vascular. In four of the five cases exophthalmos still persists, but to a slighter degree. From his experience, the author concludes that x rays are worthy of a trial, but that perseverance and patience are required. Of the symptoms, tachycardia and restlessness seemed to respond most promptly to this form of treatment.

GLASGOW MEDICAL JOURNAL.

November, 1914.

Practical Points in Abdominal Surgery.—T. Kennedy Dalziel considers ulceration of the stomach a serious condition and fatal hemorrhage occasionally follows it. He is of opinion that operation is indicated in recurrent hemorrhage. Temporary hyperacidity of the stomach may follow indiscretions of diet and this condition is intensified by undue retention of the food in the stomach. Alkalies and modification of diet have helped some cases. Tumors of the stomach are for the most part malignant, sarcoma being rarely seen. The symptoms of carcinoma may be extremely vague. There may only be a slight loss of appetite with a gradual inability to take much at any time, accompanied by a gradual loss of weight and strength. The treatment is surgical and should be as radical as circumstances will permit. Chronic interstitial enteritis is characterized by violent colic, vomiting, occasionally escape of blood from the bowel, and constant presence of mucus in the stool. These symptoms recur at intervals and during the attacks of pain there may be a slight rise of temperature. The prognosis is bad and the condition demands surgical interference, resection of the part of the intestine chronically inflamed and thickened being performed. The cases somewhat resemble tuberculous enteritis, also Johne's disease, in which an acid-fast bacillus similar to the tubercle bacillus has been found but which does not cause tuberculosis when injected into guineapigs. The etiology of the condition is obscure. Intraabdominal adhesions occur mostly at the four corners of the abdomen. They may be the cause of enteroptosis as the result of chronic constipation. At times, on account of the obstruction produced, blood and mucus appear in the stool and when on examination a mass is felt, the diagnosis of malignant growth may be made. The treatment is surgical.

Splenic Anemia and Splenectomy.—William R. Jack and D. T. C. Frew report a case of splenic anemia and one of portal thrombosis simulating it in its clinical features. The blood picture of the case of splenic anemia showed a moderate anemia of the chlorotic type with an extreme degree of leucopenia. The spleen was markedly enlarged but the lymphatic glands did not show any increase in size. There was no fever present. Medicinal treatment failed and splenectomy was performed. Five months later the patient's blood showed a leucocytosis of 10,000 with a color index of 0.85. The case of thrombosis of the portal vein showed nearly all the signs of chronic splenic anemia; en-

larged spleen, absence of enlarged lymphatic glands, chlorotic anemia, and a low color index. Leucopenia was not present, although there was an absence of a leucocytosis. The patient had numerous and copious gastrointestinal hemorrhages, and the post mortem examination showed a white thrombus almost filling the main trunk of the portal vein.

JOURNAL OF TROPICAL MEDICINE AND HYGIENE.

September 1, 1914.

Tinea capitis tropicalis, by Albert J. Chalmers and Alexander Marshall.—The variety of tinea described was observed in the Anglo-Egyptian Sudan. Examination of the white patches on the heads of the patients showed the presence of white scales, hairs broken off about a millimetre from the skin surface, and normal hairs. The broken hairs, soaked in forty per cent. caustic potash for some hours, showed quadrangular spores (hyphal segments) arranged in regular ladder or ribbonlike chains inside the shaft of the hair. The results obtained upon inoculation of various culture media from the scalp are given. Analysis of the characteristics of the fungus showed that it belonged to the *Endothrix* division of the genus *Trichophyton*; it develops solely in the interior of the hair and does not cause suppuration. It is, however, a new species, to which Chalmers and Marshall apply the name, *Trichophyton currii*. The broken ends of the diseased hairs sometimes appeared as darker spots on the scale covered skin, this being a differential feature as compared to the common *Tinea tonsurans* lesions. All the patients were boys from ten to sixteen years of age. The disease was essentially chronic, with absence of all signs of inflammation. The prognosis as regards baldness appeared to be good, the alopecial patches being, as a rule, small and inconspicuous. Soap medicated with tobacco seemed to promise best results in the treatment, when a Röntgen apparatus was not available.

October 15, 1914.

The Cause of Sprue, by Aldo Castellani.—In this contribution are presented the results of a detailed study of the intestinal flora in sprue, with special reference to the hyphomycetes, which Castellani and Low are inclined to consider the cause of at least some of the more important symptoms of the disease. While it was found possible in nearly every case of sprue to demonstrate the presence of fungi, stress is laid on the fact that these fungi do not all belong to the same species—the so called thrush fungus or *Monilia albicans*. In fact, the latter, in the strict sense, was never found. Castellani enumerates the six different species of *Monilia* which he isolated from the stools or tongue scrapings or saliva of sprue patients, and observes that two or more different species may sometimes be found in the same case.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

December 5, 1914.

The Use of Boiled Milk in Infant Feeding, by R. H. Dennett.—This paper was abstracted in our issue for July 4th, page 48.

Preventive Otolaryngology, by B. R. Shurly.—This paper was abstracted in our issue for July 4th, page 53.

Differential Diagnosis of Nephrolithiasis and Renal Tuberculosis by Röntgenography, by M. Krotoszyner.—When other clinical methods fail, röntgenography may be of definite value in the local diagnosis of renal tuberculosis; but a careful and judicious interpretation of concrement shadows is imperative, in order to avoid diagnostic errors of serious consequence. Occasionally pyelography may be of differential diagnostic value, though this is too risky a procedure in renal tuberculosis to become a routine measure in doubtful cases. The differential diagnosis of nephrolithiasis and nephrophthisis by röntgenography alone is feasible in the presence of marked tuberculous renal caseation (tuberculous putty kidney). It is difficult or perhaps impossible, however, in the presence of one or more concrement shadows cast by calcified tuberculous foci within the renal parenchyma.

Diverticula of the Urinary Bladder; with Report of Cases, by W. E. Lower.—The diagnosis can almost always be made with the cystoscope by an experienced operator. The diverticulum opening is sometimes extremely small, but, notwithstanding this, the diverticulum itself may be large. The diagnosis may be made certain, and the size and exact location of the sac determined, by the aid of collargol and the x ray. The most common symptom is frequent urination, resulting from the constant presence of residual urine in the sac, but no special annoyance is felt until infection and cystitis occur, when the patient seeks advice because of the painful symptoms. Radical operative treatment is usually required, and the method of removal which Lower has found most satisfactory, and which he believes to be applicable in practically all cases, is to convert the sac into a solid tumor by the method described by Cabot in 1912. The bladder having been dissected free from the peritoneum, the diverticulum is packed tightly with gauze, after which, with the fingers inside the bladder—the index finger in the opening of the diverticulum and the thumb on the outside—the attachment to the bladder is exposed and divided. The bladder is then retracted from the diverticulum, traction is made on the tumor, and it is dissected free from the surrounding tissue.

Mouth Infection as a Source of Systemic Disease, by Frank Billings.—Mouth infection and alveolar disease may be primary, and due to unhygienic conditions of the mouth, or may be due to general malnutrition. Whether primary or secondary, alveolar focal infection may be the principal factor in the production of such systemic conditions as chronic arthritis, myocarditis, and malignant endocarditis. Bacterial cultures from the infected alveoli and tooth canals show that the dominant organisms belong to the streptococcus pneumococcus group. The investigation and management of these patients require clinical and laboratory work, skill of the dentist, of the nose and throat specialist, of the gynecologist, genitourinary expert, and others, to find the foci of infection. The focus must be destroyed, tissues and exudates of foci must be carefully examined, and bacterial cultures made; while vaccines of the dominant bacteria may be prepared for subsequent use. With the source of the infection removed, every effort

should be made to increase the defenses of the body against the systemic infection, and this involves a long and tedious period in the chronic joint infections and in some other diseases.

Mouth Infection as a Source of Systemic Disease, by E. C. Rosenow.—The microorganisms found in the lesion may be quite different from those in the focus of infection at the same time. This does not in any way minimize the importance of the focus. The organisms found in the tissues may have undergone change, and this fact should be borne in mind whenever autogenous vaccines are to be employed.

MEDICAL RECORD.

December 5, 1914.

Precancerous Diseases and Precancerous Lesions, by J. Ewing.—When the preliminary lesion shows a definite advance into the field of genuine cancerous change, the term precancerous can be properly applied. Otherwise almost every form of chronic productive inflammation may be regarded as precancerous, because in some instances the particular condition clinically passes into carcinoma. Yet not every case of chronic mastitis shows suspicious changes suggesting carcinoma. When any case does exhibit the suspicious structures, then, and only then, can it be regarded as precancerous. Furthermore, a distinction should be made between precancerous lesions and miniature carcinomas, for only in size do the latter differ from the established disease. Such lesions cannot properly be called precancerous, since they exhibit the essential features of fully developed carcinoma, only on a small scale. As to the characteristics of the precancerous condition in chronic mastitis, widely distended ducts diffusely filled with atypical cells, pronounced multiplication of alveoli with obliteration of acinar outlines, and miliary adenomas with areas of diffusely growing large atypical cells would seem to require recognition as tending distinctly toward malignant growth.

Heredity and Predisposition in Life Insurance, by A. B. Wright.—Heredity and predisposition are very closely allied, but heredity appears to be secondary to predisposition so far as transmission of disease is concerned. We inherit anatomical and physiological characteristics, and in this manner are predisposed to disease. This appears to be the limit of heredity according to modern thinkers, and to that extent only can it be applied to the realm of life insurance and the selection of risks. If in an individual there is not harmony of the anatomical characteristics inherited, there may be a predisposition to disease; in other words, we may say that he lacks resistance. Environment is an element which at times appears to offset to some extent the laws of heredity and predisposition.

Twilight Sleep in Practice, by H. W. Knipe.—There are certain disadvantages in twilight sleep because it requires the constant presence of a nurse skilled in this treatment, or, better, the constant attendance of the physician. The method is not easy to carry out, requiring experience in the technic and considerable obstetrical knowledge because the patient's outcries do not force interference where it may be needed. It may be found difficult

to secure a stable solution of scopolamine, and if an unstable one is used very bad results may ensue. Again, attention must be paid to many details, such as darkening the room, preserving quiet, stopping the ears, covering the eyes, etc., which may be difficult to accomplish. The ideal place for the employment of this treatment, therefore, is a hospital. That there are certain dangers to an improperly conducted twilight sleep is admitted by all; that there are wonderful advantages in a properly conducted one must be admitted by those who will take the trouble to investigate. To attain the same good results which have been met with in Freiburg it is only necessary to give sufficient thought and study to the method to master it.

LANCET-CLINIC.

December 5, 1914.

Tumors of the Urinary Bladder, by E. O. Smith.—Tumors of the urinary bladder are seldom found in the young. Benign tumors may be found in young and old, but malignant tumors are usually seen between the ages of forty and sixty years. Papillomas most frequently occur near the trigone of the bladder. They give rise to hemorrhage, slight or extreme, but not to pain. Malignant tumors, on the other hand, cause pain and frequent and painful micturition. Early cystoscopic examination is advised in all cases of hematuria. Alypin or novocaine can be used as a local anesthetic if necessary. Malignant growths can at times be palpated by bimanual examination, papillomas practically never. Papillomas can be destroyed by the application of the high frequency current. From three to ten treatments at intervals of one to three weeks usually suffice to bring about a cure. A cystoscope carrying a wire electrode is introduced into the tumor and the current turned on for from fifteen to thirty seconds. This is repeated in another part of the tumor and from three to five applications are made at a sitting. Malignant tumors do not respond to electrical treatment and require removal.

Korsakoff's Syndrome; Polyneuritis Psychosis, by Robert Ingram.—This condition is a peripheral neuritis associated with mental disorder, the chief characteristics of which are disorientation as to time and place. The most common etiological factor is alcohol; others being phthisis, influenza, septic infection, diabetes, and chronic poisoning by arsenic, lead, mercury, and carbon bisulphide. It is seen more frequently in women than in men and usually in adult life. Neuropathic heredity is fairly frequent. Pathologically there is edema of the meninges, the cerebral cortex is thin, and the kidneys, liver, and heart show fatty degeneration. The neuritis differs in no way from a neuritis unaccompanied by mental symptoms. In the alcoholic cases nystagmus is common and central scotomas may occur. The mental symptoms are sudden in onset and may be accompanied by an attack of delirium tremens. There may be an exaggeration of emotional reaction. Disturbance of memory is the most pronounced feature. Different varieties have been described, deriving their names from the prominence of a particular symptom, such as amnesic, confusional, delusional, anxious, and demented forms of the disease. The diagnosis is based on

the history, usually of alcoholism, the multiple neuritis, and the disorientation as to time and place. The course is chronic, recovery taking place in from six to twelve months, but there is usually a certain amount of mental enfeeblement which remains. Death from respiratory or cardiac failure may occur. The treatment consists in prolonged rest in bed and improvement of the general nutrition. Phenacetin may be given for the pains. For the nutrition of the wasted muscles the constant current may be employed. Massage may be of value later in the disease.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

November, 1914.

Ultimate Results of Surgery in Cholelithiasis.

—J. C. Clark gives the ultimate results in the following classes of cases: 1. Cases of cholelithiasis unassociated with other abdominal or gynecological lesions. Of a series of fifty-five gallstone operations not associated with such conditions, ninety per cent. of results were traced. Of this number 69.5 per cent. were cured, 15.2 per cent. greatly improved, and 2.1 per cent. not improved. 2. Cases of cholelithiasis with symptoms associated with other abdominal or gynecological lesions (seventy-seven cases). Of these, seventy-eight per cent. were traced; 59.7 per cent. were cured, 17.5 per cent. greatly improved, 1.7 per cent. slightly improved, and 8.7 per cent. unimproved. 3. Cases of cholelithiasis without assignable symptoms associated with other abdominal or gynecological lesions (thirty-one cases). Of these, eighty-six per cent. were traced; sixty-four per cent. were cured, sixteen per cent. greatly improved, four per cent. slightly improved, and eight per cent. were worse than before the operation. It is noteworthy, the author says, that in the second class, with unquestionable symptoms of diseases of the upper abdominal organs, there were visible changes in the appendix in thirteen cases, ranging from mild to acute inflammation. Thus the error in diagnosis falls chiefly between appendicitis and cholelithiasis. In several of the cases the condition of the appendix gave rise to the acute symptoms precipitating the operation. From this analysis it is learned that the worst results occur among the combined cases in which there were manifest symptoms of biliary changes. The ratio of cures is in direct proportion to the severity of the symptoms. The weight of evidence emphatically favors the early removal of gallstones.

Clinical Study of One Thousand Cases of Cancer of the Stomach.—J. Friedenwald states: Of patients with various gastric disturbances, 9.6 per cent. are affected with cancer, while but 7.8 per cent. have ulcer; the largest proportion of cancers occur between the fortieth and sixtieth years; of ulcers, between the twentieth and fiftieth years; the greatest number of gastric cancers occur in males (588 males, 412 females); there is an hereditary history of cancer in 9.4 per cent. of cases; a definite history of trauma occurs in 1.9 per cent.; anemia is found in eighty-two per cent., arteriosclerosis in sixty-nine per cent., chronic endocarditis in eleven per cent.; a direct history of former ulcer in seven per cent., in only twenty-three per cent.

could the cancer have formed from ulcer. A history of overindulgence in food or drink can be obtained in about half the cases of cancer.

Some Clinical Aspects of Gastric Hemorrhage.

—J. A. Lichty concludes: 1. The statistics of hemorrhage from the stomach, whether of hematemesis or melena, or as revealed by occult blood tests, or by string tests, are of very little value. 2. In the treatment of acute peptic ulcer or acute exacerbation of chronic ulcer, especially when accompanied with hyperchlorhydria, food should not be withheld from the stomach at once. 3. Surgical treatment for gastric hemorrhage has a very limited, though definite field.

SOUTHERN MEDICAL JOURNAL.

November, 1914.

Indigestion a Forerunner of Diseases of the Cardiovascular and Renal Systems.—F. M. Hodges, having presented an extensive series of cases from his experience, remarks: 1. Indigestion and constipation may in a small proportion of cases be the only impairment, and the forerunner of disease of the cardiovascular and renal systems. 2. Careful uranalysis and the sphygmomanometer are usually the first methods of examination to exclude the cases later showing cardiovascular and renal changes. 3. Routine examination for indican should be made in all cases of chronic constipation and indigestion, and especially in those with low blood pressure. 4. Patients of forty years or over, with heavy responsibilities and about maximum weight and over, make up the majority of the first group, a characteristic of which is elevated blood pressure. 5. That whatever may be determined to be the actual cause of indicanuria, it does not seem, from these cases, to be a prominent factor as a forerunner of cardiovascular and renal disease, but is found in a certain proportion of cases in association with low blood pressure.

Hookworm Disease and Pregnancy.—J. S. Turberville calls attention to the frequency of eclampsia where hookworm disease is prevalent. A clinical condition identical with the general beginnings of eclampsia is due to the presence of hookworms, and is curable by their elimination. Hookworms are often found in eclamptic women; they may be an indirect cause of puerperal convulsions.

Transfusion; Direct and Indirect; Simplified Methods.—B. M. Bernheim and A. P. Jones review and explain various methods, including that of Bernheim, which is a combination of those of Lindeman and Kimpton, and go on to remark that blood can be transfused from one individual to another with little difficulty by any one of several different methods. To be well up, the practitioner should be prepared to use either the direct or the indirect method, for one may be suitable in one case and the other method in another. They advise the physician or surgeon who has an occasional transfusion, and wishes to do it himself, to choose that method which most appeals to him and which is most applicable to his cases and facilities, to learn it properly, and be prepared to employ it, and no other, on a moment's notice.

ARCHIVES OF THE RÖNTGEN RAY.

November, 1914.

X Rays in War.—See editorial article in our issue for November 21st, page 1031.

Diathermia in Medicine and Surgery.—E. P. Cumberbatch states that the readiest way to apply diathermia to the human subject is to place a cylindrical metal handle into each hand and connect these by a suitable cable with the termini of a diathermia machine. An electrical current which oscillates with high frequency is thus passed through the body which forms part of the circuit. The wrists feel the warmth first and the sweat glands soon become active. An actual rise in the temperature of the body is obtained. The rise of temperature in the region of the arms is due to direct heat caused by the current and the rise of temperature in the more distant parts is brought about indirectly by the heated blood. When the temperature of the blood is raised, the heart beats more frequently; dilatation of the peripheral cutaneous areas is slight. The respiratory exchange during and after diathermia shows that after thirty minutes' treatment less oxygen was consumed and less carbon dioxide was given off.

Treatment of Recurrences and Metastases in Breast Carcinomata.—George E. Pfahler has applied the Röntgen rays as promptly and as vigorously as possible in the treatment of these conditions and has used small doses of thyroid extract in addition as some of the radiation reaches the thyroid gland and interferes with its secretion. He starts with one half grain three times a day and increases it one half grain in the daily dose every four days until the patient is taking one and a half grain three times a day. The symptoms indicating the administration of too much thyroid are increased pulse rate, sensation of faintness and weakness, and slight headache. These usually disappear when the administration is interrupted for a period of a week. In the technic, the rays should be applied from four or five different directions so that the deeper portions of the disease, especially in the mediastinal glands, are reached. The skin should be protected by filters consisting of one eighth of an inch of leather and from one to four mm. of aluminum. They are placed one half inch from the surface of the tube between it and the patient. The quality of the rays should be sufficiently penetrating, from 6 to 8 as measured by the Benoist scale.

INTERSTATE MEDICAL JOURNAL

November, 1914.

Value of Functional Kidney Tests.—G. M. Piersol, having referred to various tests for the recognition of cumulative phenomena, which, though relatively simple, are inapplicable in many cases and which must of necessity be beyond the reach of the ordinary clinician, places the highest estimate on the phenolsulphonephthalein test for determining total renal function, as being useful in all forms of nephritis, whether early or advanced. His conclusions are as follows: 1. As a method of readily and accurately determining total renal function the phthalein test is superior to any other

single functional test, although it gives little or no information as to the kind of kidney lesion or the part of the kidney most involved. 2. An accurate and reliable conception of the functional capacity of the kidneys cannot be arrived at by depending upon any single test; conclusions of value can be drawn only when the condition of phthalein excretion is taken in conjunction with a complete clinical survey of the case, and even then many conditions will arise about which exact knowledge can be gained only by supplementing the phthalein test by other excretory tests and a determination of cumulative phenomena. 3. In his hands chronic interstitial nephritis has generally shown a persistently low phthalein output, although cases do occur in which a normal or nearly normal phthalein excretion is found. 4. In cardiorenal cases, and in cases of cardiac decompensation, the phthalein test furnishes valuable data as to which factor is the dominant one, the heart or the kidneys. 5. In acute infections the phthalein output is usually fair. 6. In acute irritant poisoning cases the phthalein test will give early evidence of serious kidney involvement.

Seminal Vesicles.—J. D. Barney concludes this paper with remarks on the results of vesiculectomy. Operation in all his cases has been too recent to draw definite conclusions. With one or two exceptions, patients relapsed after operation; in some, infected joints, formerly quiescent, suffered exacerbation, while in others fresh joints became involved. In most cases, however, such reinfections, so far as he knows, have been brief and not serious. Such results bring up the question of the feasibility of removing the prostate, or at least, of draining it by free incision. They also show, despite statements of other operators, that radical measures for the relief of vesiculitis may and undoubtedly do produce a cure in the long run.

Spinal Anesthesia in Urology.—G. G. Smith speaks highly of spinal anesthesia. He has employed it in suprapubic, intravesical, and perineal operations and in those upon the genitalia. From his records of 100 cases, and from the experience of others, he feels that the method *per se*, if properly carried out, bears only a very slight risk. The greatest risk comes from the fall of blood pressure it occasions, especially in arteriosclerosis. It should not be used when local anesthesia will suffice. In patients with tuberculosis, renal disease, or debility, and in emergency cases unprepared for etherization, it is of the greatest value.

AMERICAN MEDICINE

November, 1914.

Mechanism of Immunization, by H. S. Williams and J. W. Beveridge.—The hypothesis advanced is designated the proteomorphic theory. It postulates, as the chief immunizing mechanism, the cytogenic system—bone marrow, spleen, and lymphatic system—and, as the active agents through which the process is carried out, the leucocytes and red blood corpuscles. The main work of synthesizing protein out of aminoacids resides with the mother cells of the cytogenic apparatus, but the cells of each specialized tissue, muscles, brain, glands, can on occasion synthesize each its own special type of protein, utilizing the aminoacid

building materials. Every cell which can unite with a foreign protein product can produce an antibody to antagonize that product. Immunization to bacterial disease is merely a special case of protein assimilation. A relatively benign bacterium may under certain conditions become malignant. Protein anaphylaxis, including serum disease, is a special case of protein intoxication, homologous with protein poisoning from the toxins of virulent bacteria. The activities of the cytogenic system are governed in part by hormonal stimuli, the internal secretions actively engaged including those from the adrenothyroid system and secretin from the duodenum. The cytogenic system is regarded as a highly important member of the endocrinous or internal secretory system, and the general theory of its action set forth is held to find support in clinical observations of disease and in empirical therapy.

Sleeping Sickness (Trypanosomiasis), by Sir David Bruce.—In this disease a slow chronic inflammatory process takes place in the brain, and it is usually a long time, sometimes years, before the characteristic symptoms make their appearance. When it is fully developed, the patient is so prostrated as to be unable to stand, speak, or feed himself, and lies in an absolutely lethargic condition. The blood parasite giving rise to the affection is a protozoon, and when it is alive it is constantly active, dashing rapidly about and lashing the red corpuscles into motion with the long terminal flagellum with which it is provided. In 1888, Lewis discovered trypanosomes in the blood of rats in India, and this rat trypanosome is found all over the world; not appearing to have any effect on the health of the animals. Another trypanosome is met with in the blood of horses suffering from surra, a disease closely related to the tsetse fly disease of South Africa. As a result of many experiments, it has been shown that the tsetse fly is capable of conveying the virus of sleeping sickness from the sick natives to healthy monkeys. England, France, Germany, and Belgium have sent their best experts to study the disease and endeavor to devise means for its prevention or suppression, but bacteriologists and physicians are as far from removing this plague as they were when its ravages were first discovered. In its treatment arsenic has been found to be the only remedy which has any effect whatever, and this is only temporary. When administered to patients by injecting it into the blood, the trypanosomes have apparently disappeared. Some may have been poisoned, but after a month or perhaps six months, blood tests show that they are again at work and as numerous as before, if not more so.

LONG ISLAND MEDICAL JOURNAL.

November, 1914.

Gliomatous Tumors of the Brain.—W. T. Councilman says that these growths, although arising from tissue of epiblastic origin, have greater similarity to connective tissue tumors than to any other. The variations are so great as to preclude adequate classification. The striking characteristic of this class of tumors is that they grow by infiltration rather than expansion, the tumor tissue replacing the tissues which it involves, not pushing

them aside. The form of the tissue replaced may, however, be perfectly retained. The growth of the glioma is accompanied or preceded by a very diffuse growth of normal glia tissue, often extending far beyond the limits of the neoplasm and rendering it peculiarly difficult histologically sharply to delineate the tumor. Another feature of these tumors is the tendency to the formation of cysts, resulting either from the secretion of epithelial cells or from degeneration of included tissue. A third peculiarity of the gliomas is the fact that they remain limited to the tissue in which they originate, always being confined to the nervous tissues and never extending into the meninges. This failure to grow outside the nervous tissues explains the absence of metastases. These tumors are also characterized by a tendency to extend along the surfaces of the brain and cord, and still another characteristic is found in the fact that the nuclei of the glia cells divide by direct fission instead of by mitosis. It seems difficult to avoid the conclusion that some of the gliomata grow by a transformation of the surrounding tissue into that of the tumor. Although cyst formation in the gliomata is very common, hemorrhages, necrosis, and other evidences of degeneration are usually absent.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL.

November, 1914.

Bacteriology and Pathology of Bubonic Plague.

—H. W. Wade states that the spleen, liver, kidneys, and lungs usually show extensive pathological changes, varying in degree rather than in type. These changes are marked parenchymatous degeneration and marked congestion. In the spleen there may be actual hemorrhage in areas; in the lungs there is often great edema. Frequently the most striking feature of the gross pathology of these organs is numerous petechial hemorrhages of the serous surfaces. Microscopically the largest and most severely affected lymph nodes are so greatly disturbed in their cellular arrangement that frequently they are scarcely recognizable. After describing the microscopical appearances in different parts of the system the author sums up by saying that, on the whole, the gross and microscopical findings in *Bacillus pestis* infection are essentially degenerative and, secondarily, hemorrhagic. This feature, in acute cases, entirely overshadows the infiltrative and proliferative activities which are seen at points from the original focus, and in the cases of low grade virulence which more commonly end in recovery.

Cystitis; An Overworked Diagnosis.—A. Nellen says that the general practitioner should be familiar with the use of the cystoscope. Unless he is competent to make a diagnosis, he has no right to waste his patient's time and money with the guess work diagnoses of a decade ago. Even moderate expertness requires practice in the use of the cystoscope, but the practitioner should no more attempt to treat urological conditions without it than he should try to treat the eye if unfamiliar with the ophthalmoscope.

Vaccines in the Treatment of Chronic Diphtheria Carriers.—A. I. Weil concludes: 1. Chronic carriers do exist. 2. The use of vaccines has

an influence in destroying the bacilli in them. 3. The number of bacilli is markedly diminished by vaccines, even when they do not entirely disappear. 4. Diphtheria vaccines, in spite of the toxins they contain, can be used in comparatively large doses without causing evidence of a general reaction. 5. There seems to be no relation between the amount of local reaction and the efficacy of treatment. 6. Large doses seem more efficacious than small ones. 7. It is necessary to get a number of negative cultures before a cure can be said to be effected.

Acetone, Acetonuria, Acidosis, Acid Intoxication.—E. D. Fedner states that his chief object is to call attention to the general recommendation by textbooks and journal writers of sodium bicarbonate in large doses in these conditions, practically to the exclusion of other and, to his mind, more rational therapeutics; and to protest against this teaching. Since giving up the use of soda for the most part he is confident that his cases of vomiting with acetonuria are of less severity and briefer duration. The vomiting, and not the acetone, is what should occupy the attention. In many cases calomel is rejected, but it is worth while to try the effect of fractional doses in the beginning. The sovereign remedy for these cases of vomiting is morphine. During the height of the attack it is useless to attempt to give food by the mouth, but, with the resumption of bowel movement and other signs of improvement, nourishment is indicated, and in his experience very dilute condensed milk or malted milk is retained sooner than anything else.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

November, 1914.

The Necessity of Constantly Looking for Cancer of the Uterus, by Carstens.—The gynecologist should always be on his guard against cancer. Age is not a safe guide.

Abdominal Distention Following Operations upon the Pelvic Viscera, by Reder.—Although paralytic ileus may occur no matter how careful and skillful the operator, yet it would seem to be largely a matter of trauma, of injury to the peritoneum. The introduction of any foreign substance, the breaking up of adhesions, or just the handling of the abdominal structures may be sufficient to excite reflexes of severe character. On account of the paralysis peristalsis ceases, fluids collect, and the bacteria present rapidly multiply. Toxic substances form, are absorbed, and give rise to marked disturbances. As a result of the abnormal condition of the intestine, bacteria are able to pass through the wall and set up acute inflammatory conditions. To prevent the occurrence of this process, Reder believes that much may be accomplished by gastric lavage and enemas, particularly the alum enemas as recommended by Hardon. After vomiting has taken place, the administration of pituitrin has given favorable results in the few cases in which it was tried.

Myomectomy with Extensive Resection of the Uterus in Fibroid Tumors, by Werder.—The great disadvantage of the x ray is that it commonly brings about atrophic changes in the pelvic organs and consequently destroys their functions. For these reasons the author advises conservative treat-

ment whenever possible; or myomectomy rather than hysterectomy, on account of the lower mortality and morbidity. That the fibroids are submucous is not a contraindication, as even large portions of endometrium may be removed in safety. The greater part of the uterus may be excised. As long as some of the endometrium and the ovaries are not sacrificed, menstruation will continue and the child bearing function be retained. In a number of such cases, pregnancy did occur.

Two Cases of Cancer of the Uterus Apparently Cured by Postoperative Infection, by Poucher.—In two cases of advanced cancer, the patients, after being operated upon, had a diffuse and severe sup-puration. The first patient, a woman aged sixty-five years, seven years later showed no evidences of a return. In the other case, there has been no recurrence at the end of two years. In both cases the laboratory report was adenocarcinoma..

Proceedings of Societies.

SOUTHERN MEDICAL ASSOCIATION.

Eighth Annual Meeting, Held at Richmond, Virginia, November 9, 10, 11, 12, 1914.

The President, Dr. STUART MCGUIRE, Richmond, Virginia, in the Chair.

(Continued from page 1189.)

Syphilis in the American Negro.—Dr. KENNETH M. LYNCH, and Dr. B. K. and Dr. G. F. MCINNIS, of Charleston, in a joint paper, drew the following conclusions: 1. In the south syphilis in the negro was a serious problem, affecting probably from fifty to sixty per cent. of the major class of this people, including day laborers, servants, and tradespeople. 2. Negro women were apparently more subject to the disease than the negro men. 3. There was no apparent suggestive relationship between a positive Wassermann reaction and high blood pressure in the negro. 4. The ravages of syphilis in the individual were not severe. Diagnosis was difficult in many of these cases without a specific test, and the Wassermann reaction, barring a few doubtful reactions, and three or four negative reactions in suspicious cases, proved of great value. 5. While one or two miscarriages occurred, not more frequently in the syphilitic than in the nonsyphilitic, the habit of miscarrying was much stronger in the former. 6. Syphilitic women were not as productive as the nonsyphilitic, and their children did not survive as well.

Treatment of Syphilis of the Central Nervous System.—Dr. J. P. MUNROE and Dr. A. J. CROWELL, of Charlotte, drew the following conclusions: 1. Salvarsan proved beneficial in all forms of specific disease of the central nervous system. 2. Salvarsanized serum injected into the spinal cavity added to the efficiency of the treatment in the degenerative types of the disease. 3. In inflammatory conditions of the cord it was unsafe to use the salvarsanized serum injections. 4. Mercury added to the efficiency of the treatment in most cases. It was usually considered secondary to salvarsan, but in some instances it caused the disappearance of

conditions and symptoms that had proved resistant to salvarsan, even though used persistently and in the most approved form.

Treatment of Syphilis.—Dr. E. H. MARTIN, of Hot Springs, Ark., had proved, by numerous doses given to cured patients and to patients who had never had syphilis, that, apart from the idiosyncrasy to the drug in a few cases, a dose of salvarsan had no physiological effect on the body temperature or intestinal elimination. The disturbances consistently observed after its administration in the treatment of syphilis were due to endotoxins released from the killed organisms causing the disease; the endotoxins of syphilis caused a rise of temperature or characteristic bowel movements or both. If there were many bowel movements, there was not much rise in temperature and conversely. Nausea and emesis were probably drug effects and seemed to depend on idiosyncrasy, but the changes in temperature and the bowel movements were not drug effects and did not follow doses given to patients who had had sufficient treatment. The absolute cure of a majority of cases of secondary syphilis might be accomplished by three intravenous doses of salvarsan. Some secondary cases had been fully sterilized by one dose as proved later by genuine reinfections; many secondary cases were cured by two doses, but to be safe three doses should be given in all cases, and if the slightest endotoxin reaction occurred after the third dose, the weekly doses should be continued until it was lacking. The fact that more than three doses were frequently necessary in secondary syphilis could be explained by the probable existence of tertiary colonies which had given no symptoms. The treatment of tertiary syphilis was the same as that of the secondary stage, except that they had to repeat the doses until all of the colonies were broken up and killed. Usually from five to seven doses sufficed except in cases of cerebrospinal lues. Some cases of bone syphilis required more treatment, and a very few cases of old tertiary ulceration of the skin were peculiarly intractable. The treatment of the fourth class of cases, tertiary infection of the cerebrospinal system, did not differ from that of other cases of syphilis, except as to the greater persistence required. The final results and the degree of restoration to health would depend upon the damage done by the disease to nerve or brain tissue before treatment was instituted. In tabes many of the most distressing symptoms were evidently caused not by the sclerosis in the cord, but by the area of inflammation around the sclerotic area. Some symptoms would disappear, the progress of the disease would be stopped, and the life of the patient would be prolonged and made more comfortable.

Tabes dorsalis and Specific Paresis.—Dr. ESTILL G. HOLLAND, of Hot Springs, Ark., reported six cases of tabes dorsalis and paresis which were greatly improved by intravenous injections of salvarsan.

Atypical Neurological Syphilis.—Dr. BEVERLY R. TUCKER, of Richmond, said that syphilis as a disease might be monosymptomatic or practically pansymptomatic, and between these two extremes it presented various symptom complexes which

might resemble almost any known disease. Neurologically considered, syphilis should be excluded in the diagnosis of every case, else the practitioner would fail in many instances, not only to sustain his reputation, but also to give the patient definite relief.

Dr. E. G. BALLENGER, of Atlanta, stated that syphilis was a very potent cause of heart lesions and of arterial disturbances. He had given 2,975 injections, but he had not yet seen secondary or other manifestations of syphilis follow in those patients who were treated early before the secondary manifestations had developed.

Dr. J. K. HALL, of Richmond, said that syphilis ought not to come under the observation of the neurologist because cases came to him too late to be benefited. It ought to be a disease for the general practitioner to discover and to treat early. He had been living among patients with late manifestations of syphilis for ten or twelve years, most of them paresis and tabetics, and he was convinced that paresis was essentially an incurable disease.

Trachoma.—Dr. C. R. DUFOUR, of Washington, D. C., believed that trachoma should be a reportable disease, and laws should be enacted that those having it should accept treatment. Vaccination was compulsory in most communities, so should the treatment of trachoma be. This problem was one for the State and the United States Government to take in hand and follow to a finish. More hospitals, more physicians, and more money were needed. Some States had not the money to carry on this important work.

Dr. JOSEPH A. WHITE, of Richmond, stated that once trachoma obtained a foothold among the lower classes, it was hard to eradicate, especially in overcrowded tenement houses. Early recognition of the disease, proper treatment, and the application of the usual hygienic and preventive precautions reduced the risk to a minimum. The State board of health had recognized that the prevalence of the disease in the mountain counties was a danger, and it was actively engaged in an attempt to stamp out the infection. Total or partial blindness frequently resulted from the disease.

A Campaign against Malaria.—Dr. L. O. HOWARD, of the Bureau of Entomology, Washington, D. C., stated that the advance of civilization had increased, rather than decreased, the spread of the disease, because of the construction of ponds and stone quarries, in the still water of which the mosquito found a favorable breeding ground. The present prophylactic measures were too general to be standardized. As showing that the disease was more widespread in the South than anywhere else in the country, he stated that there were 79,000,000 acres of swamp land country, of which 65,000,000 were in the southern States. In addition, there were 150,000,000 acres that needed drainage.

Impounded Water in the Production of Malaria.—Dr. H. R. CARTER, of the United States Public Health Service, showed that the great increase in impounded water in the south had resulted in a corresponding increase of mosquitoes, which, however, could be avoided if the ponds and artificial lakes could be so constructed as to be drained or be cleared of the surrounding brush so as to have wind

and wave action. He had suggested that all such impounded waters be placed under the control of boards of health.

The Differentiation of the Disease Associated with Splenomegaly.—Dr. WILLIAM H. DEAD-ERICK, of Hot Springs, Arkansas, said that malarial splenomegaly must be differentiated from that of splenic anemia. This latter condition was as difficult of diagnosis as it was obscure in etiology. It might be well divided into three stages: First, a stage of splenomegaly; second, a stage of anemia; and, third, a stage comprehending the Banti syndrome, splenic enlargement, cirrhosis of the liver, and ascites. In the first stage, before the onset of anemia, diagnosis was difficult. There was little impairment of the general health. Leucemia and pernicious anemia might ordinarily be eliminated by their blood pictures. Hematemesis was commoner in splenic anemia than in malaria, and the enlargement of the liver was decidedly more marked in Banti's disease than in malaria. The importance of differentiating enlarged spleen from kidney tumors was impressed by a case which had been diagnosed as malarial cachexia, chiefly on the strength of a malarial history and a residence in a highly malarial locality. Exploratory laparotomy disclosed a large sarcoma of the left kidney. In leucemia, especially in the myeloid form, enormous enlargement of the spleen was found. There was nothing characteristic in the splenomegaly of leucemia, but fortunately the blood picture was pathognomonic and the diagnosis might be made in the laboratory without seeing the patient. Hodgkin's disease was relatively rare, but its splenomegaly must be differentiated from that of lymphatic leucemia and of splenic anemia. The spleen was rarely enlarged greatly in Hodgkin's disease. In only a small percentage of cases of pernicious anemia was the spleen considerably enlarged. In one case in which the hemoglobin descended to twenty-five per cent. the spleen was not palpable nor was the area of dullness perceptibly increased. Cirrhosis of the liver caused enlargement of the spleen, which must be differentiated especially from that of Banti's disease. In both conditions there was a cirrhotic liver, ascites, splenomegaly, jaundice, anemia, and hemorrhages. Syphilis in the tertiary stage, aside from its role in hepatic cirrhosis, caused enlargement of the spleen by two processes, gummata and amyloid degeneration. Amyloid spleen was due to syphilis and to suppuration. When syphilitic it was associated particularly with bone and rectal lesions. The spleen was one of the organs most frequently the seat of amyloid change. Splenomegaly from all causes was rarer in the negro race than in the white.

Malaria Carriers and the Important Role They Play.—Dr. C. C. BASS, of New Orleans, stated that persons who were not ill were the chief malarial carriers. Persons who had recovered from an attack of malaria frequently remained carriers for many months and perhaps years. When an individual was infected with malaria plasmodia, the parasites reproduced by an asexual process of segmentation or schizogony if conditions were sufficiently favorable. After a sufficient length of time, they multiplied to cause clinical

symptoms. With each paroxysm the number increased, unless some influence was brought to bear which interfered. The ideal way to deal with the situation would be thoroughly to examine the blood of all persons in the house and treat the carriers. The next best thing would be to consider all members of the household probable carriers and treat them. Such measures carried out during the cold season were more successful because mosquitoes were not active at that time.

Quinine in Malaria.—Dr. THOMAS E. WRIGHT, of Monroe, La., reported thirty cases of malaria of the estivoautumnal type, which were treated with quinine intravenously and drew the following conclusions: 1. The intravenous use of quinine in doses of fifteen grams, in a dilution of 250 to 300 c. c. of saline, in the hands of a competent physician was safe. 2. The discomfort to the patient was so slight that it became a matter of small importance, and in this respect, when compared with quinine by mouth or hypodermically, was much to be preferred. 3. The number of doses for the different types of malaria, the proper time to elapse between the administration, the exact doses and dilution necessary and safe, the permanency of the relief of symptoms, were problems that would be worked out. 4. The relief from the symptoms in malaria, so often jeopardizing life, might be attained promptly and constantly.

Filarial Infection.—Dr. F. B. JOHNSON, of Charleston, drew the following conclusions: 1. Filarial infection was extremely prevalent in Charleston. There was no reason for assuming this to be the only place showing such a high percentage of infection. 2. The acetic acid method offered the most serviceable way of detecting microfilaria in the blood. In most of the cases one was able to demonstrate them during the day as well as at night. 3. In the majority of cases of filarial infection no symptoms might be produced. The finding of 19.25 per cent. of filarial infections and five per cent. filariasis in four hundred routine examinations showed that filariasis was more common than general reports would lead one to believe. *Filaria* could not be classed as a harmless parasite, for certain types of infection had a decided pathogenic effect.

Intestinal Parasites in Adults.—Dr. H. L. McNEIL, of Houston, Texas, reported fifty cases of intestinal parasites in adults, with a study of some of the symptoms caused by them, and concluded: 1. Indefinite and unexplained abdominal pains or tenderness should make one suspicious of intestinal parasites. Parasites should be suspected in all cases of chronic or subacute appendicitis. 2. The adult negro was practically immune to hookworm infection in that part of the country. 3. Many apparently normal men, who harbored parasites, were subject to certain indefinite complaints diagnosed usually as indigestion, cramps, biliousness, mild diarrhea, malaria, febricula, gripe, which were really symptoms of the parasitic infections. 4. An otherwise unexplained eosinophilia was good evidence of parasitic infection, even though the parasites were not discovered at the first stool examination, but an absence of eosinophilia did not rule out parasitic infection.

The Public Health.—Dr. R. M. CUNNINGHAM, of Birmingham, said that all sanitary regulations among and between the States should be under the laws of the United States. The Federal Government had jurisdiction over all matters ceded to it by the States, and all of these matters concerned the common welfare. Laws for the fight against bacteria, should be under the direction of some political unit. Public sentiment was necessary to procure proper laws and to arouse public sentiment there must be education. Sanitary measures must be made political issues. So long as the people were silent, so long would the statesman, who was first a politician, fail to take the initiative. There were four things necessary: First, to create a desire on the part of the people to know the conditions which affected their health; second, something specific and definite to teach, not what Socrates or Plato said, but something concerning the health problem; third, the employment of disinterested and competent teachers; fourth, ways and means to reach the public.

The Heart in Liver Diseases.—Dr. ALEXANDER G. BROWN, of Richmond, said that acute inflammation of the liver was not infrequently the cause of sudden death in case of crippled hearts with weak myocardium. The liver might serve as a reservoir for a dilating heart by driving the blood into the liver and resting the right heart. If the liver was itself a more or less normal organ and the heart was crippled by an organic lesion, with myocardial deficiency, this great organ might serve it well in the hour of its impending failure. In cirrhosis of the liver the heart muscle weakened and dilated. The change was due to toxic and mechanical conditions. The toxic predominated. Syphilis of the liver was worthy of the closest investigation. Late syphilis might display itself in the internal organs without giving evidence of its existence by any outward sign in the skin. The liver was a favorite site. When the spirochete retreated to the liver, it was not infrequent that in the cardiovascular system was set up a concomitant degenerative growth in the endocardium about the aortic opening and in the ascending and transverse aorta, if not in the general arterial tree. With this knowledge, one's clinical judgment would be necessarily influenced and therapeutic procedure guided.

Heart Arrhythmias.—Dr. E. C. THRASH, of Atlanta, said the principal exocardial causes of arrhythmia were cortical, toxic, mechanical, reflex from pathology in other organs, and vagopathic. The treatment was as varied as their causes. The treatment of the ones produced by external factors must be based upon methods which would relieve. The neurasthenic must be relieved of his neurasthenia; the sufferer from visceral ptosis of his condition, and the mechanical disturbances which interfered with the heart's action must be relieved if possible. Atropine would not only temporarily relieve these functional disorders, but the fact that it did relieve them aided one in making a diagnosis. This drug would not relieve those of exocardial origin, but would make them worse, as it had a slightly paralytic effect upon the vagus. The lesions which were endocardial must be treated by directing attention toward the heart itself. Syphilitic com-

plications should be treated, and it was erroneous not to give salvarsan in this form of syphilis; its efficacy had been decidedly apparent in the author's hands. Arteriosclerosis, atheroma, calcareous infiltration, and toxemias played an important role in producing these latter lesions and they should be treated according to classic methods. Digitalis was *par excellence* the remedy and should never be overlooked in organic arrhythmias.

Cancer of the Breast.—Dr. WILLIAM L. RODMAN, of Philadelphia, stated that the proper treatment was early removal. Much had been said about the x ray and radium, neither of which had been of demonstrable worth from the standpoint of permanent cure. He had not seen a case of cancer cured either by the x ray or radium. Of cases reported as relieved or cured, the original tumor might have been benign. He believed more in the x ray than in radium; what had been accomplished by radium had been done better by the x ray. The profession was running after false gods when they gave up surgical operation for new fads. Between 12,000 and 15,000 men and women died annually from cancer. If the disease were taken in time, when only suspicion was existent, a cure could be effected; but in a tremendous majority of cases the patient came too late, or the diagnosis was made too late. Careful study of precancerous conditions should be made, and all measures of early diagnosis and precaution should be carried to the ultima thule of safety. Cancer was strictly local in the beginning, as shown by every evidence, clinical or surgical. Part of the evidence that it was primarily a local disease was that it was not painful in the first year or eighteen months. It was only when adhesions began and secondary ulcerations appeared that the disease was painful. In the beginning, patients ate and slept well and went through the ordinary routine of life as if there were nothing the matter. If an operation was performed in the early stages, before the disease had become constitutional, a cure would result. If, however, cancer of the breast were allowed to continue until there was an enlargement of the glands under the armpit, only 25.4 per cent. would be cured. The disease became secondary or constitutional only by transfer from the primary focus, as when it entered and attacked the lymphatic glands.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

A Handbook of Psychology and Mental Disease. For Use in Training-schools for Attendants and Nurses and in Medical Classes, and as a Ready Reference for the Practitioner. By C. B. BURR, M. D., Medical Director of Oak Grove Hospital (Flint, Mich.) for Mental and Nervous Diseases; Formerly Medical Superintendent of the Eastern Michigan Asylum; Member of the American Medico-Psychological Association, etc. Fourth Edition. Revised and Enlarged with Illustrations. Philadelphia: F. A. Davis Company, 1914. Pp. vii-235. (Price, \$1.50.)

This work, essentially a primer of psychology and insanity, has been prepared mainly for the use of nurses and medical students, but might be read with advantage by physicians having little time or inclination to consult more com-

prehensive works on this subject. Part I presents a brief, practical outline of psychology, and is useful in establishing a standard of normal mental processes as a basis for comparison in the analysis of the psychoses. This plan might well be applied more extensively in the more pretentious textbooks dealing with psychoses. Part II is an exposition of the significance and influence of symbolism in the normal and abnormal mind, and plainly bears the imprint of the Freudian school, as do the brief references in other parts of the context, e. g., a consideration of hysterical manifestations. Part III consists of a description of the various psychoses, their diagnosis, and special indication for treatment. In parts IV and V the general management, nursing, and treatment of insane patients, at home and in institutions, is discussed at some length and practical information is presented in a concise form.

Outlines of Organic Chemistry. A Book Designed Especially for the General Student. By F. J. MOORE, Ph. D., Professor of Organic Chemistry in the Massachusetts Institute of Technology. Second Edition Rewritten. Total issue six thousand. New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Limited, 1914. Pp. xi-325.

The present volume contains a selection of topics from general organic chemistry designed for the use of students of biology, physics, and sanitary engineering. Such a selection is necessary, and the experience of the author in teaching students in these classes should be a sufficient guarantee for the wisdom of the selection. So far as we have looked through the book, the information seems to be accurate and up to date; the volume is well printed, the formulæ and equations being particularly clear. The book is not of much use to medical students or practitioners; but the selection of topics was not made with an eye to the requirements of this class of readers.

The Vaccination Question in the Light of Modern Experiences. An Appeal for Reconsideration. By C. KILLICK MILLARD, M. D., D. Sc., Medical Officer of Health for Leicester; Medical Superintendent of the Isolation and Smallpox Hospitals, Leicester; Formerly Medical Officer of Health for Burton-on-Trent; Medical Superintendent of the Birmingham City Hospital. London: H. K. Lewis, 1914. Pp. xviii-243. (Price, six shillings.)

The subject of vaccination is always of interest, and is generally capable of arousing discussion; this latter is apt to be characterized by heat rather than logic, and its benefit is doubtful. The scope of the present work is thus stated by the author: "It is certainly the case that between the provaccinist and the antivaccinist a great gulf is fixed, and hitherto no serious attempt has been made to bridge over or to find out whether there be any common ground on which to reconcile the opposing parties. Consequently there has been no intermediate position open to the moderate man. He has had either to believe in vaccination or to disbelieve in it, and there was an end of it. Now one object of this book is to show that the question of vaccination is not nearly so simple as its supporters and opponents appear to think—that there is still room for legitimate discussion and inquiry, and to suggest that perhaps, after all, the truth does not lie in either one camp or the other, but will be found, rather, in an intermediate position lying somewhere between them." We have read the book with much interest, and can recommend the volume to health officers, physicians, sanitarians, and all who are interested in the abolition of smallpox.

The Mental Health of the School Child. The Psycho-Educational Clinic in Relation to Child Welfare. Contributions to a New Science of Orthophrenics and Orthosomatics. By J. E. WALLACE WALLIN, Ph. D., Professor of Clinical Psychology and Director of Psycho-Educational Clinic, School of Education, University of Pittsburgh, etc. New Haven: Yale University Press; London: Humphrey Milford (Oxford University Press), 1914. Pp. ix-463. (Price, \$2.)

Clinical psychology is interpreted by the author as an independent science which is thought to possess an aggregate of facts not adequately handled by any existing science. It refers to individual variations from normal mentality, i. e., mentally exceptional individuals. The book covers the field in respect to school children of this class, which

differs from that of physical defectives in that the latter belong to the domain of the skilled pediatricists, according to the author. After the correction of all physical deformities, nasopharyngeal, ophthalmic, aural, dental, skeletal, glandular, etc., the clinical psychologist comes in to determine, 1, the nature of the mental deviations present; whether they are specific or general, inherited or acquired, the purpose being "to disentangle symptom complexes and to reduce the disorders to various reaction types"; 2, the nature of the etiological background, physical, mental, social, moral, educational, or environmental; 3, the modification which the disorder has wrought in the behavior of the child, on his opinions, beliefs, thoughts, disposition, conduct, learning ability, capacity for certain kinds of knowledge or accomplishments; 4, the degree of modifiability of the mental variations discovered, and the orthogenic measures indicated in each case.

The author, with Seguin, Montessori, and their schools, or "school"—for the Montessori system is a development of Seguin's teachings—holds that feeble-mindedness, for example, is an arrest of development which should be treated educationally instead of medically—a point of view which, he holds, has revolutionized the treatment of the feeble-minded. But he overlooks the contributions of organotherapy and the light thrown on the biochemistry of this class of cases by labors contributed long after Seguin's ideas had been promulgated. It seems to us that it had been wiser for the author to add to our modes of study of feeble-minded children, without recording as obsolete, on the bases of opinions recorded many years ago, methods of analysis and treatment with which he is evidently not familiar. This does not detract in the least, however, from the great value of the book to all those who concern themselves with the mental abnormalities of childhood and their correction.

Interclinical Notes.

That bright and ably edited periodical, *Paper*, in its issue for November 25th last, speaks of the recent demand for bleached cellulose, which the Russians with an intelligence which has not been generally attributed to them, have discovered to be an admirable substitute for surgical dressings of lint and cotton. They learned of the value of bleached cellulose from the Swedish paper manufacturers, who some time ago pointed out its aseptic properties, due to the process of manufacture.

* * *

In the *Survey* for December 12, 1914, Surgeon L. L. Williams has an article on the necessity for stricter measures on immigrant ships, in which he refers to his communication to this JOURNAL in the issue for June 20th last. Doctor Williams concludes his article with these words: "The additional requirements are simple and involve but moderate expense to shipping. These are a moderate increase in the hospital space, and a sufficient number of ship's surgeons to exercise adequate sanitary supervision of all passengers. And, as a prerequisite to the entry of the ship into port, these medical officers should be required to carry out some such scheme of control as has been outlined. Nothing short of a specific statutory requirement will secure this. During the present lull in immigration incident to the European war, it seems desirable to take stock of our facilities and needs and make provision for the conditions which may ensue after the cessation of hostilities. While these conditions, in so far as immigration is concerned, are unknown, they are not likely to be better than those which have heretofore existed, and may very well be worse. Already there are ominous accounts of grave infectious diseases in various parts of some of the countries at war, and war conditions are conducive to such outbreaks. As everything yields to military necessity, internal sanitation is likely to suffer in common with other functions of civil government. It would be the part of wisdom, therefore, to expect and provide for an increased percentage of infectious diseases among immigrants arriving in this country after the war subsides."

* * *

Dr. Rupert Hughes continues his epic of New York life, *Empty Pockets*, in the December *Red Book*. The stage is getting pretty crowded with a picturesque cast. The doctor is exhibiting an unpleasant yearning for literary effect;

e. g., the door closes softly after an illiterate woman "like the cover of a finished book"; he might have saved that for the exit of some woman interested in books. In *The God from the Machine*, by Clifford S. Raymond, an "allopathic" physician makes his indispensable appearance twice, each time without a fee, which is true to Nature.

* * *

It is somewhat of a surprise to find in the December *Popular Science Monthly* so technical an article as that on the Ductless Glands, Internal Secretions, and Hormonic Equilibrium, even by so entertaining a writer as Dr. Fielding H. Garrison. If there is now a lay audience for this sort of work, we are to be congratulated; and so indeed is the Science Press, to whose persistent efforts our advance in general knowledge and culture owes much.

Meetings of Local Medical Societies.

MONDAY, December 21st.—New York Academy of Medicine (Section in Ophthalmology); Yorkville Medical Society; Medical Association of the Greater City of New York; Medical Society of the County of Erie (annual); Elmira Clinical Society (annual).

TUESDAY, December 22d.—New York Psychoanalytic Society (annual); New York Dermatological Society; Metropolitan Medical Society of New York City (annual); Buffalo Academy of Medicine (Section in Pathology); New York Medical Union; Onondaga Medical Society, New York (annual); New York City Riverside Practitioners' Society; Valentine Mott Medical Society, New York; Washington Heights Medical Society, New York; Woman's Hospital Society, New York.

WEDNESDAY, December 23d.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Society of Internal Medicine; Schenectady Academy of Medicine.

THURSDAY, December 24th.—New York Academy of Medicine (Section in Obstetrics and Gynecology); Ex-Intern Society of Seney Hospital, Brooklyn; Medical Union, Buffalo; Hospital Graduates' Club, New York; New York Physicians' Association (annual).

SATURDAY, December 26th.—New York Medical and Surgical Society; West End Medical Society (annual); Lenox Medical and Surgical Society.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending December 9, 1914:

Carrington, P. M., Surgeon. Granted five days' leave of absence to be taken between December 5 and 15, 1914. **Cox**, Ora H., Assistant Surgeon. Relieved from duty at the Quarantine Station, Marcus Hook, Pa., and directed to proceed to Arundel Cove, South Baltimore, Md., not later than December 12, 1914, and report to the commanding officer of the revenue-cutter *Androscooggin* for duty in relief of crews of vessels engaged in deep sea fisheries off the New England coast. **Currie**, D. H., Surgeon. Granted one year's leave of absence, without pay, from December 20, 1914, for duty as secretary of the California State Board of Health, at the request of the governor. **Frost**, W. H., Passed Assistant Surgeon. Directed to stop in Washington, D. C., en route to station for conference on stream pollution investigations. **Galloway**, T. C., Jr., Assistant Surgeon. Relieved from duty on revenue-cutter *Unalga* and directed to proceed to San Francisco, Cal., and report to the commanding officer of the revenue-cutter *McCulloch* for duty. **Glanville**, W. E., Assistant Surgeon. Relieved from duty on revenue-cutter *Bear*, and directed to report to the medical officer in charge of the Angel Island Quarantine Station for temporary duty and assignment to quarters. **Hommon**, H. B., Sanitary Chemist. Directed to proceed, about December 7, 1914, to Casey, Iowa, for the purpose of inspecting a creamery waste disposal plant at that point in cooperation with

the United States Department of Agriculture. **Keating**, T. F., Assistant Surgeon. Leave of absence for three days en route to San Francisco, Cal., amended to read "two days' leave of absence en route to station." **Lumsden**, L. L., Surgeon. Directed to proceed to Wilmington, N. C., and such other communities in that State as may be necessary to make inspections of methods of sanitation, and inquiry as to results following the adoption of these methods; like inspections and observations to be made in the State of Virginia, if found necessary. **McBurney**, J. W., Sanitary Bacteriologist. Directed to proceed about December 17, 1914, to Buray, Va., for duty in operation of experimental tannery waste disposal plant during the absence of Sanitary Chemist H. C. Colson. **McMullen**, John, Surgeon. Directed to proceed to Louisville, Ky., for conference with State health authorities relative to trachoma situation. **Paget**, F. M., Assistant Surgeon. Relieved from duty at the New Orleans Quarantine Station and directed to proceed to New Orleans, La., for duty in plague eradication measures. **Sutton**, Don C., Assistant Surgeon. Leave of absence for five days en route to Galveston, Texas, amended to read "one day's leave of absence en route to station." **Sweeney**, A. R., Assistant Surgeon. Relieved from duty at the Immigration Station, Ellis Island, N. Y., and directed to proceed to the New Orleans Quarantine Station and report to the medical officer in charge for duty and assignment to quarters.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending December 12, 1914:

Bastion, Joseph E., Captain, Medical Corps. Granted leave of absence for one month and fifteen days, effective about December 20, 1914. **Bauer**, Louis H., First Lieutenant, Medical Corps. Ordered to proceed to Jackson Barracks, Louisiana, and report for duty with the Ninety-first Company Coast Artillery Corps, to accompany that organization to San Francisco, Cal. **Bevans**, J. L., Major, Medical Corps. Reports arrival at Fort McKinley, Maine, for duty. **Burket**, John A., Captain, Medical Corps. Granted two months' leave of absence to take effect on his arrival in the United States. **Burnett**, Thomas W., First Lieutenant, Medical Corps. Relieved from further duty at Fort Rosecrans, California, upon the expiration of present leave, and will report to Madison Barracks, New York, for duty. **Collins**, C. C., Major, Medical Corps. Granted one month's extension of leave already granted. **Fox**, James S., Captain, Medical Corps. Granted twenty-one days' leave of absence on surgeon's certificate of disability. **Hartsock**, Frederick M., Major, Medical Corps. Relieved from duty with the Second Division, and ordered to proceed to New York City, and report for duty at the medical supply depot. **Russell**, Frederick F., Major, Medical Corps. Granted one month's leave of absence. **Van Dusen**, James W., Major, Medical Corps. Upon arrival in the United States ordered to proceed to Fort Niagara, New York, and report at that post for duty. **Whitcomb**, Clement C., Major, Medical Corps. Granted one month's leave of absence upon his relief from his present duties.

Births, Marriages, and Deaths.

Born.

Conrad.—In Johnstown, Pa., on Tuesday, December 1st, to Dr. and Mrs. G. W. Conrad, a son. **Sollenberger**.—In Waynesboro, Pa., on Wednesday, December 2d, to Dr. and Mrs. A. B. Sollenberger, a son.

Married.

Bishop—**Mather**.—In Cleveland, Ohio, on Saturday, December 5th, Dr. Robert H. Bishop, Jr., and Miss Constance Mather. **Gilbert**—**Wilson**.—In Tulsa, Okla., on Sunday, November 29th, Dr. J. R. Gilbert and Miss Edna Ruth Wilson. **Gregory**—**Brooks**.—In Caribou, Me., on Wednesday, November 25th, Dr. Fred L. Gregory, of Fairfield, and Miss Estelle Brooks. **Hewson**—**Salmon**.—In Wilkesbarre, Pa., on Thursday, Decem-

ber 3d, Dr. John P. Hewson, of Orange, Texas, and Miss Anna E. Salmon. **Kinsella**—**Johnson**.—In Wethersfield, Conn., on Wednesday, December 2d, Dr. M. A. Kinsella, of Hartford, Conn., and Dr. Gertrude C. J. Johnson. **Lundberg**—**Anderson**.—In New York, on Saturday, December 21st, Dr. Eric Lundberg, of Brattleboro, Vt., and Miss Judith Anderson. **Osterhaus**—**Currie**.—In New York, on Wednesday, December 2d, Dr. Karl Osterhaus, of Washington, and Miss Elizabeth Oxley Currie. **Perkins**—**Morris**.—In Dorchester, Mass., on Wednesday, December 2d, Dr. Herbert Crawford Perkins and Miss Ernestine Augusta Morris. **Schaeffer**—**Ochs**.—In Allentown, Pa., on Monday, November 30th, Dr. Robert L. Schaeffer and Miss Millie L. Ochs. **Stone**—**Scott**.—In Clinton, Mass., on Thursday, November 19th, Dr. George Henry Stone, of Boston, and Miss Eva May Scott. **Walker**—**Gates**.—In Westboro, Mass., on Wednesday, November 25th, Dr. Melvin H. Walker, Jr., and Miss Helen Gates. **Walkinshaw**—**Quinn**.—In La Porte, Ind., on Wednesday, November 18th, Dr. William Walkinshaw, of Stillwell, and Miss Marcella Quinn. **White**—**McConnell**.—In Greensburg, Ind., on Saturday, November 21st, Dr. Ben S. White and Mrs. Lizzie McConnell. **Whitridge**—**Willauer**.—In Rye, N. Y., on Wednesday, November 18th, Dr. Rowland Barker Whitridge, of Baltimore, and Mrs. Catharine Whiting Willauer. **Williams**—**Adams**.—In Church Hill, Ky., on Wednesday, November 25th, Dr. S. H. Williams, of Crofton, and Miss Beulah Adams. **Wood**—**Russell**.—In Memphis, Tenn., on Wednesday, November 25th, Dr. Percy Hoxie Wood and Miss Amelia Alcorn Russell.

Died.

Ball.—In Bethany, Kansas, on Friday, November 27th, Dr. James Ball. **Benson**.—In Pasadena, Cal., on Wednesday, December 2d, Dr. E. K. Benson. **Brinkman**.—In Brooklyn, on Monday, December 7th, Dr. Albert Brinkman, aged fifty-five years. **Brownell**.—In Spirit Lake, Iowa, on Wednesday, December 2d, Dr. E. L. Brownell, aged seventy-one years. **Bullock**.—In Weymouth Landing, Mass., on Sunday, December 6th, Dr. George D. Bullock, aged fifty-five years. **Burnette**.—In Hoboken, N. J., on Friday, November 27th, Dr. Henry H. Burnette, aged sixty-four years. **Campbell**.—In Corning, N. Y., on Monday, November 23d, Dr. C. Ernest Campbell, aged fifty-five years. **Campbell**.—In Kansas City, Mo., on Saturday, November 28th, Dr. W. M. Campbell, aged eighty-seven years. **Cooke**.—In New York, on Monday, December 7th, Dr. Baldwin Gardiner Cooke, aged fifty-nine years. **Foster**.—In Schenectady, N. Y., on Wednesday, December 2d, Dr. Gard Foster, of Auburn, N. Y., aged fifty-seven years. **Hall**.—In Houston, Texas, on Wednesday, December 2d, Dr. W. A. Hall, aged sixty-three years. **Hanscom**.—In Haverhill, Mass., on Monday, November 30th, Dr. Walter V. Hanscom, of Rockland, Me. **Hubel**.—In Detroit, Mich., on Sunday, November 29th, Dr. John T. Hubel, aged thirty-seven years. **Hunter**.—In Biloxi, Miss., on Thursday, December 3d, Dr. Thomas O. Hunter. **Knapp**.—In Grand Rapids, Mich., on Thursday, December 3d, Dr. William B. Knapp. **Lock**.—In Jersey City, N. J., on Friday, December 4th, Dr. John A. Lock, aged thirty years. **Otwell**.—In Independence, Kans., on Thursday, December 3d, Dr. L. S. B. Otwell, aged eighty-seven years. **Peale**.—In Philadelphia, on Saturday, December 5th, Dr. Albert C. Peale, aged sixty-five years. **Seymour**.—In Raymond, Ill., on Saturday, November 28th, Dr. J. R. Seymour. **Sharp**.—In Buckland, Ohio, on Saturday, November 21st, Dr. R. W. Sharp, aged sixty-five years. **Shaw**.—In Sacramento, Cal., on Sunday, November 29th, Dr. Frederick E. Shaw. **Sherman**.—In State Center, Iowa, on Thursday, December 3d, Dr. Emery Sherman. **Smith**.—In Raytown, Mo., on Wednesday, December 2d, Dr. Minor T. Smith, aged eighty-seven years. **Stewart**.—In Minneapolis, Minn., on Tuesday, December 1st, Dr. D. A. Stewart. **Walker**.—In Dubuque, Iowa, on Monday, November 30th, Dr. Harry T. Walker, aged forty-nine years. **Wamsley**.—In Philadelphia, on Friday, December 4th, Dr. James A. Wamsley, aged sixty-three years. **Wildes**.—In Boston, Mass., on Sunday, December 6th, Dr. Adeline W. Wildes, aged seventy-four years. **Wright**.—In Detroit, Mich., on Saturday, November 28th, Dr. Albert Wright, aged seventy-three years.

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Original Communications.

HYSTERICAL ASTASIA-ABASIA OCCURRING IN ACUTE MULTIPLE NEURITIS.

BY CHARLES W. BURR, M. D.,
Philadelphia,

Professor of Mental Diseases, University of Pennsylvania.

I purpose to discuss whether acute multiple neuritis is ever an exciting cause of hysteria or whether the synchronous occurrence of the two diseases is merely coincidental. That multiple neuritis may be associated with a disordered intellect, the mental and physical symptoms being both the result of one cause, is well known. Korsakoff's psychosis is the typical example of this combination of a mental affection with disease of the peripheral nerves. The question is, may hysteria be similarly associated and some one agent produce both it and nerve inflammation or—and this is an entirely different thing—may neuritis by bringing about autosuggestion—it could not act in any other way—itself be the exciting cause of hysteria? There is no need for argument today to prove that hysteria is a mental disease, i. e., that it is a peculiar perversion of function of that part of the cerebral cortex which controls intellection and shows itself in clearly defined clinical pictures without the presence of any gross, visible lesions of the affected cells, though it occasionally happens, whether by mere coincidence or not has not as yet been determined, that a patient who has suffered for many years from hysteria finally develops some organic degenerative disease of the spinal cord or brain. Is this association, the reverse of what we discuss in this paper, merely accidental or one of cause and effect? It is extremely difficult, indeed impossible, to explain in what manner hysteria can even predispose to spinal sclerosis, the type of organic nervous disease most prone to occur in the course of cases of many years' standing. Those authors who hold that organic physical disease can have a purely psychic cause, may be the result of long continued or sudden but violent mental strain, or that general arterial sclerosis, and therefore why not spinal sclerosis, may be the result of such strain, and have given statistics to prove that arterial hardening is most common in intellectual workers. Such statistics are of little value, because arterial sclerosis is so very frequent in the general population that to assume anything as its cause simply because it follows, is hardly justified, and furthermore really there is very little strain on the constitution in hysteria. Day laborer and closet student are

alike victims of arteriorenal vascular disease. Indeed so many factors predispose to sclerosis that it is much more probable than the spinal sclerosis occurring late in the course of hysteria are purely accidental and arise from independent causes. The number of hysterics later becoming victims of organic nervous disease is after all small, so small that every observer hastens to report a case when seen, and no larger than can be reasonably accounted for by chance. On the other hand, and this has a more distinct bearing on our subject, it is very common for patients, both men and women, suffering from organic brain disease, especially a tumor, to present many hysterical symptoms. Indeed the hysteria may so dominate the picture as to lead one to overlook the underlying organic disease and think there is only present a so called functional neurosis or psychosis. In other words, there is no doubt that, given a congenital hysterical soil, and without it hysteria cannot occur, gross disease of the brain or cord may act as an exciting, not predisposing, cause of hysteria of any type. May multiple neuritis act in the same way? Disease of the peripheral nerves is much more rarely associated with hysteria than is organic brain disease, though multiple neuritis is often accompanied by mental symptoms of other types, the same poison which produces the inflammation of the nerves acting upon the cerebral cortex, but the clinical picture is that of a delirium or an acute hallucinatory insanity and not that of hysteria. It is particularly in alcoholic neuritis, more rarely in that caused by arsenic, that mental symptoms appear. Lead poisoning, too, when there are lesions of both the central and peripheral apparatus, may cause mental disorder, but the symptoms are usually unlike those following poisoning by alcohol or arsenic, i. e., unlike those of Korsakoff's psychosis. In addition to all these, there are cases of multiple neuritis with mental symptoms, but not hysteria, in which some unknown infection, probably mycotic, acts on both the peripheral nervous system and the brain. Some of them are probably the result of an influenzal infection. Of course, alcohol, lead, and several other agents may cause mental disease, especially dementia, without any neuritis appearing.

The case of hysterical ataxia I report is so complicated, the patient having been subjected to the influence of several possible causes, that it is difficult to determine the cause of the hysterical symptoms. The man is a degenerate in the technical, not in the popular meaning of the word: his neuritis might be, so far as his history as given by himself goes, either alcoholic or arsenical; his mental symptoms are to-

day entirely hysterical and he has certainly recently passed through an acute transitory insanity of some kind. His insanity almost surely was alcoholic and his hysteria may be a result of the same poison.

CASE. Italian, aged forty-five years. Family history very bad, so bad indeed that it would seem impossible for anyone entirely to escape its evil consequences. Both his grandmothers were incurably insane. Two brothers died in childhood in convulsions, another when four years old from some unknown cause, and still another in his seventh year in convulsions. One living brother is an epileptic, another an alcoholic, and both are feeble-minded. His father died insane; his mother is living and well physically and mentally. The patient was a seven months baby and there was great difficulty in making him breathe. He had convulsions during babyhood and was a feeble, sickly child. He never received any education. In Italy he worked on a farm and since coming to America had been a common laborer, working with the pick and shovel. He had been a steady drinker since early manhood.

In February, 1914, he suddenly became very excited, incoherent in speech, and quarrelsome. The family were positive about this suddenness of onset, but it is probable that, as usually happens, he had unobserved prodromal symptoms. He left his home and it was some time before his family discovered he was in the Philadelphia General Hospital. (The foregoing history was obtained by the Social Service Department of the hospital by investigation among his relatives and may be accepted as accurate.)

He was admitted to the hospital in May, 1914. Owing to his speaking an Italian dialect, it was impossible at first to get any clear history. Where he was or what he did from the time he left home in February until he was brought to the hospital in May, I was not able to discover. His mind even today remains a blank as to that period. I am quite sure, however, that for some time after leaving home he was mentally diseased, indeed some mental confusion and an attitude of suspicion still remained when he was admitted to Blockley, but soon passed off.

On admission he was unable to walk and there was a little weakness in both arms. According to his own statement, about three weeks before being brought to the hospital, he began to have pains in his legs, first affecting the feet and gradually extending upward, but not involving the hands or arms, and at the same time he slowly lost power in the legs until after about eight days he could not walk. He never had any loss of bladder or rectal control.

On examination, immediately after his admission to the hospital, the legs were found to be much palsied. He could flex and extend the knees and thighs a little, but could not walk or even stand. There was bilateral foot drop and no motor power in the toes and ankles. He soon developed wrist drop and some palsy of the arms. The deep reflexes were all absent. Sensibility to deep pressure was preserved in the arms and legs, and the nerve trunks were very sensitive, but tactile sensibility could not be determined on account of lack of power of attention. The case was diagnosed acute multiple neuritis.

After he had been in the hospital a time, he told the following story. He stated there had been a family row about money matters, his people wanting him to give them the money he had saved. This had caused a great deal of ill feeling, and one day he noticed on drinking some coffee in his brother's house, that it tasted very strange. He became nauseated almost immediately and vomited violently. A week later he began to have foot drop and pains in his legs. At almost the same time he had a fit, or attack of some kind, and there was a period of which he remembered nothing.

By September, 1914, he had improved so much that he was able to walk and to use his hands, though he was far from cured of his palsy, and he was discharged at his own request, but after a few days was readmitted. When I saw him, a day or two later, he showed all the signs of a not severe multiple neuritis affecting both legs and arms, but when he walked his gait was not that of multiple neuritis, but of that plus hysterical ataxia. He had slight step-gate gait, but in addition he staggered from side to side, his knees would give way and then straighten, his back would bend backward and forward, he caught at people and furniture, although did not really need them for support, and he looked all the time as if he would fall, but

never did so. On standing he went through all sorts of gyrations, but never really lost balance. In bed there was no sign of ataxia. All his bizarre movements while walking were apparently willed and histrionic and manifestly not caused by any organic disease of the spinal cord or cerebellum. His ataxia was hysterical, not organic. As to his mental state, the interpreter stated, on the first examination, it was hard to understand him because he seemed to be confused. (When he left the hospital after the first admission, he was mentally clear and again became so soon after his second admission.) He told the interpreter at the first examination that he felt as if his head were going around like a wheel and that it was hard for him to think. He said he was afraid of someone, but I could not discover whom. Whether this was because he only had some vague fear of someone or because he was suspicious of everyone or of some particular person, I could not discover, but I incline to believe that he was suspicious of everyone. He said he had had his sister, brother, and brother-in-law arrested, but, at a later interview, seemed to be very sorry for having done so. Soon after the first examination he ceased to present any evidences of mental upset and behaved, barring his gait, normally.

That this patient is suffering from both multiple neuritis and hysterical ataxia there is no doubt, but it is difficult to decide whether there is anything more than a mere accidental relation between the two. The confusion and suspicion and even the temporary delusion about his family were surely caused by alcohol. But these had largely passed away before the ataxia came on. The neuritis itself, if a cause, could only act by autosuggestion, i. e., finding that he had a real trouble in walking, he suggested to himself to be ataxic. I find it rather hard, however, to conceive of a man of his small mental calibre being able to create such a complex autosuggestion. I believe that his hysteria was alcoholic just as his neuritis was. That alcohol is, in the susceptible, a potent exciting cause of hysteria is well known, and it explains all his symptoms. The predisposing cause was his wretched heredity.

1918 SPRUCE STREET.

PHYSICAL DEFECTS A FACTOR IN THE CAUSE OF CRIME.*

BY EDWARD WALLACE LEE, M. D.,
New York.

This subject is of such magnitude and importance that only the merest outline for discussion can be presented. The ideas given are largely evolved from my own observations. Much has been written to sustain my deductions and a great deal that would go far to disprove them. The moral and spiritual attitude of mankind will be discussed only as it is affected by physical conditions. I know nothing of soul or spirit outside of the intelligence that governs our actions. One's soul is one's self, and we are what our intelligence is. Our watchword as civilized beings should not be Heaven, but *Health*. The main object in life of most Christian people is preparing to die. A better religion would be, Live healthy lives.

The Bible tells us that man was created in the image and likeness of God. I interpret this to mean that the design of Nature is toward perfection and that perfection would be attained and superman evolved were it not for accidental interference.

*Read before the Medical Association of the Greater City of New York, October 19, 1914.

From this standpoint I must maintain that mankind would be morally perfect if they were physically perfect. "Sound body, sound mind," is the axiom upon which I base the argument that physical defects are a factor in the cause of crime.

The scope of the word, crime, is wide. A crime is an infraction of certain laws in certain communities. What might be considered a crime here would not be considered a crime there. In a state of perfect anarchy there can be no crime. Any act is good or bad in consequence of the result produced.

Primitive man knew but one law—self preservation—but as civilization has advanced innumerable laws have developed, the infraction of some of which constitutes a crime. It has taken eons since primitive man to evolve the present standard of physical and moral civilization; it will take more eons to acquire physical and moral perfection, for the savage instinct is still not only latent but active in even the highest standard of our present civilization. This evolution toward perfection has varied in races and individuals. The highest standard of civilization today, though far removed from primitive man, is yet a longer way from moral and physical perfection. It requires a great stretch of the imagination to carry us far enough into the future to realize our ideal man, but retrospection encourages us as to the possibilities of the future, and it is to the medical profession that we look largely for the ideal to be obtained. The professions of law and theology have done much to bring about moral perfection, but they have fallen short of our ideals. Why? Because sufficient consideration has not been given man's physical condition. As Descartes said, "If it is possible to perfect mankind, the means of doing so will be found in the medical sciences."

I am not going into this subject from an ultra-psychological viewpoint or from spiritual or religious theories, but from a strictly physical standpoint, believing that certain physical irritations cause dethronement of reason and annihilation of the stamina necessary to control our moral acts. We know the brain is the organ of intelligence. We also know that its principal function is the emanation of thought; and, according to our brain, so do we think. Again, we know that any irritation of the brain, be it central or peripheral, causes interference with function or malfunction.

Looking upon life as a physicochemical action, normal in itself and abnormal only when interfered with by accidental causes, abnormality is produced just in accordance with the extent of interference with normal physicochemical action. By means of this normal physicochemical process we have developed intelligence resulting in an education that may be considered the highest standard of moral and physical perfection as it exists today. High moral attainment can be brought about only by high physical attainment. Virtue, goodness, and truth are synonymous terms—the perfected product of normal physical metabolism. It is as natural for the normal brain to produce virtue as it is for the normal lung to inspire pure atmosphere and expire carbon dioxide. Accidental interference will result in pathological products.

The Biblical story of the fall of man is a myth

and it has done much to lower man in his own estimation. To look upon him as a mere speck and atom with no special significance compared to the universe, is a mistake. Numerically the individual may be but an atom, but while physically existing he is an integral and powerful factor in the great enormous cosmos. The lack of appreciation of the need for the development and maintenance of a high physical standard is exemplified in the various religious cults that promulgate the idea that the physical body is nothing but a shell—the mere habitat of the soul. This interference with normal physical development is demonstrated every day by those who say, "take no thought of the body or what ye shall eat or drink," and by those who believe and maintain that they have a divine right to ignore our sanitary regulations. You cannot extract a normal soul from a rotten body any more than you can make a "silken purse out of a sow's ear." The body must be looked upon as a machine—a vital chemical apparatus—each integral factor working in harmony with every other factor. No mechanical device is perfect unless its component parts are perfect. The action of the camera and phonograph must be synchronous before the talking-moving picture machine is perfected. Barring accident, perfect bodies beget perfect bodies. Religion of the body is religion of the soul. As I have said before, soul is one's self. Health here—Heaven here! Heaven hereafter is a whip to keep the coward to his track. Come from the grave tomorrow with that story and the pathologist may take some softer path to glory.

Normal sensible eugenics will sound the first note toward physical perfection. Men have come to realize that soul, spirituality, and moral sense are the product of intelligence and education; that intelligence is the product of a physiological metabolism, and that the extent of an individual's education depends upon his intelligence, of course considering the factor of environment.

Mankind will have made its greatest progress when it can say "I am too intelligent to commit a crime." As it is today we are restrained from crime by the fear of consequences, either here or hereafter. Fortunately, this factor of fear now enters into man's intellectual life, but when he has developed to a greater degree of perfection fear will not govern his moral acts. That fear of the consequences here and in the hereafter may have a restraining effect on the vicious tendencies of the criminal is not to be denied, but it has no restraining effect on his desire—the desire is latent and fear only prevents its activity. The idea of deathbed repentance, forgiveness of sins, and the promise of a glorious hereafter has kept many a criminal at his work. Even if repentance is sincere, only in a small degree does it in any way mitigate the wrongs done the fellowman. Man's highest ideal should be for *this* existence. The future we know not of, and the only way that man can positively know that he can perpetuate goodness is by being good in this existence. Perfect the body with the idea of perfecting the mind, so that progeny will be an improvement on the progenitor. The day will come when deathbed repentance, with the gallows or the electric chair staring the criminal in the face, will be considered a farce too ridiculous for serious

consideration. Man should be impressed with the seriousness and responsibility of this existence and less with the future life.

In considering physical defects as a factor in the cause of crime, let us remember that the potentiality for crime exists in every human being. In the savage, for instance, acts which we now consider criminal—thieving, killing, and greed—were necessary to his existence. As intelligence has advanced so civilization has advanced, and laws have been formulated for the protection of society. Education has brought man to a higher sense of living and to a knowledge that certain acts are detrimental to the best interests of society. This knowledge, however, has only been a restraining factor to what would almost seem to be man's natural desires and, therefore, it has been necessary to formulate strict laws of restraint. Under our own present educational standard every normal, intelligent, individual knows what he can or cannot do so far as breaking these criminal laws is concerned. I believe, therefore, that every individual who does break these laws is deficient in intellectual control, and that the loss of this control is due in part to some physical defect which destroys moral stamina. When we consider that during the year 1913, 7,000 murders—1,500 being by women—occurred in the United States, it shows that crime is not on the decline. It would be of interest to know the physical condition of the perpetrators of the crimes.

The factors which enter into the cause of physical defects are many and may be classified under three headings: Congenital, acquired, and accidental. Alcohol is the principal factor entering into the three classifications. I emphasize alcohol because I believe it to be the most potent factor in physical and mental degeneration. It will take one hundred years of sobriety and abstinence even to begin to mitigate the physical harm it has done to the human race.

I believe it has been absolutely proved that alcohol is not a food. Taken internally it is nothing but a narcotic. The recent order issued by our Secretary of the Navy regarding alcohol should place him as one of the greatest benefactors of the human race. The great European war lords, realizing its harmful effects, have forbidden its use in their armies. Biological investigation demonstrates the fact that it has a definite degenerative effect on cell and germ life. The most typical and commonest example of blastophthoria, meaning deterioration of the germ, is that of alcoholic degeneration. The spermatozoa of alcoholics suffer like the other tissues from its toxic action on the protoplasm. The result of this intoxication of the germs may be that the children resulting from their conjugation become idiots, epileptics, dwarfs, or feeble-minded. When a man is found to be an imbecile or epileptic as a result of the insobriety of his father, he preserves the tendency to transmit his mental weakness or his epilepsy to his descendants, even when he abstains completely himself from alcoholic drinks, thus proving, as I believe, that it is not the craving for alcohol that is inherited, but a degenerated physical condition due to blastophthoria, which causes degeneration and deterioration of mental and physical stamina. In fact the chromosomes of

the spermatozoid, from which about half of this organism has issued, have preserved the pathological derangement produced by their parental alcoholism in their hereditary *mneme* and have transmitted it to the store of germinal cells of the feeble-minded or the epileptic, who in turn transmit it to their descendants. From Weismann's point of view this hereditary determinant remains pathologically deviated. All intoxications which alter the protoplasm of the germinal cells may produce blastophthoric degenerations which continue to menace several successive generations in the form of hereditary taints.

The recent researches of Bezzola seem to prove that the old belief in the bad quality of children conceived during drunkenness is not without foundation. Relying on the Swiss census of 1900, in which there figure nine thousand idiots, after careful examination of the bulletins concerning them, this author has proved that there are two acute annual maximum periods for the conception of idiots (calculated from nine months before birth): the periods of carnival and vintage, when the people drink most. In the wine growing districts the maximum conception of idiots at the time of vintage is enormous, while it is almost nil at other periods. Moreover, these two maximum periods come at a time of year when conception is at a minimum among the rest of the population—the maximum of normal conceptions occurring at the beginning of summer.

According to the statistics of Forel about seventy-five per cent. of venereal disease is contracted by men under the influence of alcohol—chiefly by persons who are slightly intoxicated and rendered more lively thereby.

The production of the majority of sexual crimes also resulting from the exasperation of eroticism combined with irreflection and general motor impulsiveness, may also be attributed to its use. Jealousy here plays a great part. The most important statistics (for example, those of Baer, in Germany) prove that seventy-five per cent. of criminal assaults are committed under its influence; indecent exposure, etc., is due to alcohol in eighty per cent.

I desire to draw attention here to the evil influence of saloons and bars. The drink habit corrupts the whole sexual life. It is the origin of the most hideous forms of prostitution and proxenetism, and leads to the seduction of girls. Let me here mention the barmaids in some countries, whose business it is to attract customers by exciting their sexual desires, at the same time exploiting themselves by prostitution. These saloons are dens of iniquity in which alcohol and prostitution are inextricably confounded. In Germany and France they have become a veritable social plague. To sum it up in a very few words, alcohol as a beverage is an awful curse—it makes good men bad and bad men worse.

Drink makes men and women not only gross and sensual, but also negligent, imprudent, and irreflexive. The saloon takes men from their homes, while drink directly diminishes population. Other things being equal, it is found that the nations which abstain from alcohol, or those which are moderate consumers, are more prolific than those addicted to

drink. The statistics of Bezzola show that a single drinking bout may have a blastophthoric effect. From this, and from other causes, result the deplorable consequences of coitus which takes place during drunkenness. As already pointed out, alcohol greatly deteriorates the quality of man by blastophthoria, and we must agree with Darwin, Gladstone, Cobden, and Comte, that alcohol, even in so called moderation, does more harm to a nation than war, plague, and famine combined.

We find an economic factor of the first order to which the majority of economists are blind, i. e., the short sighted policy of regarding the alcohol industry as a source of wealth and welfare of nations. What an amount of labor, human power, and valuable land is employed to produce this mischievous substance which, although useful in pharmacy and other industries, neither nourishes nor strengthens, but deteriorates the organism and leads to degeneration of the race! If it were not so sad, it would be ridiculous to observe the serious way in which high officials, and even scientists, calculate the product of taxes on distilled and fermented liquors, the laws for their import and export, the monopoly of their manufacture, etc. It is remarkable how the budget is balanced by the aid of the alcoholic intoxication of the people and how the people are made to believe that a masterpiece of political economy is thereby achieved. In reality the health and strength of Nature are sacrificed. This kind of political economy can be described only as false and deceitful. We cannot too often nor too strongly stigmatize its destructive influence in sexual matters and on the hereditary energies of humanity.

A learned judge once told me that getting drunk was not a crime, but that any overt act committed while drunk constituted a crime. This seems a simple yet inconsistent law, but laws are often inconsistent. In the great commandments from Holy Writ, for which we have such profound respect, had the wise men who formulated them added one more, namely, "Thou shalt not drink intoxicating liquors," and had this commandment been religiously adhered to, there would have been little use for the other ten. The day will come when medical men who are addicted to the use of intoxicating liquors, and who prescribe alcoholic beverages as stimulants and tonics, will be considered a menace to the best interests of society, because it will be realized that the use of alcohol under such conditions leads to the formation of habits and desires that it is almost impossible for the average man to resist. As I have said before, it has been proved that alcohol is nothing but a narcotic when taken internally.

I have witnessed eight legal hangings, and three or four that were not legal—the primary cause in all being alcoholic intoxication.

DRUGS AND THEIR ABUSE.

The abuse of the use of drugs enters largely into the cause of crime, and there is no strong argument against the crusade that is being made to wipe out the pernicious drug habit. But, certainly, it does seem somewhat inconsistent to make such an emphatic war on drugs while alcohol is being dispensed *ad libitum*. The control should be more equally

divided. As a factor in the cause of crime I think that the proportion of drugs to alcohol is not more than two per cent.

The vicious drug takers are to be found mostly in our cities; in the rural districts one seldom finds a vicious drug taker, the habitues in the rural districts being generally the victims of physicians who have used morphine and cocaine indiscriminately to quiet pain and relieve suffering without having the interest or knowledge to diagnose properly and treat scientifically.

From my present viewpoint I maintain that any pathological condition may be the exciting cause of a psychic neurosis that will lead to such a disturbed physical change as will result in mental deterioration and acts of crime. Not that all physical defectives are criminals, nor that all criminals are physically defective, but I do believe that in all criminals a physical defect may be the exciting cause of criminal instincts.

The various physical defects that could be mentioned as underlying causes of mental deterioration are unlimited. It is only necessary to mention a few in order to demonstrate my ideas along these lines. Injuries to the brain, intracranial pressure from any cause, atheroma, arterial sclerosis, internal ear diseases, meningitis; in fact, anything that interferes with normal cell action. Especially is this true as regards the brain, for as I understand it, brain cells once destroyed are never restored. If crime is not the result of a physical defect, what is it due to?

Malaria, as we all know, has a very degenerative physical and moral effect, well demonstrated by Doctor Vaughan in his address before the American Medical Association, in 1914. He brings out the point strongly that malaria was one of the principal degenerative factors in the great Roman empire.

Syphilis. The effect of syphilis on the moral attitude of mankind is familiar to every one who has given it the slightest attention. All sorts of crimes and misdemeanors can be traced to this cause. I know personally of at least fifty crimes, including suicide, homicide, theft, and arson, which could be traced directly to syphilis. Syphilis has been called the King of Abortionists, gonorrhea the Queen of Sterility.

Food. Improper food, proper food improperly prepared, food immoderately ingested, produces a long line of symptoms called indigestion interfering with moral physical stamina. In a certain sense man is only a chemical formula; a combination of some fourteen elements properly arranged *make man*.

APPROXIMATE ANALYSIS OF A 150 LB. MAN.

	Lbs.		Lbs.
Oxygen	92.4	Chlorine	0.12
Hydrogen	14.6	Sodium	0.12
Carbon	31.6	Iron	0.04
Nitrogen	4.6	Potassium	0.34
Phosphorus	1.4	Magnesium	0.04
Calcium	2.8	Silica	0.02
Sulphur	.24	Fluorine	0.02

Add to, take from, and you have an abnormal or a defective man. Therefore, it stands to reason that the ingestion of elements in proper proportion is absolutely necessary to normal metabolism. I do not believe much in Freud's dream theory, for I do not know much about it, but I do know that food

improper in quantity and quality will bring about digestive disturbances resulting in bad dreams which have suggested criminal acts that were carried to execution. I have been told that Doré, in order to illustrate Dante's *Inferno*, acquired dyspepsia.

Sufficient scientific attention is not given to Nature's first demand—proper food. Here is a great field for some one to make his way into the Hall of Fame—by teaching people what and how to eat. An honest, scientific cook book would be of far greater benefit to mankind than many of the books now considered classical or sacred.

Concerning disturbances in the alimentary canal as factors in the production of criminal instincts, I want no better text than that given by Sir William Arbuthnot Lane when speaking of intestinal stasis. He says:

The mental condition is one of apathy, stupidity, or misery. This may become exaggerated into a state of melancholia, or even apparent imbecility. These patients are very liable to commit suicide. They sleep very badly and awake feeling they have derived no benefit from their night's rest. Neuralgic symptoms and so called neuritis are frequently present in varying degrees of severity. Epileptiform convulsion is not infrequently the result of intestinal stasis, as evidenced by its disappearance after colectomy. Headache is a very frequent feature and may render the patient's life unendurable. One of the most serious symptoms which results from the damage to the nervous tissues by toxins is the want of control over the temper, which makes the sufferer very difficult to live with, and leads to much misery and crime. It is a much more frequent cause of serious crime than is generally imagined.

Dr. Robert T. Morris also gives emphasis to this question in the following paragraph:

I have had two patients who were cured of cyclical mania by fixation of their loose kidneys. The result was not due to the effect of the operation per se, as sufficient time has elapsed to prove that point. Recovery was probably due to relief from the toxemia of intestinal disturbance rather than to relief from any direct or reflex cerebral impression made by the loose kidneys.

Innumerable cases have come under my observation to confirm my belief that physical defects are factors in the cause of crime—cases in which the individual's whole moral attitude was improved by scientific medical or surgical treatment. It would be well for physicians and surgeons in making up patients' histories to find out as much as possible regarding their temperament and moral status. Every observant physician and surgeon knows of mental relief resulting from physical relief. Many a moral derelict is the victim if physical defects of which neither he nor his friends are aware and, therefore, it is necessary that more attention be given to the physical condition of our so called criminal classes. When criminals of all classes are treated as pathological subjects, we shall then be in a position to arrive, by thorough analysis, at the true psychological state of their being, and the more we study with the view of ascertaining to what extent all criminal acts are the result of pathological conditions, the better we shall be able to handle this most important subject.

Crimes are punished too much because of the fact that they are infractions of law, the mental and physical condition not receiving sufficient consideration. I knew a Baptist clergyman—refined, intellectual, and educated—who suffered from what was then diagnosed as pseudoangina pectoris. This

was before the days of the x ray. Physical examination revealed no lesion of the heart. When attacks came on, his whole moral attitude was changed, he became violent and dangerous, and sought alcoholic debauches to relieve his suffering. He stated that a minie ball was imbedded in his heart. He said the injury was sustained during the civil war. He died in one of his attacks. Post mortem examination confirmed his statement,—there was a minie ball found in the muscles of his heart. This case was published in the *Journal A. M. A.*

I believe that sexual perversion and sexual crimes are, in the majority of cases, due to some physical defect, especially in the genital tract. I have long advocated castration as a treatment for a certain class of these cases, and have resorted to it a number of times with good results. Twenty years ago I presented a paper entitled, *Castration for the Cure of Disease and Prevention of Crime*. I tried to get legislative action on this subject, but was only laughed at. I do not believe that rape was ever committed by a sane being, and that the insanity was due to some physical defect. We know the mental effect of pathological thyroids and the beneficial results occurring from proper treatment. I shall take great interest in the cases presented before this association by Dr. William Sharp, who has performed the depression operation for the relief of deformity with the hope of mental and physical improvement. It will be of interest to know in the course of time the moral status of these cases.

I could go on indefinitely with more cases and general theory to substantiate my contentions, but sufficient has been said to convey my ideas.

What should be done? We should abolish as far as possible everything that has a tendency toward physical deterioration of the human race. Scientific, not sentimental eugenics is the starting point, together with an appreciation of the fact that crime is a disease. Regardless of what may be thought of Lombroso's hereditary taint, stigmata, etc., do not forget the fact that there is a criminal class or type. The great natural principle of relation of cause and effect is demonstrated here as in every feature of nature. Generally the first idea that enters the ordinary mind regarding the criminal or vicious is punishment. Society should protect itself by such means as intelligence and humanity may suggest, but the idea of punishment is barbarous. No man ever was or ever will be made better by punishment. Society should have two objects in view: First, the defense of itself; second, the cure and reform of the so called criminal. We do not think of punishment in cases of typhoid fever, meningitis, syphilis, etc.; we think only of physical restoration and the elimination of pathological conditions.

This is what should be paramount in our minds regarding the criminal. The world has gone on for centuries fining, imprisoning, torturing, and killing the victims of conditions and circumstances. Conditions and circumstances have gone on producing the same kind of men and women year after year, century after century, and all this is so completely within the control of cause and effect and within the scope and jurisdiction of universal law, that we can

prophesy the number of crimes for the next year with almost mathematical certainty.

I would not presume to formulate laws for the treatment of our criminal classes, but I will presume to suggest a few ideas from which a more rational and humane course might be devised.

Regarding children.—We have done much, we can do more. Vicious, so called bad children should be carefully examined physically. A school child that shows bad tendencies, no matter how well physically or mentally it may appear, should receive careful physical consideration before punishment is prescribed. I believe that in most of these cases a physical defect will be found to exist as the irritating cause of viciousness.

Examination of criminals.—It seems to me that a great deal of valuable time, energy, and money is wasted in trying to establish the guilt or innocence of an individual accused of crime. I am not sufficiently acquainted with legal technicalities to offer rational criticism, but when guilt is established, I suggest that before sentence is passed, the victim should have the benefit of a thorough mental and physical examination by competent medical men, not merely to establish some mental or physical defect which all those who run may read, and not merely for the purpose of identification, but to discover, if possible, those underlying mental and physical factors which go to make up the criminal class.

Criminal anthropologists are unanimous in insisting on the importance of the results to be gained from a careful examination of the physical and psychic individuality of the offender, with a view to establishing the extent of his responsibility, the probabilities of recidivism on his part, the cure to be prescribed, or the punishment to be meted out. But, beside furnishing the magistrate with a sound basis for his decision, the anthropological examination will prove of great assistance to probation officers, superintendents of orphanages and rescue homes, and all those who are intrusted with the destinies of actual offenders or candidates for crime. This examination should include not only the individual, but an analysis, so far as is possible, of his antecedents. The Lombroso examination, or some modification should be the established procedure.

The inmates of our penal institutions may be divided into three classes: Those who should not be there at all and should never have been confined, those who should be treated with the hope of cure, and those who should be eradicated.

In the first class we have individuals who are punished largely through technicalities of the law and do not belong in penal institutions. In the second class we have those who, under proper physical treatment, environment, and education, may be benefited and trained to be useful citizens. In the third class we have those mental, moral, and physical defectives suffering from atavistic traits, and to whom no manner of treatment or punishment will be of the slightest benefit.

For the safety of humanity and posterity I believe that this latter class should be eradicated. Not only do I believe this as applied to criminals, so termed, but to a large class of idiots and insane,

absolutely incurable, upon whom the State is now expending vast sums of money and needless sympathy. Some day we may be intelligent enough to say that the world will be better off for the nonexistence of these unfortunate creatures.

We have not, it is true, the right to take the life of another, but if we refuse to recognize the legitimacy of self defense, then exile and imprisonment are equally unjustifiable. When we realize that beings exist—born criminals—who are organized for evil, who reproduce the instincts common to the wildest savages, and even of ferocious carnivora, and are destined by nature to injure others—our resentment becomes softened. But notwithstanding our sense of pity, we feel justified in demanding their extermination when they prove to be dangerous and absolutely irredeemable.

Who is competent to judge? Who has the right to say who shall and who shall not exist? Our laws today give our judiciary the right to pass judgment upon and have executed the absolutely proved guilty. If the right to pass upon the life of a criminal is given to a judiciary body, is it not consistent to ask that a properly constituted National Board of Health be vested with similar rights in regard to the absolutely incurable?

616 MADISON AVENUE.

PHYSICAL DEFECTS AND CRIME.*

BY J. HERMAN BRANTH, M. D.,
New York.

It gives me much pleasure to endorse the paper of Doctor Lee. Last winter Doctor Sharp read a paper before this association, in which he maintained that brain defects should be traced back to the accoucheur, who produced the deformity by instrumental delivery. Doctor Sharp then stated that by removing a piece of bone in the skull, the brain defect is modified, and that idiocy is a consequence of brain pressure caused by cramped condition; the expansion afforded, he said, gave relief.

Now, by scientific investigation it has been established as a fact, that much, if not all, criminality about us is due to nervous instability, insanity, and feeble mindedness. One might say, without exaggeration, that every feeble minded person is a potential criminal. There are, of course, many types and degrees of feeble mindedness, as there are many types and degrees in criminals.

Mr. Clemens Darrow, in a recent address, said: "Nature never intended subnormal men and women to beget *normal* offspring; also, that Nature has decreed that degenerate parents shall beget degenerate children, and this is Nature's way of killing them off." If such an individual dies it is a gain to the community, not a loss. Survival of the fittest is a law of Nature. Heredity, bad stock, one or more generations back, is a factor. Bad stock or pedigree means an ancestry of shiftless character, dissipation, criminality, immorality, alcoholism, epilepsy, hemophilia, idiocy, microcephalus, dementia præcox, etc., in short, *stigma*. Syphilis is a great factor

*These remarks were made in discussing the paper by Dr. Edward Wallace Lee on Physical Defects as a Factor in the Causation of Crime, read at the meeting of the Greater New York Medical Association, at the Academy of Medicine, October 19, 1914.

in born defectives. Henry Ward Beecher said: "To be born right, one must be born again, but the beginning must be at the grandfather." Dr. Alexander Lambert, in a paper on alcohol, on March 7, 1901, at the Academy of Medicine said: "That many defectives were such owing to alcoholism in the parents." In 1901 I read a paper on Cleft Palate and Hare Lip before the New York County Medical Society, in which I stated that I had seen in a short time six cases of cleft palate, in five of which the mothers admitted alcoholic intoxication of one or both parents at the time of conception. Just as sure as the features, character, physical outline, color of the eyes and hair, are parental impressions on the offspring, just as sure are also mental conditions impressed on the young.

I protest, as stated by Doctor Sharp, against the accoucheur being made the scapegoat for the mental conditions of such patients as he presented that evening. Their brains are born defective, and no operation short of planting a new and perfect brain can make a perfect individual. If forceps delivery were the cause, we should have very many more cases of idiocy, feeble mindedness, and spastic paralysis. It is a libel on the accoucheur. The bones of the skull shingle, when the head passes through the pelvic outlet. The child's brain is so soft and pliable that it stands moulding into a long oval during birth. We all know that forceps should never be applied on the biparietal diameter, but generally over the mastoid process on one side and the supra-orbital region of the opposite side, which position shields the brain.

The flat head Indians of the far Northwest of our country made pressure with a board on their babies' heads to produce their characteristic form, but sub-normal mental conditions were not noticed among them.

Now, granted that improvement follows the skillful operation of Doctor Sharp, is the patient so nearly normal that he can care for himself when grown up? No! The asylum is his doom for life. If not under such care and restraint, an irresponsible criminal is at large. Let us, therefore, rather give our best efforts to individuals higher up. A low grade imbecile is more dangerous than a total idiot; a low grade imbecile is less dangerous than a high grade; the latter makes up principally the criminal element of our community, for he lies, steals, is shameless, commits deeds of violence, etc.; with the help of his low cunning, which latter is the first step in mental reasoning, a step or stage in which meditation is limited and the consequences of a wrong act are not thought of. Our asylums, great as they are, are overcrowded with defectives; other countries send their defectives here to be rid of them. Our community is overburdened with taxes, which are partly used to maintain institutions for defectives. Our State pays out some \$9,000,000 each year for the care of feeble minded, insane, and diseased.

A born brain cripple will always be a cripple, a care and a menace to his surroundings. I admire the technical skill of Doctor Sharp, but what is the product of his work? Answer: Still a brain cripple. What a curse, if such patients were improved to a degree that they could reproduce!

I have operated on many patients having deformi-

ties like hare lip, cleft palate, club foot, etc., but the patient must have with his outfit a healthy and normal brain. Mental life is of far greater importance than physical life. The poet Alexander Pope was a man of many bodily defects, but he had the fine brain to produce the *Universal Prayer*. Lord Byron, next to Shakespeare the greatest of English poets, had club foot from infantile paralysis, yet he electrified the world with his great intellect.

Bodily defects involving muscle or bone naturally develop other functions above normal. The blind develops an abnormally fine sense of touch. Training of normal children has great influence on adult life. Badly trained children will lean more toward criminality than well trained children. It is perhaps for this reason, that very often criminals are cripples—and as cripples generally escape child discipline to a degree. Environment, training, schooling, example, are all factors in brain culture. A normal brain can be trained in the direction downward into criminal life; harlots, "toughs," and gangsters are often such individuals. If trained upward, the cultivated, respected, high minded citizen, and a moral example is the result. Of course, there are many shades and steps between these divisions.

It seems, therefore, that the highest life depends on several factors: First, a normal brain, a nearly normal body, and last, but not least, cultivation of both body and brain. In the savage one can see the cultivated body and an uncultivated though normal brain.

183 WEST EIGHTY-SEVENTH STREET.

INTRACAPSULAR EXTRACTION.*

BY CHARLES B. MEDING, M. D.,
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No ophthalmological congress can be complete without insistent mention of the extraction in the capsule cataract operation. The operation, which prevents years of idleness enforced by deficient vision, which is safe, scientific, and championed by abundant experience, may not be passed with impunity. Its records, even without that of its originator, Lieutenant Colonel Henry Smith, I. M. S., have attained a volume commanding respect. Its sponsors are men proficient in older methods. The effort and sacrifice demanded for obtainment of Indian training, even with the colonel's cooperation, bespeak seriousness of purpose. Their work has been improved, their service to humanity enlarged, and they remain steadfast, both as practitioners and missionaries. These are incidents not to be ignored by progressive surgery.

The data from all sources reliable and consistent, paralleling figures of older methods, are as follows:

	Simple Per cent.	Combined Per cent.	Intracapsular Per cent.
Prolapse of vitreous.....	4.27	7.23	2. to 5
Prolapse of iris	8.6	....	6.
Incarceration of iris	4.	4.82	4.
Iritis, etc.	11.82	13.15	0.3
Dissection	33.04	27.61	...
Suppuration	1.03	1.91	...
Loss	2.88	4.47	2.5

*This communication was to have been read before the intended Twelfth International Ophthalmological Congress at Petrograd (St. Petersburg), Russia.

No cataract operation is the sufficient cause of choroidal hemorrhage, prolapse of entire vitreous, or detachment of retina or choroid. These results must be attributed to abnormalities of fundus or media, since they occur equally and inexplicably under all operative interference. Suppuration likewise is no necessary part of the procedure. Whether we impute it to surgeon or condition, matters not; it should not be fathered by the mechanics of the operation. The elimination of common factors begets simplicity.

Cataract statistics, better possibly than those of other eye operations, point the need of definite and accepted indices and stricter nomenclature. If they were compiled on the Talleyrand plan, they could not better hide the grim facts. Not only are results of important steps irregularly stated or altogether omitted, but the terms used are often obscure or indiscriminate. The use of *good*, *successful*, *unsuccessful*, and *failure* in a single report is scarcely illuminating.

In a careful review of cataract operation reports of twenty-five years, culled from Knapp's archives, one learns the measure of figures. The accompanying tables, if they do nothing more, parade statistical weakness. Each contributor gives statistics proving his position, and while one cannot object to the enthusiasm which labors and so believes, these presentments so largely lack details of condition, method, and accident, that future reference reaps small reward.

Since the beginning, operators have sought, first, safety, secondly, vision, and, thirdly, cosmetic value. Difficulties mechanical and resultant have met each advance. Experiment has been unending and the deductions based thereon have been hasty, often illogical, and perplexing. Statistics basing extraordinary success on sections varying one mm., on cystotomes of slightly differing angles or keenness, on blades that just miss identity, on douches of various solutions none of them toxic, on bandages of various architecture or on no bandage at all, lose caste in serious company.

Certain it is and must be, that surgeons making perfect sections, excising iris or capsule with delicacy and precision, expressing with gentle thoroughness, and maintaining aseptis and discipline, will always excel their opposites; and happily for patients, though unfortunately for statistics, the originators are apt to be the best surgeons; unfortunately, I hold, because skill rather than method is responsible for results. *Pari passu*, logical minds must see the puerility of attributing accidents equal in all, to any one, *pro* or *con*. I crave agreement to the foregoing.

This paper presents intracapsular extraction under four contentions whose validity it hopes to prove: 1. As the operation of election in immature and mature cataract, and of selection in the removal of hypermature and discolored lenses in patients above the age of forty years. 2. Its technic is original, scientific, and invaluable in any cataract operation. 3. Its difficulty inspires surgeons whose ability is otherwise commensurate to the undertaking. 4. Hoary custom, inadequate practice, errant use of printed direction with entailed failure are unworthy of consideration.

There plead for answer two main questions: Shall

we operate on immature cataracts, how and when? Is capsulotomy the acceptable common factor of lens extraction? Our dictum for the first is, "Yes, perform the intracapsular operation when vision falls below the patient's necessity." For the second we answer, "No, because of inflammation and secondary cataract. Whether the inflammation is 'traumatic' or attendant upon the entanglement of congenial tissues, it is dangerous and common, and secondary cataract is always a possible contingent."

Against our position the stressed objections to intracapsular extraction are:

1. Increased iris prolapse
2. Increased vitreous prolapse } therefore increased danger.
3. Increased trauma
4. Racial difference (good for Orient but not for Occident).
5. Difficulty } in acquirement.
6. Assistant (not obtainable). }
7. No definite visual results procurable.
8. Present operation sufficient.

1. *Prolapse of iris*. It is manifestly unfair to marshal the accurate returns of intracapsular operators covering entire season's work, in comparison with obtainable figures. We have from Wittmer and Nagano (*Archiv für Augenheilkunde*, LXVI, 1910) the following in combined operation:

	Per cent.
Knapp, H.	8.
Basle (Haessig)	25.
Schweigger	8.
Haessig (personal)	1.9
Dienner clinic (Hesse)	8.8
Marshall	13.8
De Wecker	3.4
Hesse (personal)	3.3

Later, Elschnig reports 4.7 per cent. This percentage met by Hesse with 0.66 per cent., Elschnig promptly reports 100 cases with no prolapse (incarcerations not mentioned). In close assemblage such figures come to mean nothing.

The highest figures obtainable in the intracapsular are those of Dorland Smith and myself, i. e., eleven per cent. in 650 cases including every possible complication; 137 of these being without iridectomy.

2. *Prolapse of vitreous*. Despite much verbiage, statistics here are carefully secretive. In the 11,043 case abstract (table II) no useful conclusion is forthcoming. Note the courage of statement in the intracapsular figures.

	Year	Cases	Vit. Prolapse
Lt. Col. Smith	1904	2616	177
Knapp, A.	1908	104	13
Vail	1912	358	8
Clark	1912	245	10
Meding	1912	323	33
Shepherd, Amy	1912	650	34
Col. Smith	1913	150	3
Fisher	1914	576	42 5022—6.371%

3. *Trauma*. The unanimous statement of patients as to painlessness of operation is sufficient answer, but the constantly uneventful recovery minus inflammation, drug, or change of dressing, dismisses the accusation. Probably nowhere else in surgery has the truth been more carefully detailed, more surely authenticated by various independent and credible workers than in the matter of the Smith operation. Certainly no procedure ever received more of careless objection, bad logic, and

extravagant disclaim. What shall we think when Elschmig reports.

Cases	Iris P.	Vitreous P.	Loss	Method
63	12	12	1	Smith
71	4	1	0	Others

How argue when Pagenstecher Jr. advises the operation for hypermature or shrunken lenses only; the cases wherein even the master deems it difficult? These and more; but why?

4. *Orient versus Occident.* In cases of equal tension, equal lens sclerosis, and orbital content, no operative difference has been noted. As well hold Indian water responsible for the preference of Indian surgeons for anterior chamber irrigation.

Smith's contribution to ophthalmology. An expressing force, positively scientific and decisive, demanding "thinking" as well as sensitive fingers. It is not measured simply by visible results, not gauged by the ooze of cortical detritus or stripped nucleus. The operator must appreciate the mutual relation of force and movement. The difficulty is not denied, but it encourages rather than prohibits.

6. *Skilled assistance.* Whether or not this is *sine qua non*, an assistant can be readily trained. I found no difficulty among my confrères. Fisher's double hook simplifies the problem. When and whether the speculum should be used or discarded,

Surgeon.	No.	20/20	20/30	20/40	20/50	20/70	20/100	20/200.	Or less.	L. P.	Unsuccessful.	Failure or loss.	Useful.	?	Normal.	Useful.	Failure.	?
Cheatham, '85.....	43	7	..	16	..	7	4	3	..	3	..	3	..	..	23	14	3	3
Kazaurow, '85.....	100	..	..	..	..	..	78	17	..	3	..	2	..	..	..	95	3	2
Webster	35	..	2	3	6	8	3	7	..	1	..	5	..	..	11	18	1	5
Baker	37	8	..	..	..	28	1	..	..	..	..	..	..	..	8	29	..	0
Belt, '81.....	100	..	83	..	..	..	..	7	5	..	..	5	..	..	83	..	12	5
Minor, '91.....	25	3	3	2	4	6	4	2	..	1	..	..	..	..	12	12	1	0
Kaab	273	55	42	38	47	48	37	18	14	1	..	1	..	..	182	103	15	1
Albrand	232	2	35	43	91	22	12	12	9	..	6	5	..	..	171	46	9	11
Albrand	307	10	27	100	26	47	41	39	11	..	4	6	6	..	163	133	11	10
N. Y. E. & E., '94.	52	..	..	..	..	..	45	..	..	..	..	5	2	..	..	47	..	5
Roosa, '91.....	206	5	10	16	10	28	34	33	42	17	..	11	..	..	41	95	59	11
Duncan, '98.....	100	32	25	12	14	4	..	5	1	..	..	3	..	4	83	9	1	3
Blaschek, '07.....	500	..	..	..	344	..	72	..	29	..	..	4	15	..	344	87	29	4
Knapp 3d S.....	100	21	5	8	..	18	17	16	14	1	..	..	..	..	34	51	15	0
Eversbusch, '84....	1,420	980	157	..	68	34	..	..	113	..	68	..	..	..	1,205	34	113	68

TABLE I—3,530 CASES.

Surgeon.	No.	Success.	Good.	Partial.	Useful.	L. P.	Unsuccessful.	Loss; failure.	?	Good.	Poor.	Loss.	?
Walker, '85.....	63	..	37	..	7	10	..	4	..	37	17	4	..
Dell Monte	138	..	128	..	7	..	..	3	..	128	7	3	..
White	52	..	49	..	..	..	..	3	..	49	..	3	..
Julasz	391	..	..	..	386	..	..	5	..	386	..	5	..
Snell	120	..	109	..	..	..	8	1	2	109	..	9	2
Steffan	309	..	..	..	273	..	..	27	..	273	..	27	..
Von Alt, '74-'81....	1,547	..	1,417	..	..	..	..	31	99	1,417	..	31	99
Roosa	39	..	..	..	28	..	..	2	..	28	..	2	..
Fienzal	1,743	1,500	..	156	..	..	..	87	..	1,500	156	87	..
Knapp, H., '87.....	100	..	96	3	..	..	..	1	..	96	3	1	..
Fienzal, '88.....	518	..	452	52	..	..	..	14	..	452	52	14	..
St. Petersburg H	595	..	533	12	..	..	..	50	..	533	12	50	..
Knapp, H., 2.....	100	..	91	8	..	..	..	1	..	91	8	1	..
Knapp, H.....	1,000	..	854	83	..	..	..	63	..	854	83	63	..
Bucklen	100	..	96	..	..	..	..	4	..	96	..	4	..
Strawbridge	48	..	41	4	..	..	..	3	..	41	4	3	..
Webster	50	..	41	6	..	..	..	3	..	41	6	3	..
Little, '90	1,017	..	943	53	..	..	..	21	..	943	53	21	..
Little, '91	200	..	190	7	..	..	..	3	..	190	7	3	..
Noyes, N. Y. E. and E....	308	238	..	43	..	..	..	21	..	238	43	21	..
Thomas	120	92	..	12	..	..	..	9	..	92	12	9	..
Greeff-Swisser Clinic, '91..	821	624	..	155	..	..	..	42	..	624	155	42	..
Kerschbauner Rosa, '91..	199	182	..	12	..	..	..	5	..	182	12	5	..
Rheindorf, '88.....	298	13	226	..	..	..	9	25	..	239	..	34	..
Burnett, '88.....	25	..	23	..	..	..	..	2	..	23	..	2	..
McKeown, '88.....	100	97	..	..	..	..	..	3	..	97	..	3	..
Panas, '88.....	460	437	..	..	..	..	21	2	..	437	..	23	..
Pagenstecher, '88.....	74	..	70	..	..	..	..	80	4	70	..	0	4
Brockmann, D.....	1,626	..	..	..	1,546	..	..	..	..	1,546	..	80	..

TABLE II—11,043 CASES.

Structural connection between posterior capsule and hyaloid remains to be demonstrated. Only a differing strength of such structure could demand increased force in expression. As to behavior, guide book stoicism does not prevent unruly conduct. Fatalism and endurance are synonymous, even in India.

5. *As to difficulty,* tuition and practice sufficient for the old will achieve the new, but there must be no confusion as to the sufficiency. Colonel Smith has wasted no time on foibles of instrumentation. His instruments are constantly developing, their essentials being keenness of blade and simplicity. Any knife, speculum, or lid hook, any expressor, repositor, or scissors, complete asepsis, rational dressing, and interference via reason instead of per routine. But one thing is indispensable. It is

whether or not the surgeon prefers extra instrumentation or more delicate technic, these are questions of equal importance with that other Gordian affair, Shall the bandage be of flannel or gauze? What Hindoo and Mohammedan of Amritsar can do, I dare not deem impossible to my brother in America.

7. *Visual results.* Unfortunately circumstances have left them incomplete, but at home vision exceeds in individual and percentage any before obtained. Visual results, however, may not be assailed. Europe and America use the terms good and useful, groping and partial.

8. *As to sufficiency,* not even the intracapsular operation is sufficient. It does not assert itself to be the last word nor worthy beyond its service. It is the best word as yet. Not to shine, but to serve,

is the motto at Amritsar. Capsule must yield to technic. Capsule, lens remnants, and cut iris are the *bête noire*; removal of lens capsule is the alcahest. It must be dislocated first and expressed entire thereafter. Whether dislocated by chance with Kalt's forceps, a hard rubber or porcelain spatula, or with purpose by Smith's hook, depends on skill, choice, and the percentage of success one covets, but as yet Smith's expression stands alone and its use stamps that operation as Smith's intracapsular.

Over against stereotyped objection array the facts of vantage. No blindness! No discissions! Negligible inflammation! Add to this the figures of those whose reports have never been impugned. Then with an open mind, decisive purpose, and labor at once intelligent and zealous, you will come to be one of those who, escaping routine and quibble, make for the advancement of ophthalmology and the increased comfort and usefulness of the afflicted.

III WEST 121ST STREET.

RADIUM AND RÖNTGEN THERAPY FACILITATED BY DOUBLE COATED ADHESIVE PLASTER.

BY SINCLAIR TOUSEY, A. M., M. D.,
New York.

This plaster is in regular use for affixing wigs and for other mechanical purposes. It consists of cloth coated on the back with rubber adhesive plaster mass and on the other side with zinc oxide plaster mass.

For radium therapy, the back of the plaster is applied to a silver half dollar or some other piece of metal serving as a handle or as a means of shielding the patient's fingers from the radiation, and the face of the plaster is fastened to the tube of radium with whatever covering is desirable to filter the radiation or to prevent direct contact with the patient and contamination. Pieces of sheet metal for limiting the area exposed to the radium are affixed to the skin by applying the rubber adhesive side of the plaster to the metal and the zinc oxide side to the skin. We thus have an adhesive plaster with a sheet metal backing and which will adhere to the exact part to be covered.

For x ray treatment, where limiting sheets of metal are to be applied around the area exposed, this is easily accomplished by making the surface of the metal adhesive in this way.

850 SEVENTH AVENUE.

Jequirity in Ophthalmology.—C. J. Lukens, in the *Journal of the Oklahoma State Medical Association* for January, 1914, describes the use of jequirity in cases with well defined or slight pannus. The drug in powdered form is best; he follows its application with a weak boric acid collyrium. The effect apparently does not result alone from irritation jequirity produces, as irritation will merely aggravate the condition; the formation of a false membrane is the effect to be sought. It is true that the greater the swelling and edema produced, the better the results.

GONOCOCCUS INFECTION IN WOMEN.*

BY JOSEPH J. FRANCE, M. D.,
Portsmouth, Va.

Gonococcic infection of the female genitalia is of frequent occurrence and far reaching consequences. Among the laity, however, it is regarded as a trivial disease, and in many instances the disorder is considered as of no more serious import than an ordinary "cold." Indeed, there is a superstition, prevalent among a certain class of men—usually the ignorant class—that the disease in the male can be speedily cured if it is transferred to a healthy woman, preferably a young woman or a virgin; and instances are not lacking when attempts upon the virtue and chastity of young girls have been made with this heinous end.

With reference to the prevalence of this infection in women, opinion is divided. Statistics by eminent gynecologists and systematic writers, unfortunately, do not help toward a satisfactory settlement of the question. That gonococcal infection in the female is of frequent incidence, perhaps more frequent than in the male, will be readily admitted by any one who has paid some attention to the subject, especially when its frequent occurrence in young girls is borne in mind. It is now generally admitted that purulent vulvovaginitis in little girls, so frequently observed, is, in most instances, of gonococcic origin. One very rarely encounters gonorrhea in boys of the same age. I have seen specific vaginitis in a little girl eighteen months old. Kerley (1) has treated infants of six weeks with the infection.

The anatomical arrangement of the female genital organs, together with their histological structures and glandular system, favors their more ready invasion by the gonococcus of Neisser. They are factors which also determine the symptom complex peculiar to this disease in the female sex; and are responsible for the tendency which the disease exhibits to terminate in such grave pelvic lesions as pyosalpinx, tuboovarian abscess, or pelvic peritonitis; lesions which sometimes involve loss of life, or terminate in chronic invalidism or sterility, sequelæ which seldom, if ever, attend the disease in man. One other characteristic must be noted. In a certain percentage of the cases, gonococcus infection in the female is nonvenereal; it is not acquired as a result of sexual intercourse.

The following case will serve to illustrate some of these points.

CASE I. In the fall of 1906, a young man suffering from an attack of gonorrhea came to me for treatment. After about a month of systematic treatment all symptoms of the disease disappeared, and the patient was, to all appearance, cured. Four years after this, that is, in 1910, he married a widow who had two daughters, the youngest being nine years old. Three months after the marriage there was a return of the urethral discharge in the husband. He was emphatic in his denial of having exposed himself to the possibility of a fresh infection. He was still under treatment when the wife consulted me concerning a vaginal discharge which was becoming quite disagreeable. A cover glass smear of a specimen of the discharge under the microscope disclosed the presence of gonococci in large numbers. While under treatment, she allowed the youngest daughter to share her bed with her during a temporary absence of the husband from home. The little girl shortly afterward acquired gonococcal vulvovaginitis. The latter

*Read before the Medical Section, National Medical Association, Raleigh, N. C., August 27, 1914.

had a playmate of the same age. The two were inseparable. They ate together; played together; took baths together; in short, there was the utmost freedom of association and intercourse. The playmate also acquired gonococcal vulvovaginitis. This girl, in turn, infected her mother with it; the only members of the two families escaping the infection being the father of the playmate, who, by a timely warning from me, took precautions against contracting the disease, and his little boy, eleven years old.

The marked tendency to latency and chronicity of this disease in both sexes is well illustrated in this case. A period of four years of quiescence and inactivity on the part of the cocci was followed by a recrudescence, no doubt the result of excessive venery. In the case of the two little girls and the mother of one of these, the infection was acquired from contact with those previously affected.

The symptoms of the invasion of the genital organs of women by the gonococcus vary within narrow limits according as the urethra, vulva, vagina, or cervix is the seat of primary attack; or, according as the disease is acute or chronic; but, in any case, the symptoms are, as a rule, by no means as pronounced as they are in the male. Acute specific urethritis gives rise to frequency of urination, accompanied with burning and smarting. In gonorrheal vulvitis there is usually a mucopurulent discharge, with the enlargement of one of the glands of Bartholin. When the vagina or cervix is primarily affected, the leucorrheal discharge is, in most cases, more profuse, mucoid, glairy, thick, or tenacious. It is this symptom which usually leads a patient to consult a physician. A microscopic examination of the exudate very often enables the physician to determine, with some degree of accuracy, the organ involved: the pavement and columnar epithelium of the mucous membrane of the bladder, the stratified squamous epithelium of the vaginal mucosa, or the ciliated columnar epithelium of the cervical glands predominating in the field in proportion as the urethra, vagina, or cervix is the seat of primary infection.

Owing to the mildness of the symptoms of gonococcal infection in women, the extreme difficulty of obtaining from the patients trustworthy history of the onset of the disease or its progress, and the fact that the recognition of the disorder depends, in a very large measure, upon one clinical symptom—a symptom which appertains to a number of other diseases—the diagnosis of gonococcus infection in the female, based solely upon the clinical symptoms, is, in my experience, by no means easy.

Women are singularly not observant or attentive in matters of health, especially where they personally are concerned. It happens, therefore, that, in a majority of the cases, the inflammatory process has advanced before the case is seen by the physician. Apart from the general lack of observation, and attention to themselves on the part of the patients, the fact that leucorrhea, the chief and most constant objective manifestation of gonorrheal infection in the sex, appertains, as has been already pointed out, to a variety of conditions both of health and disease, constitutes an element of doubt and uncertainty, and is largely responsible for the delay to seek medical advice. A woman suffering from an attack of gonorrhea is uncertain whether the discharge is an indication of a pathological condition or a normal flow. It is only when it persists beyond

the usual time or is accompanied by other symptoms, such as tenderness or pain, that her suspicions are aroused, and she consults her physician.

A macroscopic examination of the leucorrheal discharge does not yield much help. True, systematic writers on gynecology give descriptions of the physical characteristics of this exudate, whereby one may differentiate between discharges from the vagina or cervix, but there is little agreement in these descriptions, and little assistance can be obtained from them.

Take, for example, these two descriptions—one from Kelly, the other from Sunderland. Says Kelly (2), "The vaginal is readily distinguished from the cervical discharge by its more milky, thin, and uniform consistence . . . the cervical discharges, on the other hand, are always stringy, mucoid, or mucopurulent." Sunderland (3), on the other hand, speaking of vaginal leucorrhea, says, "Many women suffer at odd times from a whitish or mucopurulent flow . . . resembling in its passing character a nasal catarrh, and proceeding partly from the vaginal mucosa and partly from the endometrium."

Here we have two eminent writers, who have had exceptional opportunities to observe and examine this discharge under the most favorable circumstances, yet in their descriptions there is no agreement. Thus neither from a macroscopic examination of the vaginal discharge, nor from the anamnesis is it possible to make a positive diagnosis of gonorrheal infection in women. Recourse must be had to a more certain method; and a microscopic examination of the discharge in all suspected cases is the surest and safest. The use of the microscope as a means of making a diagnosis of this disease and other microbic diseases cannot be too strongly recommended. It helps to eliminate the element of uncertainty in a large proportion of the cases, enabling the physician to institute treatment with an assurance born of positive knowledge.

The treatment of gonococcus infection in the female in private practice is beset with difficulties. Some patients will not come to the office for treatment. Others discontinue treatment on the first appearance of improvement—too soon to effect a cure. A third class becomes discouraged and stops treatment if improvement does not follow promptly according to its notions.

When a patient can be induced to come to the office, the first step in the treatment is to place her on the table in a dorsal position with a Kelly pad underneath her. The parts are thoroughly irrigated with a warm solution of bichloride of mercury, one to 2,000. Permanganate of potassium one to 1,000, or creolin one to 2,000, may also be used. If there is reason to doubt whether the urethra is affected or not, the question can be settled by gently pressing the forefinger on the urethral orifice, which elicits tenderness when the urethra is affected. This, together with a history of frequent urination and scalding or burning sensation, is conclusive evidence that the urethra participates in the inflammatory process. In such a case a small endoscope is inserted into the urethral canal, and an applicator with the tip wound with cotton and dipped in a five per cent. solution of nitrate of silver is used, to

swab the canal, slowly withdrawing the endoscope so as to allow the inflamed mucous membrane to come in direct contact with the applicator. The vulva, vagina, and cervix are treated in the same manner; a stronger solution, ten per cent., being used. For making local applications to the vaginal vault, the four bladed dilating vaginal speculum is most serviceable. It is self retaining, and the operator is enabled to attend to the patient without the aid of an assistant, thus insuring greater privacy than can be obtained otherwise—a feature which appeals strongly to patients.

The treatment above outlined, when thoroughly and properly applied, is effective in destroying the gonococci and curing the disease. More than one treatment, however, is necessary. The immediate effect of the treatment is to check the vaginal discharge, and some patients jump to the conclusion that the disease is cured, and further treatment unnecessary. When treatment is discontinued before all the gonococci have been eradicated, those escaping destruction proliferate, and, in the course of time, renew their activities, with the result that the leucorrhea returns, together with all the other symptoms.

With the class that could not be induced to come to the office, the home treatment is the rule. For this treatment a fifteen per cent. solution of protargol given in warm water as a douche twice or three times a day, according to the severity of the case, has, in my hands, proved very efficacious. To apply this treatment, the patient is instructed to fill a fountain syringe with one or two quarts of warm water medicated with the solution of protargol, and to suspend it in a convenient place. The patient next lies flat on her back with the feet resting on a chair in front of the bed; a slop bucket is placed beneath her, and the patient lies in such a position that her hips are between the bed and the chair and over the bucket. This position insures to the patient practically all the advantages to be derived in using the regulation douche pan, and is recommended in the case of those who cannot afford that luxury. Various strengths of the protargol solution are used in different cases, according to the severity and stage of the disease. One half of one per cent. solution has in some cases proved as effective as a fifteen per cent. solution in others. With the other agents recommended for this condition, such as albargin, largin, argentamin, argyrol, and others, I have not been able to observe any advantage over the two silver salts already mentioned, so that for some time now my treatment of this condition has been restricted to the use of these agents.

One complication of gonorrheal infection in women must be noted. Gonorrheal endocervicitis is a most intractable disorder. Indeed, the treatment of this condition is a veritable task of Sisyphus, taxing alike the endurance and patience of physician and patient. After exhausting all the resources of the present method of treating the disease, namely, applications of various solutions of silver; the insertion in the cervical canal of pencils containing equal parts of iodoform and alum; or the application of strong galvanic current, the thick mucopurulent discharge is likely to persist, or, after a temporary subsidence, to recur with the infectious

gonococci. In some of my cases trachelotomy was the only procedure to effect a cure.

The relation of gonococcus infection to sterility in women is an interesting inquiry. That some connection exists cannot be denied, but that sterility is caused by the gonococcus, *per se*, remains to be proved. The studies of Bumm, Wertheim, Noegersath, Tait, and other investigators, exhaustive and instructive as they are, are not as conclusive as might be desired. Limitation of space will not permit of a discussion of the various theories which have been advanced by these authors; suffice it to say that, personally, I incline to the view which holds that sterility results from tissue changes in the uterus and the annexa in consequence of the inflammatory process induced by the cocci.

These changes, it may be stated, consist chiefly of parenchymatous metamorphosis of the epithelium of the uterine mucosa, the closure of the ostium abdominale by inflammatory exudates, and the displacement of the uterus from adhesions. These results do not, of course, always follow every attack of gonorrhea in women; nor are they peculiar to this particular infection any more than they are to any other septic infection. The mildness or virulence of the infecting agent, the resisting power of the patient, among others, are factors which determine whether an inflammatory process in the female genitalia will eventuate in complete recovery of the organs affected, or in sterility. So it is in gonococcus infection. For this reason we find cases in which the attack had been practically innocuous, as far as the ability to bear children is concerned; and others in which sterility had ensued.

CASE II. C. H. J., aged twenty-eight years, married, father of two children. Consulted me, September 3, 1911, relative to a discharge from the penis. He gave at the same time a typical history of gonorrhea. A microscopic examination confirmed the diagnosis. When informed that he had an attack of gonorrhea, he became so dejected and bemoaned his unhappy fate so loudly that I was led to inquire the reason of his unusual perturbation. He told what to me was an extraordinary story, namely, that from a boy he had had a horror of any and all kinds or forms of venereal disease from stories he had heard of its ravages, so that, until he was married, contrary to a practice all too common among boys and young men, he had never had carnal knowledge of a woman—never “sowed his wild oats”; that in the course of a married life of six years he had pursued the same exemplary course of conduct—he had never once violated the marriage vow; and he was at a loss to know how he acquired the disease. I was unable to reassure him that it was possible he could have acquired the disease in some other way than through coitus, because, while a firm believer in the possibility of the disease being acquired by women in other ways than through sexual intercourse, I am equally a firm disbeliever that it can be acquired in any other way than through venery by men. Unwilling to arouse suspicions unfavorable to his wife (assuming that he was telling the truth as to his own chastity), my answer was purely Delphic. One week afterward, and while he was still under treatment, his wife consulted me concerning a vaginal discharge which was annoying her. She too had gonorrhea. It was not possible to determine which of the couple first had the disease, but the fact that both husband and wife had the infection at the same time was indubitable. Both got well; and in November of 1912 the wife was confined of a well developed baby girl.

It would be an easy matter to multiply instances in which married couples have had the disease at one time or another, and yet have had children,

their having had the infection not exercising any deterrent effect upon the procreative powers.

The trend of these facts is toward the conclusion that the gonococcus of Neisser does not, of itself, cause sterility either in the male or female. Even if this is admitted, it still remains that gonorrheal infection in women is the direct cause of an indeterminate number of cases of sterility in the sex. Sterility is, however, not the only or principal deleterious consequence. According to Kelly (4), in a report to the American Medical Association, a committee of seven appointed by that body asserted that eighty per cent. of deaths from female pelvic disease are due to gonococcus infection.

The duty of the profession to educate the public in the serious nature of the disease is apparent, and practitioners will aid in this laudable object, not only by disseminating information on the subject, but by insisting that patients continue treatment until a positive cure has been effected as far as this can be determined by our present methods.

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803 GLASGOW STREET.

SYPHILIS IN THE ROLE OF MALIGNANT NEOPLASMS.

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That it is easy to differentiate an epithelioma of the tongue from chancre of the same organ, particularly in persons that have passed the fortieth year, will not, I am sure, be the opinion of many diagnosticians. The same may be said of similar lesions of the anorectal margin and the genitalia, but more frequently may growths in the region of the anus or rectum prove confusing.

While I am presenting nothing new, what I chiefly desire is to bring to mind syphilis when it simulates a malignant neoplasm. So successful has it been in imitating malignant growths, that the most skilled have been lured into surgical interference, and a growth removed that could have been restored to normal tissue, had proper medical treatment been instituted.

Experience has belittled my earlier impression of a syphilitic infection. The picture I had of this disease when I began the practice of medicine might well be classed as a "three color process," chancre, secondaries, and tertiaries. These were the colors, and the order in which they would appear in the process. No initial color was to be considered, until the second was beginning to show, then it became our solemn obligation to begin the picture's destruction, never allowing the third coloring to be applied. It was only when faulty treatment or no treatment at all had been instituted, that the third process could gain access. When by such neglect the tertiary lesions did occur, they were to be recognized in ulcerations, tabes dorsalis, gummata, and necrosis of various tissues. With the exception of tabes dorsalis, these lesions would easily yield to ascending doses of potassium iodide. This, in

brief, was my limited understanding of the course of a syphilitic infection when I was leaving my alma mater, and while I cherished it for a time as classic, experience soon rid me of the delusion. To picture this mysterious scourge of mankind in three colors would be impossible. Indeed, its variations would not only require the three primary colors, but all their combination would likely be inadequate.

During the last few years I have encountered four cases of syphilis, which have not only emphasized the truth of this, but forced home the importance of exercising greater care and caution with our diagnosis, beside sounding a warning against our common sin of impulsive surgery. I mean no criticism, unless it be to rebuke myself, for it has been my own misfortune to err in this very way.

Cabot has cautioned us against the many pitfalls with which, in our best diagnostic environment, we are surrounded, and in reporting the four following cases of atypical syphilis, I do so to show how readily one may be deceived into believing he has encountered a malignant growth, when in truth the pathological condition he is confronting is syphilitic all the way through. And here I would remind you that even pathologists are not infrequently placed at their wits' end in naming their specimens. Just as a disease may present its symptoms in either the classical or in an obscure way, so too, may the microscopic pathology be difficult of laboratory recognition or interpretation. Taking tubercle and gumma as examples, the pathologist, unless he knew the details of the case from which the specimen had been secured, might be embarrassed if asked to classify the pathology direct from his microscope.

This may serve to bring to mind a statement that has often been made, yet one which will bear many repetitions, i. e., "no single means is capable of giving us a diagnosis!" We must exhaust every bit of evidence before even so much as hinting at a diagnosis, and in dealing with neoplasms, malignancy should not be considered present till after syphilis has been excluded by either a reliable Wassermann or the usual therapeutic test. Since a considerable percentage of malignant tumors will react positively to a Wassermann, it may be argued that one could be misled. While this is true, no confusion is necessary if one but remembers that the blood taken from a person suffering from a malignant growth reacts only faintly or doubtfully positive to a Wassermann, while in syphilitic neoplasms, the reaction is always strongly positive.

Another observation we have made, and one which we believe worthy of further confirmation, was the absence or the very late appearance of the usual secondary manifestations; for in those cases of ours where the disease actually imitated a different pathological condition, such as a neoplasm, it did seem that such growth occurred with all the classical symptoms. To me it suggested the notion that every single *Spirochæta pallida* that had found entrance through the initial lesion, had, in some unknown way, been influenced to migrate directly to one common harbor, there, by the irritation of their presence, to precipitate an infiltration that later took on the character of a malignant growth. In

two of the four cases, the familiar signs of secondary syphilis failed to put in an appearance till after the pseudoneoplasm had disappeared under regular medical treatment. One of the four patients refused treatment, and while his Wassermann was very strongly positive, he has remained well and free from all secondaries since the removal of his tumor nearly two years ago.

If I may be permitted to digress for a moment to make clear a thought I have in mind, I will speak briefly of the bacteriology and pathology of leprosy, with which I was made familiar during my two years in the Hawaiian Islands. This disease, as we all know, gives a positive Wassermann reaction, and to this extent, at least, resembles syphilis. It is observed in three distinct clinical varieties, nodular or tubercular leprosy, nerve, and mixed leprosy. The *lepra bacillus*, morphologically, bears a close relation to the bacillus of tubercle, but when it reaches the periphery, it seems to manifest its presence in one of two distinct ways. It may decide to remain in the periphery, and if it does, its prolonged stay irritates the surrounding tissues and a nodule or tubercle results. On the other hand, it may prefer to ascend the sheath of a sensory nerve fibre, in which case there will be nerve leprosy, and then instead of a nodule being formed, an anesthetic spot, corresponding to the area supplied by the involved nerve, will appear. When it divides its forces, some remaining in the periphery and others ascending the sensory nerve sheaths, the so called mixed leprosy will result. Why? Why two distinct behaviors by the same organism? The answer, for the present, need not concern us, but the thought I have regarding the variations of syphilis would suggest the possibility of *Spirochæta pallida*, having a somewhat similar character; at times ascending the sheaths of motor nerves, later to reach the motor tract of the cord, and finally announce its presence by the first signs of a *tabes dorsalis*. This really requires no stretch of the imagination. Returning to the consideration of those syphilitic neoplasms that have assumed the guise of malignant growths, are we not justified in believing that such growths are due to some peculiar inclination of the involved tissue to attract every spirochete that had been admitted through the primary sore? I advance this theory as a means of explaining the delay, previously mentioned, in the appearance of the usual symptoms of the second stage of the disease.

CASE I. Miss F., aged thirty-eight years, bookkeeper. Family and early history unimportant. This lady came to me, June, 1908, because of a growth in the left orbit. Three months prior to this she arose one morning with a dull pain "somewhere" back of the left eye, and while this pain did not become more severe, it remained constant for a period of about three weeks. It was then noticed that the eye was actually protruding; this brought her to an oculist who, very wisely, instituted a policy of watchful waiting. No sooner had the eye begun to protrude than the pain ceased, nor did it recur throughout the course of the ensuing events.

Aside from this the patient looked and felt very well, but her anxiety grew more and more keen as she noticed the gradual coming out of her eye and the final inability to close it. There were then periods of diplopia and vertigo, but no pain. Believing a collection of "some" fluid or other within the orbit was causing the mischief, a small trocar was carefully introduced into this cavity, but without results. A week passed and the outer angle of the

orbit was seen to swell, and the overlying skin took on a glazed, reddened, and adherent appearance.

Orbital sarcoma was suggested by the oculist and the patient was requested to consult a surgeon. In picking up her clinical history, we learned of the possibility of her having been infected with lues. She had been divorced on account of her husband's infidelity. There also was a history of a "pimple" that she herself, at the time, feared to be some sign of venereal disease, but as time passed and it disappeared, she thought less of it and finally dismissed it from her mind as of no consequence. This was a little more than a year before the trouble of the eye was noticed.

No enlargement of the epitrochlear, inguinal, or post-cervical glands could be made out, nor was there any abrasion of the mouth or pharynx suggestive of such an infection. No Wassermann was procured, however. Mercurial and iodide treatment was carefully begun and cautiously increased till her dose of tolerance was safely established; within three months the eye was enjoying its former relations with its fellow. Now comes the astonishing phenomenon of the case. No sooner had the eye with its accompaniments resumed normal relations and appearance, than mucous patches, typically syphilitic, were visible on the soft palate, and the glands showed a decided enlargement. In time every lesion cleared, but that the pathology of syphilis can be most freaky, I believe was evidenced here. Another point emphasizing its freakishness was that it had failed to attack the orbit in the way described by oculists, and those who specialize in diseases of the eye may be surprised that more pain was not complained of, because all the authorities on diseases of the eye consulted at the time described syphilis of the orbit as a condition associated with violent frontal headache, more severe at night together with marked loss of motion of the eyeball in one or more directions. That loss of motion occurred in this case would seem evident from the periodical attacks of diplopia, and had we have had more experience in such cases, this sign alone might have aided us in the making of an earlier diagnosis, because later we learned of this sign being considered nearly pathognomonic. To quote briefly from no less an authority than Swanzy, "The loss of motion is a very characteristic symptom, and serves to assist in the diagnosis between this affection (syphilis) and other orbital tumors."

CASE II. L. C., aged forty-three years; early and family history of no importance. This patient was examined by several surgeons, all agreeing on a diagnosis of cancer of the uterus and the cervix. Not till I, myself, had rendered the same diagnosis did I learn of the many who had examined her with the same conclusion. I pronounced it an inoperable carcinoma, and was informed that this opinion had been but recently given by a prominent eastern surgeon.

The cervix was eroded and much enlarged, with an infiltration that extended well into the vault of the vagina. Coupled with this there was a seropurulent discharge, from which the offensive odor noted in carcinomata was detected. Her environment was of the best morally, and that the possibility of her trouble being syphilitic was not included, reflects no discredit, because clinically it could not have been more cancerous looking if it had been really that disease. Hope vanishing with the eastern surgeon's opinion, she then embraced a religion (?) that denies and treats disease at the same time. From this source she was repeatedly assured that all was well. In time the uterus broke down and hemorrhage soon increased to an alarming degree. She was rapidly weakened, unable to rise from her pillow, and in spite of all treatment, present or absent, she continued her downward course till death seemed imminent. The anemia produced an appearance not unlike a cachexia, and her husband, a gentleman of culture and intelligence, believed his wife's death to be inevitable.

Bedridden for eleven weeks, emaciated and suffering the additional agony of bed sores, was how I found her one year after I had first seen and examined her. This time I was called to relieve, if possible, "fever sores" that had appeared within the mouth, from which she experienced much discomfort while attempting to take nourishment. Need I tell you of my surprise in finding the sore mouth due to the presence of typical syphilitic mucous patches? Need I tell you of my humiliation when the truth of the whole affair was forced upon me? A year of useless suffering and misery just because sentiment had been given

a place with science, and the possibility of such an infection ignored!

A slough expelled per vaginam was examined by Professor E. Pernot, and found nonmalignant. A Wassermann was made by the same gentleman and reported as very strongly positive. With this evidence we had no trouble in going back and picking up the history of the initial lesion, which had occurred two years prior to the discovery of the neoplasm. Proper treatment, carefully applied, has restored this woman to perfect health, and much as I would like to deny it, in that particular neighborhood I am regarded as a regular wizard in the treatment of inoperable cancer.

CASE III. L. C. H., aged forty-two years, farmer. I saw this case in December, 1912, with Dr. J. W. Sifton, of Portland. Two years before our examination, while the man was lying on his back under a shade tree, his three year old boy, with whom at the time he was playing, jumped on his abdomen. The impact knocked the wind out of him and for several minutes he was unable to gain his feet. To this he attributed the cause of his trouble, notwithstanding the fact that nothing was noticed till six months had passed since the episode just mentioned. He first detected a "lump" in the right upper abdomen, which grew slowly but steadily downward, outward, and forward, until the entire right half of the abdominal cavity was completely filled. Pain at no time was present, but he came to us seeking relief from the distressing symptoms of obstruction. December 12th, he entered Good Samaritan Hospital and was operated upon the following morning.

An incision the length of the abdomen just to the right of the right rectus muscle, was necessary in order to deal successfully with the condition. As a prolongation of the right lobe of the liver itself, down to the pelvis, we exposed a hard, rubberlike growth, of light purplish color and adherent to both anterior and posterior parietal peritoneum, ascending colon, duodenum, gallbladder, and occasional coils of small intestine of which the greater portion had been forced into the left lateral cavity. With no great difficulty, the adhesions were freed and the mass was lifted from its bed. A distinct line of demarcation enabled us to separate it from the normal tissue of the liver by cleavage with the gloved finger.

Recovery was rapid and ultimately complete, but the curious report received from the three different pathologists who examined specimens of the growth was puzzling, to say the least. Here was a patient free from a sign of cachexia or anemia, and from whose abdomen a six pound tumor had been removed; the laboratory report was carcinoma. A second and a third pathologist was tried, and while the three worked independently of each other, their reports were the same—carcinoma.

The patient's condition forbade the acceptance of such a diagnosis, and we rested our conclusion on an error of the microscope. A fourth specimen was then sent to a prominent pathologist of Baltimore and in due time came the report of "This specimen having been taken from the liver, we believe it to be syphilitic, although it is not unlike a malignant infiltration, etc."

Meantime, the patient having been rid of his obstruction, was eating and digesting a liberal diet; that he was gaining in every way was evident. With the last laboratory report, we asked Professor E. Pernot to make a Wassermann. "Very strongly positive" was his report. We told the patient the result of the Wassermann, but he flatly refused all treatment in this direction, declaring it not possible for him to have received any such an infection. While at no time had we suspected cancer, the

point of interest lies in the reports of the pathologists, clearly showing how very deceptive syphilis can be in imitating the microscopic pathology of a malignant tumor. The numerous bile ducts within the liver substance having an epithelial lining, could, when the cells have been destroyed and more or less connective tissue has replaced them, then resemble an epithelial infiltration into a connective tissue stroma.

This brings us down to our fourth and last case, without doubt the most interesting of all. As this was a syphilitic neoplasm of the stomach, but diagnosed before and at operation as cancer, I wish to emphasize the rarity of gastric syphilis by quoting briefly from so eminent an authority as I. Boas, of Berlin: "Syphilitic affections of the stomach are exceedingly rare. Chiari found among 243 autopsies of syphilitics only two cases of gastric syphilis. Stolper also found among eighty-six autopsies of syphilitics only one case of lues of the stomach. E. Fränkel also emphasizes the rare occurrence of syphilitic ulcers in the stomach and intestine." (*Diseases of the Stomach*, page 608.)

CASE IV. Mrs. H., aged thirty-six years, up to two years before coming to us had always been well. At that time she began to experience attacks of what she called "sour stomach." Baking soda, for a long time, relieved them. At the beginning, the attacks were of infrequent occurrence but toward the end of the first year, they grew more and more frequent as well as painful.

She then consulted a physician who, it seems, treated her intelligently by diet, lavage, and such measures as usually afford relief in such conditions and for a time she did improve and remain quite herself. At the end of the first eight months of the second year, the attacks recurred with greater violence. Vomiting ensued and became persistent, and within three months she had lost so much weight and acquired what appeared to be a true cachexia, that gastric cancer was believed to be the trouble. In the meantime, her bowels, formerly regular, became obstipated. She went for days without motion, and then succeeded only after catharsis or enema. No free acid was present in the stomach, nor was blood or hematin found in the stomach or stool. That a pyloric obstruction was present and that it was malignant, seemed evident.

With such a line of symptoms, it did seem that my duty was clearly pointed out; give the stomach drainage by a gastroenterostomy. May 29th of this year patient entered the Good Samaritan Hospital, and was operated on the following morning.

Exposing the stomach, it was found involved in a most extensive neoplasm including the lower two thirds, if not more, of this viscus. Except for its size and extent, it resembled in every way a typical cancer. It was an angry looking growth, purplish red, with a zone of inflammation and induration which had spread well into the gastrohepatic and gastrocolic omentums. The superior and inferior gastric lymph nodes were markedly enlarged and were of the same color as the growth itself. Had this neoplasm been smaller, we surely should have felt justified in performing a partial gastrectomy, but with such evidence of being too extensive for complete removal, we contented ourselves with a high gastrojejunostomy.

My distinguished colleague, Dr. A. E. Rockey, was kind enough to see her with me two days after the operation. While her condition was not good, it was better than one would reasonably expect with a carcinoma of such wide dimensions. From this he reasoned, and correctly too, that the growth was not carcinoma, and, to rule out syphilis, advised that a Wassermann be made. A very strong-

ly positive reaction was obtained, and June 5th she was given 0.6 gram salvarsan intravenously. Improvement was marvelous. In a surprisingly short time her color improved, and before we could realize it, her stomach was easily handling a liberal diet. Mercury by inunction was given at suitable intervals and she progressed favorably, leaving the hospital June 20th, and going home. The morning of the same day, she received 0.3 gram salvarsan intravenously, and improvement continued till June 26th, when a slight jaundice was evident.

The night of the 29th, she awoke with a severe pain in the region of the liver, morphine being necessary to relieve her. The following day, the jaundice was pronounced, and the pain of the night before, increasing in severity, led to the discovery of what proved to be an abscess of the liver periphery. She was immediately returned to the hospital and opened up for the relief of the abscess. The inferior border of the right lobe was involved in a large collection of chocolate colored fluid, which had actually dissected the capsule from the entire inner half of the right lobe's inferior surface.

Before dealing with the difficulty of the liver, we turned our attention to the stomach. Not a sign of the neoplasm remained. The superior and inferior gastric lymph nodes, however, had remained unchanged. But that such an extensive growth or infiltration could vanish in so short a time as one month, seemed marvelous. While this operation was performed in the presence of a marked jaundice, no trouble from hemorrhage was experienced, proving again, according to experiments reported by the writer (*International Journal of Surgery*, August, 1912, page 243), that the pancreas was not obstructed. While the pain was relieved, the jaundice persisted, and in spite of nourishment well borne, tabes progressed till death occurred on August 10th.

No post mortem examination was secured, but it was our opinion that death was caused by either one of two sequelæ, acute yellow atrophy from the syphilis, or a so called icterus gravis from arsenical poisoning induced by the free use of the salvarsan, and to the latter view is the author inclined.

203, 204 MEDICAL BUILDING.

WOUNDS OF ARTERIES.

Incomplete Division, the Cause of Repeated Hemorrhages, and the Formation of False Aneurysm.

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Two similar cases, with really serious loss of blood following otherwise insignificant injuries, have recently come under my operative care on the surgical service of Dr. S. M. Milliken, at Lincoln Hospital. In each instance, several weeks (respectively three and six) had elapsed from the date of injury before the case came to operation, the pathological condition was demonstrated, and cure effected.

In Case I the anterior tibial artery, and in Case II

the radial artery had been nicked but not severed by the incised wound. Temporary hemostasis, at the time of injury, had been secured by ligatures placed at random in the bottom of the small wound, by suture of the skin wound, and by pressure bandages; a method commonly employed and usually efficacious in the treatment of such injuries. The occurrence of repeated secondary hemorrhages in these cases, however, indicates plainly the necessity for visual exposure of the vessel and its careful ligation.

In the event of complete division of an artery of the size of the radial or anterior tibial, the retraction of the cut ends, with the assistance of pressure bandages alone, might well suffice to cause complete obliteration of the vessel; but in the case of only partial division, the nick in the vessel wall becomes at once converted into a circular or oval opening by retraction of the edges; at the same time the lumen of the artery is maintained by the intact portion of the circumference. In partial division, the primary bleeding continues until controlled by ligature or pressure, or, as in my cases, merely temporary arrest of hemorrhage is attained by suture or ligature of overlying soft parts, but later on, troublesome oozing occurs, or a false aneurysmal sac develops in proximity to the healing skin wound, through which the sac may rupture with resultant repeated secondary hemorrhages, occurring at any time until the wound is firmly healed.

CASE I. Louis Z., aged seven years, admitted to Lincoln Hospital, June 20, 1914, with lateral wound of the left anterior tibial artery; this was followed by persistent oozing and four severe secondary hemorrhages in the period of three weeks after the accident.

On June 5th (fifteen days before admission) the boy fell and cut his left leg on some broken glass, sustaining a transverse incised and slightly lacerated wound, two inches in length, on the anterior aspect of the leg, about two inches above the ankle. There was profuse hemorrhage, which the physician in attendance was able to control by deep sutures and compression bandage. Two days later, a brisk hemorrhage occurred, but was again controlled by bandaging. A second hemorrhage took place a few days later, and the physician opened up the wound, applied some deep ligatures, and packed the wound, despite which, considerable oozing continued and the boy became markedly anemic. The third hemorrhage occurred two weeks after the injury but stopped with tight bandaging; however the boy was then brought to the hospital.

On admission to the hospital, the lad was terribly anemic, with a red cell count of 2,250,000 and hemoglobin twenty-five per cent. (Sahli). Absolutely no further bleeding occurred for a whole week, and under medical treatment he lost some of his extreme pallor and the wound was nearly healed by granulation. On June 27th (twenty-two days after his accident), a fourth hemorrhage began during the night and continued for some hours, despite pressure bandaging. Red blood cells were now 2,100,000 and hemoglobin twenty-five per cent. (Sahli).

The boy was at once taken to the operating room, and under nitrous oxide anesthesia, I exposed the anterior tibial artery by a longitudinal incision crossing the granulating skin wound. Inspection revealed a perfectly smooth, oval opening in the outer wall of the artery which was, itself, patent throughout its extent. A false aneurysmal sac was found deep in the wound, hollowed out of the adjacent tissues and granulations, and lined with fibrin.

The artery was ligated both above and below the opening and the skin wound loosely sutured. Healing was rapid and the convalescence uneventful.

CASE II. Charles H., aged thirty years, admitted to Lincoln Hospital, July 30, 1914, with a lateral wound of

the left radial artery; four secondary hemorrhages occurred during the seven weeks following the accident.

On June 12th (seven weeks before admission) the patient accidentally cut himself with a butcher's knife, inflicting a one and one half inch, oblique wound over the radial aspect of the left wrist. This wound was, shortly afterward, dressed by a member of the house staff in the emergency room of the hospital, and the profuse hemorrhage was staunched by clamping the tissues deep in the wound and applying a ligature, and by suture of the wound. Subsequent superficial suppuration delayed healing. The man returned to his home, but continued to carry his left arm in a sling. On July 3d, three weeks after receipt of the injury and without known trauma, there occurred the first of the secondary hemorrhages, which was very free until controlled by compression bandages, applied by the family physician. Again on the twenty-fourth and twenty-sixth days there were moderate hemorrhages which were similarly dealt with. After another free period of three weeks, during which time there was absolutely no bleeding, the wound was apparently closed by granulation, but there was now visible a small pulsating tumor in the wound, of about the size of a cherry pit. On July 30th (seven weeks after the accident) the fourth secondary hemorrhage occurred and the man was brought at once to the hospital and operated upon, under general anesthesia.

The radial artery was exposed for a distance of two inches and, after double ligature, I excised one and a quarter inch of the artery, together with the sac of the tiny, false aneurysm. The wound was closed by suture, and recovery was uneventful, save for the time required for the anemia to disappear.

Section of the artery showed a smooth, oval aperture in its wall, communicating with the small, but well defined aneurysmal sac. The sac had given way at one point and thus caused the hemorrhages through the granulating wound. The artery was perfectly patent.

CONCLUSIONS.

1. The partial division or "nicking" of a medium sized artery is more liable to give rise to secondary hemorrhage than is its complete division.

2. Successful temporary hemostasis may be attained by ligatures applied at random in the depths of the wound and by closure of the wound; but if the lumen of the artery is not obliterated, even after three weeks of absolute hemostasis (Case II), severe secondary hemorrhage may occur.

3. In these two cases, the pulse could be felt distal to the site of injury, and during the secondary hemorrhages there was no spurting character to the flow, owing to the very indirect channel from the artery to the skin; hence the arterial origin of the bleeding was not suspected by the physicians first in attendance.

4. Hemostasis in all cases of profuse bleeding from wounds in the vicinity of arteries should be accomplished by ligatures accurately placed under direct inspection by the operator, and whenever necessary the wound must be sufficiently enlarged.

115 EAST EIGHTIETH STREET.

A Simple Procedure for the Painless Injection of Vaccines.—W. Forbes Robertson, in the *Prescriber* for September, 1914, states that ethyl chloride is of greater service than any other anesthetic in the hypodermic injection of vaccines. The skin should not be actually frozen, or pain will be occasioned. It is sufficient to direct the spray over the site of the proposed injection for about ten seconds.

INDUSTRIAL SANITARY STANDARDS.*

By G. M. PRICE, M. D.,

New York,

Director, Joint Board of Sanitary Control, National Council for Industrial Safety.

By industrial sanitary standards are meant such measures, rules, or criteria as are applied to conditions in industrial establishments affecting the health of the workers.

The need of establishing definite industrial sanitary standards, the importance of uniformity in the application of the rules of industrial hygiene, and the evil results of the absence of proper standards and of a lack of uniformity of sanitary rules need no further demonstration. All who have studied the subject are full well aware of the anarchical conditions existing in modern factory legislation, of the contradictory provisions as to sanitary conditions found in the statute books of States and municipalities, of the lack of definiteness and order in the rules, regulations, and precepts in relation to safety and sanitation in factories.

Labor laws and industrial codes are full of general, vague, and indefinite orders to provide adequate exits, suitable ventilation, proper light, sufficient toilet accommodations, etc., leaving the factory owner to guess the meanings of these terms, granting labor commissioners undue discretionary powers in the interpretation of the laws and making enforcement impossible for the factory inspectors.

The fault of the absence of industrial sanitary standards lies with industry itself and with those responsible for its conduct. Too long has the human factor in industry been totally ignored, too long have the captains of industry failed to see the correlation of industrial justice with industrial efficiency, too long have they in their impetuous hunts for profits forgotten to take care of the goose that lays for them the golden eggs.

Hitherto factory legislation has come as the result of compulsion. Safety and sanitation in factories had to be choked down the throats of reluctant manufacturers by ignorant, politically biased, and indifferent legislators, and the gains in protective sanitary measures were made by deals and dickers, through threats and compromises.

The results speak for themselves. What are the remedies?

1. The recognition by industry of the fundamental principles of industrial efficiency and industrial justice and their correlation and interdependence.

2. The recognition by industry of the duty of self control.

3. The recognition by industry of the rights of the workers and of the general public in industrial control.

4. The recognition by industry that democracy and representative government should be the basis of industrial as well as political government.

There is no reason why we should look to legislatures for the establishment of industrial sanitary standards, or why these sanitary standards should not be established by the industry for the industry. Who more competent to legislate for industry than

*Delivered at the conference of the National Council for Industrial Safety, Chicago.

those directly engaged therein? Who more able to enforce sanitary standards than those working in the industrial establishments?

These principles are not new. They have been successfully applied to industrial conditions abroad as well as here. For nearly thirty years industrial Germany has been guided, not by legislative ex cathedra decrees, but by standards adopted by the sixty-six powerful trade associations of Germany which, after thorough and comprehensive study and survey of the field, have, in cooperation with the government, established definite and uniform standards of safety and sanitation applicable for every industry—standards promulgated after due deliberation and enforced even by their own agents and by the appointees of these trade associations.

Within the last few years, the three most important textile trade branches of England have, after due conference and study and cooperation of the manufacturers, the workers, and the representatives of organized labor and the factory inspectors, issued special rules and regulations destined to become the standard of safety and sanitation for those branches of industry.

For the last four years, two of the largest industries in New York city, embracing 2,500 manufacturers and 85,000 organized workers, have in their Joint Board of Sanitary Control established their own sanitary standards and with marked success enforced these standards by their own agency.

The Industrial Commission of Wisconsin has taken the lead in this country to free factory legislation from political shackles, and by judicious cooperation with enlightened employers and progressive workmen, succeeded in establishing safety and sanitation standards which are achievements in industrial hygiene and are followed, though feebly, by the several industrial boards in other States. Finally, this great movement which has crystallized itself in the National Council for Industrial Safety, marks another significant step to industrial self control and clearly shows the tendency of the age.

The days of political autocracy have, in this country at least, gone long ago. The days of industrial autocracy are also slowly, though surely, passing. The solution of the problem of establishment of industrial sanitary standards, the solution of the labor law enforcement, ay, the solution of the labor problem itself, lie in industrial self control and industrial democracy.

31 UNION SQUARE.

TUBERCULOSIS OF THE TONGUE.

BY JOSEPH WEINSTEIN, M. D.,
New York.

That tuberculosis of the mucous membrane about the glottis, recognized as such, is of rare occurrence is evidenced by the comparatively few cases which have been reported in medical literature. Considering the fact that such a large proportion of our population is suffering with pulmonary tuberculosis, and sputum teeming with tubercle bacilli passes more or less steadily over the mucous membrane, the infrequency of this condition is remarkable. Nature, in providing the thick epithelial covering

for the tongue, has apparently safeguarded the organ against inoculation by this virus. The majority of cases reported are those in which the infection was of secondary origin; those of primary origin being very rare indeed.

Tuberculosis of the tongue as a definite pathological condition was not recognized until the early part of the last century. Morgagni reported a case in 1761, but it is doubtful from his description of the case whether his diagnosis would stand modern tests. Portal, however, reported an apparently unmistakable case in 1804. This is probably the first authentic case of tuberculosis of the tongue on record. Louis, in 1825, Renaud, in 1831, Fleming, in 1850, Gildmeister, in 1852, and Paget, in 1858, described cases. In 1862, Wagner reported a case and Virchow reported an observation upon the cadaver in 1864.

Cases have been reported more frequently during recent years and, in 1872, Enteneur described the first primary case. In this case the growth was at first mistaken for carcinoma. Fairlie reported a case in 1876, in which an autopsy showed a normal condition of the lungs. In 1876, Nedopil reported four cases of primary origin. J. W. Gleitzman cites an interesting case of primary origin in 1888. In this case a permanent cure was apparently attained.

Anatomical findings have also tended to show the rarity of this condition. Willegk found only two cases in 1,317 autopsies upon tuberculous subjects; Fisher, six in 1,500; and Chiari, twelve in 625.

All writers are of the opinion that diagnosis is extremely difficult. In a recent paper by W. B. Trimble in which two cases of primary infection are recorded, the author reaches the following conclusions: 1. Diagnosis is extremely difficult. 2. It is almost impossible to demonstrate the bacilli in the ulcer. 3. Although lues and cancer furnish the majority of ulcerations of the tongue and mouth, they are by no means the only causes. 4. In any case of tongue ulceration, tuberculosis must be reckoned with as a factor. 5. The histopathological examination alone is practically useless as a means of diagnosis between syphilis and tuberculosis, but it is a great aid in excluding cancer.

After the foregoing brief summary, the writer believes that the following report of a case which came under his observation and treatment recently, will be of interest to the profession at large, particularly as it presents some special features.

CASE. The patient, a Swede, aged fifty-five years, longshoreman by occupation, came to the writer in December, 1913, for treatment. A detailed history of his antecedents revealed nothing of interest relating to his present trouble. His own past history showed nothing further than a cough, appearing sporadically from early childhood, and a slight degree of hoarseness which appeared first five years ago and lasted for a few weeks during the spring, returning again at the same time the succeeding year. This was never severe enough to cause him to seek medical advice.

In December, 1912, the patient noticed what he described as a little blister at the tip of the tongue, which remained there for about five weeks, giving little annoyance and no pain. After apparently healing, it reappeared two weeks later, showing the same characteristics as during its first appearance. Up to August, 1913, according to the patient, these blisters continued to appear and disappear, remaining each time for about a week, and each time showing an increase in size, and causing more and more annoyance.

Since its last appearance in August, 1913, the blister had remained permanently upon the patient's tongue. It may be interesting to note that in April, 1913, without any premonition, the patient had a moderate pulmonary hemorrhage.

A physical examination in December, upon the patient's first presentation of himself for treatment, showed a barrel chest with left shoulder drooping, and depression in left supraclavicular and infraclavicular fossæ; dullness on the left side down to the third rib; dull with a tympanitic overnote anteriorly, down to the second rib on the right side. There was no motion at base on either side of chest.

The breathing on both sides, anteriorly and posteriorly down to the third rib, was bronchial with the exception of that in the right supraspinous fossa, where it was cavernous. There were subcrepitant rales in the right upper lobe and at base on both sides. The following diagnosis was made: Fibroid phthisis; old lesion in left upper lobe partly cicatrized; new active lesion in right upper lobe.

Examination of the tongue showed an ugly looking ulcer, about two cm. in diameter, pale, and covered with a mucopurulent discharge. This was surrounded by an indurated margin overlapping the excavation. At first sight, the lesion gave the impression of either a malignant or primary tuberculous ulcer.

The patient at this time complained of almost constant pains in the chest and abdomen, and of pronounced pain in the ulcer on the tongue. Difficulty was experienced in swallowing to the extent that the patient was on a fluid diet.

Subsequent bacteriological examinations showed a negative Wassermann and very many tubercle bacilli (ten to fifteen in each field) present in the sputum. A uranalysis showed a large number of leucocytes and many mucous threads. There was also a marked trace of albumin. An examination of the blood also revealed a large percentage of leucocytes (polymorphonuclear).

An x ray picture showed both lungs markedly infiltrated in scattered areas, and some infiltration of the larynx. The sinuses were clear.

The patient continued to come to the writer at intervals during the next three months, when he acquired a pulmonary edema and died. Up to two or three days before his death, he was able to be about and was apparently no weaker than for some time previous. Treatment of any kind seemed futile, and apart from mouth washes for the temporary comfort of the patient, none was employed.

Whether the infection was of primary or secondary origin, the writer is not able to state. Except for a cough present from early childhood, already noted in the patient's history, there was no history of a pulmonary tuberculosis of long standing, and the ulcer seems first to have attracted the patient's attention. That a pulmonary tuberculosis did exist without the patient having been aware of it, however, is very possible and probable, the ulcer on the tongue appearing as a subsequent feature.

The character of the inception of the ulcer, its appearance and disappearance during the early stages, and subsequent development, are of sufficient interest, the writer believes, to warrant this paper, and it is submitted in the hope that it may be an incentive to the most careful examination and study of all abnormal conditions of the tongue, even of the most seemingly trivial character.

261 CENTRAL PARK WEST.

Vaccine Treatment of Typhoid Fever.—E. H. Goodman (*International Clinics*, iii, 24, 1914) deduces from the vaccine treatment of eighteen cases of typhoid fever that the basis is sound. If it is to be of practical use, however, early diagnosis is important. The initial dose should be 250 million bacteria; this should be increased to 400 million on the fourth day, and by 100 million every fourth day thereafter.

Abstracts and Reviews.

THE EXCRETION OF ACID IN HEALTH AND DISEASE.*

BY PROFESSOR L. J. HENDERSON,
Harvard University.

The problem of organic regulation, including, as it does, the preservation and development of forms, restitution of structures, and the maintenance of all bodily equilibrium, has proved a most difficult task. Probably the most convenient definition of the nature of regulation is that given by Driesch as, "any occurrence or group of occurrences in a living organism which takes place after any disturbance of its organization or normal functional state, and which leads to a reappearance of this organization or this state, or at least to a certain approach thereto." In a more analytical sense regulatory metabolism is seen to be made up of four types of activity, namely, restitution, both endogenous and exogenous; storing up; physicochemical regulation; and excretion. Our present discussion will be concerned with a single phase of the whole subject of regulation—that of the regulation of the neutrality of the body, and its final phase, the excretion of acid.

This phenomenon of regulation of body neutrality is a very general one, which is closely related to many physiological processes, and is at the same time the most exact of all regulations. Its first phase, that of restitution of used up acid and basic substances, is a simple one. Exogenous restitution is taken care of through the large amounts of fixed acid and basic substances in the food, and is largely a matter of chance, although it is to a certain extent under control, as is evidenced by the familiar administration of soda in acidosis. Endogenous restitution, on the other hand, involves the requisite and normally unvarying production of carbonic, phosphoric, sulphuric, and other acids, and the variable production of ammonia.

A far less well understood problem is that of the hoarding of alkali, but long experience in this line of work has led me to the conviction that there do exist reserves of alkali in substantial amounts, and not infrequently available for mobilization. It is certain, at any rate, that the normal equilibrium between acids and bases in the aqueous fluids of the body is so elastic as in effect to constitute a great alkali reservoir which is always immediately and perfectly available. Spiro and I have explained, that in the case of the blood, the red cells virtually constitute an alkaline reservoir in relation to the plasma. They take up acid, in the form of carbonic acid, from the fluid and return acid to it as the gas escapes from the lungs. Similar processes are doubtless always involved also wherever cells are bathed by fluids. These phenomena are specially concerned with the union of protein material with alkali. All organic structures, therefore, are characterized by a special manner of storing alkali, which depends on the nature of protoplasm itself. This stored alkali does not seem to become available through the mechanism of physiological processes

*Summary of a lecture delivered before the Harvey Society at the Academy of Medicine, New York, December 12, 1914.

of regulation, but solely and automatically by virtue of disturbance of the physicochemical equilibrium. This automatic regulation is utilized by the organism by means of the processes of restitution and excretion, and can be influenced solely by changes in the concentrations of the substances involved, or by alterations in temperature. The processes, however, in no way control the equilibrium, even if they do utilize it.

The work of neutralization is chiefly accomplished through the salts of phosphoric and carbonic acids, and to a less extent by amphoteric proteins. It is a remarkable fact that among all known substances phosphates and carbonates have the greatest power of preserving neutrality in solution, and it is through their powers that the alkalinity of the body is preserved with such remarkable uniformity, even in the face of heavy strains upon the mechanism. . . .¹

The preservation of neutrality in solution by the phosphates and carbonates occurs only where their salts are accompanied by a slight excess of the acid in the same solution. The hydrogen ion concentration in the blood varies, but the equilibrium is such that the variation is extremely small compared with the range of variation in hydrogen ion concentrations encountered outside of the body. It is probable that during life this very narrow range of variation cannot be much exceeded, and even to produce slight alterations in the hydrogen ion concentration within the limits of variation there must be very great changes in the relative amounts of acid and base. Even in the extreme acidosis of diabetic coma almost the sole discoverable chemical alteration is a marked diminution in the bicarbonates of the blood. The fact that this reduction in the bicarbonates is the chief chemical effect of acidosis makes clear the desirability of the administration of sodium bicarbonate in a variety of conditions. The ill effects of acidosis, however, are referable to an interference with the transport of carbonic acid and its excretion, and the equilibrium is closely bound up with many physiological phenomena, among which that of respiration is one of the most important.

The profound influence of hydrogen and hydroxyl ions upon enzymatic processes, and upon colloids in general has been established, and it is becoming clear that all the physicochemical conditions in protoplasm—alkalinity, osmotic pressure, colloidal swelling, etc.—are interdependent, and that carbonic acid and the acid-base equilibrium are among all these quantitatively the most important variables. These conclusions rest upon one of the immutable properties of matter. Phosphoric and carbonic acids in solution everywhere possess this characteristic, independent of the presence of everything else, just as they everywhere possess their characteristic chemical composition.

Although this physicochemical preservation of bodily neutrality is both very delicate and efficient, it depends, nevertheless, for its continuance upon excretion, which ultimately involves the removal of acid only. There are three factors in acid excre-

tion; that of the removal of large quantities of carbonic acid, which is under very accurate control; that of ammonia excretion, which is little subject to control; and the excretion of acid in the urine, which is the result of a carefully adjusted balance of basic and acid substances in solution.

Although carbonic acid is the chief excretory product of the body and has a very important role in the regulation of the reactions of the body, it is not involved in the final regulation by excretion. This is largely due to the fact that it is removed from the human body in the form of the gas—carbon dioxide—which carries with it no basic substance. That it plays an important part in the regulation of the equilibrium is seen by the following illustration: An excess production of acids would reduce the bicarbonates and simultaneously increase the free carbonic acid, thus greatly changing the bicarbonate-carbonic acid ratio and the hydrogen ion concentration, being proportionate to this ratio, would undergo a similar increase. But the known tendency of the respiratory process to maintain a nearly constant carbon dioxide tension in the blood, would lead to the excretion of the excess of this substance, and in addition, there is the tendency for acidosis to lower the carbon dioxide tension. So that, taking these several factors together, the ratio between bicarbonate and free carbonic acid would be preserved at about the normal point and the blood would remain neutral. The logical deduction from this would seem to point to the hydrogen ion as the respiratory hormone rather than the carbon dioxide.

The regulatory factor of ammonia production in these phenomena relates chiefly to endogenous restitution rather than to acid excretion, and the control seems to reside in the tissues. No permanent effect upon the composition of the body is produced by this factor of regulation.

The last of the three factors—that of urinary acidity—is the one by which the physicochemical equilibrium of neutrality is permanently maintained, and this depends almost solely upon phosphoric acid. Variation in the hydrogen ion concentration of the urine leads to a variation in the amount of alkali which is carried out of the body by a given amount of phosphoric acid. This may vary from less than one to almost two molecules of base for each molecule of the acid. The acid excretion by the urine can be measured by adding to the urine enough alkali to bring it to the same reaction as the blood. Three factors modify and determine this acid excretion; first the hydrogen ion concentration of the urine; second, the concentration of total phosphoric acid; and finally the volume. The hormone of this process has not been discovered, but, as in the case of respiratory regulation, there seems reason to believe that it is the hydrogen ion concentration.

The two significant variable factors, therefore, which reverse the tendency of the body to become acid are the varying production of ammonia and the varying excretion of acid through the kidneys. These factors may be measured by determining the urinary ammonia and the hydrogen ion concentration, and by titration of the urine back to the reaction of the blood.

Palmer and I have studied these two factors in normal and diseased conditions and have found that

¹At this point a more or less technical discussion of certain phases of ionization, and of the relations between the hydrogen and hydroxyl ion concentrations under different conditions was given, and the remarkable power of the acid and basic phosphates to preserve neutrality in solution was demonstrated.

in cardiorenal disease and nephritis, the hydrogen ion concentration, or mean acidity of the urine, is very high, being as much as five times the normal. We have found that in health there is no constant relation between acid excretion and ammonia, but that in disease the relation is fairly constant within certain limits and constitutes an index to the condition. We have been able to divide our cases of nephritis into two groups. The first excrete large amounts of urine of abnormally high acidity and have a low total acid output, which indicates an acidosis of renal origin. The second group excrete about normal amounts of urine of high acidity, and have a low or normal total acid excretion. The first class of cases constitutes a well defined type, the second probably comprises several different types of disturbance of renal function.

Therapeutic Notes.

Celluloid Splints in the Treatment of Acute Poliomyelitis.—F. E. Batten, in the *Lancet* for July 25, 1914, strongly recommends the use of celluloid splints in acute poliomyelitis for the purpose of keeping the muscles involved at rest and preventing deformity. It is in the cases seen within three months of the disease that the splints prove of greatest service. Celluloid splints fit perfectly, are easily applied and removed, are light, rigid, and cheap, and will not break easily. In the preparation of a celluloid splint a "negative" cast of the limb is first taken. The limb is oiled, a strip of lead one inch wide adjusted to the front of the leg, which leg is held in proper position, with slight flexion at the knee and the foot at right angles to the tibia. Plaster of Paris bandages are then wound round the limb, from the foot up to the thigh, and when the plaster has sufficiently set, the cast is cut down along the lead and removed. A positive cast is next made from the negative by pouring in plaster of Paris. In making the celluloid splint three layers of stockinette—in tubular form—are pulled on over the positive cast, and a layer of the following celluloid solution painted on the third layer:

℞ Celluloid, ... 3xi (330 grams);
Acetoni, ... 3clx (4800 grams);
Solve et adde,
Calcii chloridi, ... 3iii (90 grams);
Aquæ ferventis, ... 3ii (60 grams).

This is allowed to dry, another layer of stockinette pulled on, more celluloid solution painted on, etc. To make the splint sufficiently rigid while keeping it thin anteriorly, layers of book muslin are placed down the back of the splint and painted on. On the anterior aspect there should be five or six layers; laterally and posteriorly, twelve to fourteen or more. After a final layer of stockinette and celluloid has been applied, a layer of celluloid varnish (cellulose triacetate, one part; acetone, five parts) is painted on. When the splint is dry a strip about half an inch wide is removed down its front, the positive and inner layer of stockinette removed, and the inner surface of the splint painted with cellulose solution. The splint is finally bound round with leather or braid and some boot hooks are inserted. Before the splint is applied the skin should be dusted with powder and a thin stocking or stockinette put on.

Almost any case of paralysis of the lower limbs is suitable for this form of splinting. In paralysis of the shoulder muscles, the arm can be placed in such a position that the hand is near the vertex of the head, the deltoid and biceps being thus kept relaxed. In cases seen within four weeks after the onset the splint should be on continuously; later, in the case of the lower limb, the patient can, as a rule, gradually get into the erect position and make early attempts to walk, preferably with the aid of a walking apparatus. Among twenty-four cases treated by the author within three months of the onset, malposition is known not to have arisen in twenty-one; the remaining three had not recently been seen at the time of writing.

An Improved Camphorated Oil for Subcutaneous Injection.—O. Crouzon, in *Bulletins et mémoires de la société médicale des hôpitaux de Paris*, April 24, 1914, refers to the fact that the large amounts of camphorated oil now frequently injected in the treatment of pneumonia, collapse, acute peritonitis, etc., sometimes leave annoying local indurations and may even lead to abscess formation. To avoid this he has sought to devise a solution which would be more rapidly absorbed, and now uses the following combination:

℞ Camphoræ, ... gr. xv (1 gram);
Ætheris, ... ℥xxi (1 gram);
Olei olivæ, ... 3iiss (10 grams).
M. et ft. solutio.

The olive should previously have been washed with alcohol and sterilized. If the preparation is to be put up in ampoules the glass bell of the vacuum apparatus used must be kept well filled with ether vapor to prevent escape of the latter from the solution. If desired, the proportion of olive oil may be reduced to eight to one of camphor, in order to make a solution of exactly ten per cent. strength.

Clinical experience with the foregoing solution clearly showed its superiority over the official camphorated oil. Thus in two cases of typhoid fever with adynamia and heart weakness to which 108 c. c. and 425 c. c. of the ordinary preparation had been given in the course of twelve and twenty-four days, respectively, hard local masses, followed by abscess formation, resulted—the therapeutic effect proving, however, of distinct value. Similar untoward results were witnessed in a number of other cases. The use of the camphor ether combination in a series of other cases, on the other hand, caused merely slight induration in some instances, and was never followed by abscess formation. In one patient a daily average of twenty-four c. c. (6 drams) of the preparation was injected for twenty-four successive days without any local trouble save slight, evanescent induration. On the whole, the new combination seems far superior to the old, and should be regularly used in preference to it.

Treatment of Hemorrhoids.—Walter Wolff, in his recently issued *Taschenbuch der Magen- und Darmkrankheiten*, recommends the following laxative combination for relieving constipation in cases of hemorrhoids:

℞ Magnesii oxidi, ...
Sennæ pulveris, ...
Sulphuris præcipitati, ...
Potassii bitartratis, ...
Sacchari pulveris, ... } 3iiss (10 grams).

M. Sig.: One level teaspoonful three times a day.

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GREETING TO OUR READERS.

With this issue, the NEW YORK MEDICAL JOURNAL concludes its one hundredth numbered volume or fiftieth year under one name, although under one of its subsidiary names it is entitled to lay claim to seventy-one years of uninterrupted publication. We are proud of this record, which has not been achieved without deep thought, constant planning, and severe taxing of the ingenuity of publishers and editors. The average reader little dreams of the problems presented to the editors from week to week, in the preparation of copy and illustrations—in which feature the JOURNAL surpasses all other medical weeklies—the construction of editorial comment, the regulation of the various departments, the careful study of the vast quantity of matter offered for publication, and the handling of many technical matters peculiar to the craft. All this is largely a labor of love on the part of editors and publishers, for a perfection is aimed at that depends on their moral conscience and is not satisfied when a mere equivalent for the subscriber's money has been achieved.

We open the one hundred and first volume with a communication from Dr. Rufus I. Cole, of the Rockefeller Institute for Medical Research, and we

have already in hand a score of papers of the first importance from prominent surgeons and internists, selected mainly with the needs of the general practitioner in view. The department of Prize Discussions, which has elicited so many valuable therapeutic hints which would otherwise never have seen the light, will be continued—a unique feature of this JOURNAL. Under Abstracts and Reviews we are able to present promptly the gist of scientific lectures of the first importance, delivered mainly under the auspices of endowed societies; lectures which might not be otherwise available. The Therapeutic Notes, Book Reviews, etc., are in the charge of specialists, and in the Pith of Current Literature we set forth only the items which are of immediate interest to our clientele, leaving the discussion of abstruse subjects to other journals; making such a selection as demands the best intelligence of a carefully selected staff of assistants.

We hope our friends have enjoyed a Merry Christmas and we cordially wish them a Happy and Prosperous New Year, assuring them of our constant interest in their instruction and welfare and our intention to furnish them, to the best of our ability, with a medical weekly of the highest rank.

KALA AZAR IN CHILDREN.

Kala azar is seldom seen in Europe, and it was not until after the publication of Pianese's discovery of the Leishman body in cases of infantile splenic anemia, that the disease was included among those which children have. An interesting case is reported from Madrid by Garcia del Diestro (*Revista Clinica de Madrid*, September 30, 1914). Brighenti, referring to cases in children, had remarked that others are likely to be found if the disease is better understood and studied (*Revista Critica di Clinica Medica*, June 13, 1914). This prophecy has proved only too true, and cases are becoming more frequent as Spanish and Italian writers show. It is observed by Brighenti that the disease has three stages; in the first there is an irregular fever with diarrhea and bloody stools. In the second stage anemia appears, and Diestro and Pittaluga, who give the details of the last case reported, comment on the changes in the leucocytes and the leucopenia. The third stage marks the steady progress of the symptoms of anemia, fever, and weakness. Cases are fatal after a variable period. Patients with the acute form of the disease die in thirty or forty days.

From experience acquired in various cases it appears that the disease has three predominant symptoms, anemia, fever, and swelling of the spleen. There is no dispute that the Leishman body is the characteristic phenomenon. In the case above men-

tioned Pittaluga found this organism in the blood drawn from the spleen, and Brighenti tells us that it is always present. The fever ranges from 37° to 38° C. and higher; its fluctuations follow no regular course, but the highest points are marked by chills and the lowest by sweats. The fever is not affected by quinine, but arsenic, it is stated, produces some improvement. Del Diestro employed a solution of arsenate of iron, which he injected, and he adds that a vaccine made of dead cultures of the parasite is of value, though nothing avails to cure. Whether the occurrence of kala azar in Europe is likely to be serious or not, the questions it opens up are full of suggestiveness. In Madrid the parasite has been found in dogs and cats, and there is no reason why other animals should not be infected. In the cases reported, the bloody stools and ascites, as well as the hypertrophy of the liver, make a picture which seems familiar. Does kala azar occur more frequently than we suppose?

PHYSICIANS AS EXPONENTS OF THE LIBERAL ARTS.

In the early myths of the Hellenic race Pæon was the divine physician of the gods, but in post-Homeric times the office of healing was transferred to Phœbus Apollo, also the god of song and music. The artistic temperament is not uncommonly met with among medical men, and a striking example was the case of the late Doctor Forchheimer. In the appreciative tribute to his memory by Dr. Otto Juettner, which was read at the last annual meeting of the American Therapeutic Society and afterward published in this JOURNAL, special mention was made of the supreme musical attainments of a man who was also one of the great physicians of the day. Admitted, in his earlier days in Vienna, to the choice circle which had gathered around Johannes Brahms, Forchheimer became a violinist whose talent was later the marvel of the musical fraternity of Cincinnati. Billroth, eminent as a surgeon, was also eminent as a pianist and well known as a composer. Musical and other artistic ability is probably to be met with more frequently among our German and Italian confrères than among American physicians, but there is no doubt much talent of the kind which is little heard of.

Here in New York we have known personally of more than one instance. The late Lucien Damainville, a surgeon for a time associated with Professor Frank H. Hamilton, was a master of the violin who might easily have won renown as a professional. Genial George B. Fowler, while not a technical musician, had a rare gift, and his old friends still recall their enjoyment when he sat

down at the piano and rattled off one of his burlesque performances of grand opera, with orchestral and vocal parts sketched in. Fessenden N. Otis, the genitourinary surgeon and syphilographer, was an amateur painter of no mean quality. Among his close friends were many of the most celebrated American artists, and he had an admirable private collection of their works. LeRoy M. Yale, the orthopedist, for many years the associate of Dr. Lewis A. Sayre, was an etcher of high repute, whose productions always found a ready sale when he chose to dispose of them. The mention of his name brings to remembrance that of Sir Seymour Hayden, who was accustomed to visit New York occasionally; his etchings ranked among the most perfect works of the kind in the world. If we take into consideration the field of literature, every civilized nation will be found to have presented many examples of physicians who have become famous as poets and prose writers. In our own land and time the illustrious names of Oliver Wendell Holmes and Weir Mitchell will at once suggest themselves, while it is a matter of pride for the profession that the present poet laureate of England is a medical man. Though Bridges, who is a St. Bartholomew alumnus, may not have the genius of such predecessors as Dryden and Tennyson, and though his work appeals rather to an intellectual aristocracy than to the masses, he is distinctly more worthy of the position than a great many of the men who have held it before him. It has often been said that every physician should have a "hobby" outside of his profession, and where there is a native capacity for any of the liberal arts, it ought certainly to be cultivated, not less on account of the pleasure this may perhaps afford to others, than because of the personal enjoyment and benefit to be derived.

THE WAR AND THE GERMAN MEDICAL PROFESSION.

A correspondent in Switzerland sends to the *Lancet* for December 5th, the following notes on medical affairs and opinions in Germany: "Ten of the new professors in the University of Berlin have been called to the front, but the well known names of Quincke and von Noorden appear as lecturers on medicine, and eighty medical students were enrolled up to November 4th. In Berlin, in spite of the rush of medical men to the front, those remaining have less to do than usual. This is ascribed to the previous overstocking of the city in medical talent, and also to the fact that minor ailments have practically disappeared during the war, which has produced among the civil population an 'ability for self control which will have permanent moral value.' The complaint is freely made that many who remain might be at the front, where many older men were

sent in the hurry of the first mobilization. In East Prussia there is a great scarcity of doctors, and a retaining fee of twenty-five marks a day is being offered to any who will volunteer. Advertisement is not entirely unknown even under the present conditions of national enthusiasm, and a 'specialist for diabetes' states that, 'contrary to rumor, he has not gone to the front.' The War Office also complains that offers of doctors for war service are often associated with so many conditions as to be worthless. In Vienna the principal building of the university has been turned into an accessory hospital, and the various faculties have had to find other accommodation. Signs of a more generous reaction from the extreme patriotic feeling at the onset of the war have shown themselves in Germany, and Professor Orth publicly disagrees with the proposed exclusion of foreigners from working places in the universities; while Professor Waldeyer, the senior of the medical faculty of Berlin, comments unfavorably on the surrendering of foreign medals and of carrying the war spirit into peaceful fields."

THE DIDACTIC WORK OF THE ARMY SURGEON.

From the annual report of the surgeon general of the United States army which has just been issued, we learn that during the past year fifty-two army surgeons have published contributions on medical topics including three books, two prize essays, and one hundred and ten separate articles, some of which have been republished in book form. These contributions cover a wide range of topics and reflect much credit upon the army medical corps. We find among them a series of articles on the medical aspects of the Civil War, a report of a trip to China, a review of the medical work in Porto Rico by the United States Government, and a number of articles giving the results of original research carried out by the members of the corps. Altogether the army surgeon makes a most creditable showing as a medical author.

THE DECLINE IN DRINKING.

For the eight years prior to 1907 there was a steady increase in the number of United States soldiers admitted to hospitals for alcoholism. This rate then began to decline and in 1913 reached the figure of 14.24 per mille, which is the lowest rate since 1870. As pointed out in the annual report of the surgeon general of the United States army, these statistics rather strengthen the contention of those who disapprove of the restoration of the canteen. It must be borne in mind, however, that there has been a decided growth of antagonism in public opinion to the use of alcoholic drinks generally. There was a sudden drop in the rate of admission in 1913, which is attributable, in part at least, to the act of congress stopping the pay of officers and enlisted men who may be incapacitated for duty on account of sickness due to drug addiction, alcoholism, or other misconduct.

A SHOT AT OUR HYGIENIC CARELESSNESS.

Sir William Osler writes to the *British Medical Journal* for December 5, 1914, the following letter:

SIR,—In my lecture, which appeared in the *Journal* of last week, I was in error in stating that the Eberth bacillus would probably kill in this year in the United States as many as would the German shrapnel and bullets in France and Russia. Judging from the recent figures it would be nearer the mark to say that it would kill as many as would die of wounds in the British forces.—I am, etc.,

WILLIAM OSLER.

Oxford, Dec. 1st.

News Items.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, December 28th, North Branch of the County Medical Society; Wednesday, December 30th, Medical Club, directors; Friday, January 1st, Kensington and Southeast Branches of the County Medical Society.

Changes of Address.—Dr. J. C. Fisk, to 169 West Seventy-third Street, New York.

Dr. L. Cherrurg, to 911 Tiffany Street, New York.

Dr. Emil A. Pascale, to 207 West 100th Street, New York.

Dr. Thomas W. Edgar, to 225 West Sixty-ninth Street, New York.

New Smallpox Hospitals in Ontario.—Plans are being prepared for a smallpox hospital to be erected in St. Thomas, Ontario. The matter has long been under consideration, the old building which has served for an isolation hospital having been for some time quite unfit for use. Plans are also being prepared for a smallpox hospital in Brantford.

Quebec's Sanitary Bulletin.—The Quebec Municipal Board of Hygiene and Statistics has commenced the publication of a sanitary bulletin, the first number of which was issued in October. It will appear monthly and will contain information concerning public health, prevention of disease, and recent discoveries in matters pertaining to hygiene and health. Important articles will appear both in English and French, others being in either one language according to the source of information.

Suspension of Two Prominent French Medical Periodicals.—The publishers, Messrs. Félix Alcan et R. Lisbonne, of the excellent *Revue de médecine* and *Revue de chirurgie*, have issued a notice that the mobilization of the editors and their collaborators in the field hospitals, as well as the enlistment of the compositors in the army, has compelled suspension of publication. When the war is over it is the intention of the publishers to make good the missing numbers, and all the issues for 1914 will be supplied. The fidelity of collaborators and subscribers is counted upon, not without good reason we feel sure.

The Week's Mortality in New York.—The mortality during the past week was noteworthy for the extremely low level reached, the death rate being 13.09 per 1,000 of the population, compared with a rate of 13.97 during the corresponding week in 1913.

The number of deaths from measles, scarlet fever, typhoid fever, and the diarrheal diseases was considerably below the average. Tuberculosis of the lungs showed a slightly increased mortality. The number of deaths from organic heart and kidney diseases combined was somewhat below that of the corresponding week in 1913.

Resolutions on the Death of Doctor Peabody.—At a meeting of the Association of the Alumni of the New York Hospital, held on December 16th, the following resolutions were adopted:

WHEREAS, It seemed good in the sight of Almighty God to withdraw from our midst our associate, Dr. George Livingston Peabody, so long connected with the New York Hospital, a man eminent in his profession as pathologist, physician, and teacher, wise in counsel, loyal in friendship, realizing always in his work the highest ideal and the loftiest sense of duty, and one moreover personally dear to so many of us; therefore, be it

Resolved, That we, the Association of the Alumni of the New York Hospital, extend to his family our deepest sympathy and expressions of the esteem and affection which we have always entertained toward our old associate and friend; and, therefore, be it

Resolved, That these resolutions be engrossed upon the minutes and a copy be sent to the leading medical papers of the city.

Chenango County, N. Y., Medical Society.—The 110th annual meeting of this society was held in Norwich, N. Y., on Tuesday, December 8th. The following officers were elected: President, Dr. E. Danforth, of Bainbridge; vice-president, Dr. A. R. Morse, of Oxford; secretary, Dr. Paul Brooks, of Norwich; treasurer, Dr. J. B. Drake. This society meets twice a year only; the semiannual meeting is held on the second Tuesday in June.

Fall River, Mass., Medical Society.—Dr. C. A. Howland was elected president of this society at the annual meeting held on Wednesday evening, December 9th. Other officers were elected as follows: Dr. A. J. Barre, vice-president; Dr. R. W. French, secretary; Dr. W. S. Lyon, treasurer; Dr. G. L. Richards, librarian; Dr. A. C. Macrae, assistant librarian; Dr. A. C. Lewis and Dr. F. A. Chace, executive committee; Dr. J. H. Lindsey, Dr. W. H. Creamer and Dr. Mary W. Marvell, program committee.

Medical Society of the District of Columbia.—Dr. Frank Leech, of Washington, D. C., has been elected president of this society, to succeed Dr. J. R. Wellington. Other officers have been elected as follows: Dr. A. L. Staveley, vice-president; Dr. A. P. Boswell, second vice-president; Dr. A. L. Hunt, corresponding secretary; Dr. H. C. Macatee, recording secretary, and Dr. Charles W. Franzoni, treasurer. Vacancies on the executive committee were filled by the selection of Dr. J. W. Chappelle, Dr. E. G. Seibert, and Dr. J. Lawn Thompson.

Civil Service Examinations for Bacteriologists in the State Department of Health.—Among the positions for which the New York State Civil Service Commission will hold examinations on January 23d is that of bacteriologist in the State Department of Health, at a salary of \$2,000. The examination is open to men only having the degree of M. D. Applicants must have a thorough knowledge of the principles of bacteriology and have had experience in the bacterial diagnosis of infectious diseases. The examination will also furnish a list of persons eligible for the position of assistant bacteriologist in the State Department of Health, at salaries ranging from \$1,200 to \$1,500, open to both men and women. For further information regarding the scope of the examination and for the necessary application blanks, address the State Civil Service Commission, Albany, N. Y.

New Officers of the Tri-State Medical Society.—At the annual meeting of the Tri-State Medical Society of Texas, Arkansas, and Louisiana, held in Shreveport, La., on December 8th and 9th, the following officers were elected: Dr. W. G. Hartt, of Marshall, Texas, president; Dr. E. H. Martin, of Hot Springs, Ark., vice-president for Arkansas; Dr. Oscar Dowling, of Shreveport, vice-president for Louisiana; Dr. E. L. Beck, of Texarkana, vice-president for Texas. The following councillors were elected for terms of five years each: Arkansas, Dr. T. F. Kittrell, of Texarkana; Louisiana, Dr. A. P. Crain, of Shreveport; Texas, Dr. O. M. Hartsell, of Marshall. Dr. C. E. Cantrell, of Greenville, Texas, was elected councillor to fill the vacancy caused by the selection of Dr. W. G. Hartt, as president. Dr. J. M. Bodenheimer, of Shreveport, was reelected secretary-treasurer of the society, making his eighth year to serve in that capacity. Next year's meeting will be held in Marshall, Texas.

Personal.—Dr. Richard P. Strong, professor of tropical medicine at Harvard University, has been appointed director of the laboratories in the hospitals of the United Fruit Company. This company recently equipped its hospitals with laboratories, and ample material is constantly available for research work in connection with the prescribed course of study in the school of tropical medicine at Harvard Medical School.

Mr. Adolph Elwyn, who for the past nine years has been assistant in the department of anatomy and physiology of the American Museum of Natural History, has resigned his position to become instructor in histology and biology at the Long Island College Hospital, Brooklyn.

Dr. Samuel G. Dixon has been elected president of the Philadelphia Academy of the Natural Sciences for the nineteenth time.

Dr. Thomas L. Sullivan, Jr., has been appointed superintendent of the Indianapolis City Hospital, to succeed Dr. John W. Sluss.

Dr. Robert Parker Bay, of Baltimore, has been appointed chief medical examiner for the State Industrial Accident Commission, of Maryland.

Gifts and Bequests.—The will of the late Dr. Charles S. Minot, Stillman professor of comparative anatomy at Harvard University, contains a bequest of \$1,000 to be used for the improvement and increase of the embryological collection which he established in the Harvard Medical School, to which he left his scientific apparatus, books, and pamphlets. Doctor Minot also bequeathed \$2,000 to the Boston Museum of Natural History.

Professor and Mrs. Frederic S. Lee have given to Columbia University the sum of \$20,000 to establish a fund for the use of the department of physiology. It is intended that for the present the income derived from the fund shall be used for the maintenance of the library of the department. Doctor Lee is professor of physiology at Columbia University.

By the terms of the will of the late Katharine Leavitt, who died recently in Lakewood, N. J., the Hudson City

Belgian Physicians' Relief Fund.—A recent letter to a number of surgeons of the United States written by Sir Rickman Godlee, of London, chairman of a committee organized in Great Britain in aid of their Belgian colleagues, in which Sir Rickman appeals for aid in relieving the distress in Belgium, has resulted in the organization of a committee of American Physicians for the Aid of the Belgian Profession, which will volunteer to accept subscriptions in money and surgical or pharmaceutical supplies, and distribute the same, to the best of their ability, among the Belgian sufferers.

The medical men whose names are given below have consented to act as a committee, and volunteer to see that all contributions of whatever kind are promptly and economically distributed. Dr. Frank F. Simpson, treasurer of the committee, will place himself in touch with relief committees already organized—the notably successful committee organized by Dr. H. Edwin Lewis, for example, mentioned in our issue for November 7th—and act in conjunction with them, or will act independently if better results can be accomplished. Money will be converted into supplies, as cash, obviously, can be of little value in the devastated country.

The London committee consists of Sir Rickman J. Godlee, Bart. (chairman); Sir Thomas Barlow, Bart., president of the Royal College of Physicians of London; Sir W. Watson Cheyne, Bart., president of the Royal College of Surgeons of England; Dr. Meredith Townsend, master of the Apothecaries' Society; W. J. Woolcock, secretary and registrar of the Pharmaceutical Society; Dr. H. A. Des Voeux (honorary treasurer); Dr. Dawson Williams, editor of the *British Medical Journal*; Dr. S. Squire Sprigge (honorary secretary), editor of the *Lancet*.

The American committee will undoubtedly operate through the relief committees of this country that are now specially operating in Belgium, and will have its packages prepared by instrument dealers and pharmaceutical houses of the United States and shipped to their destination.

The committee of physicians who have consented to act as sponsors for these contributions is as follows: Dr. Victor C. Vaughan, president of the American Medical Association; Dr. William L. Rodman, president-elect of the American Medical Association; Dr. John B. Murphy, president of the Clinical Congress of Surgeons of North America; Dr. Charles H. Mayo, president-elect of the Clinical Congress of Surgeons of North America; Dr. J. M. T. Finney, president of the American College of Surgeons; Dr. George H. Simmons, editor of the *Journal A. M. A.*; Dr. Thomas L. Stedman, editor of the *Medical Record*; Dr. E. W. Taylor, editor of the *Boston Medical and Surgical Journal*; Dr. Franklin H. Martin, editor of *Surgery, Gynecology and Obstetrics*; Dr. Claude L. Wheeler, editor of the *NEW YORK MEDICAL JOURNAL*; Dr. J. Riddle Goffe, of New York; Dr. Howard Canning Taylor, of New York; Dr. Frank F. Simpson, of Pittsburgh (treasurer). The names of other distinguished physicians will be added to this list later. Dr. Franklin H. Martin is chairman of the committee, Dr. William L. Rodman, vice-chairman, Dr. Frank F. Simpson, treasurer, and Dr. Howard C. Taylor, secretary. The executive committee is composed of Doctor Martin, Doctor Goffe, Doctor Simpson, and Doctor Taylor. Contributions can be sent directly to Dr. Frank F. Simpson, 7084 Jenkins Arcade Building, Pittsburgh, Pa., or to the Belgian Physicians' Relief Fund, in care of the editors of the following journals: *Journal A. M. A.*, *Medical Record*, *Boston Medical and Surgical Journal*, *Surgery, Gynecology, and Obstetrics*, *NEW YORK MEDICAL JOURNAL*.

Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

October 26, 1914.

Increase in Symptoms of Compression after Lumbar Puncture, by L. Newmark.—A case is reported by Oppenheim in which lumbar puncture caused a marked increase in the symptoms of compression due to an extramedullary spinal tumor; a fatal case of compression occurred in the experience of Nonne; Newmark adds two of his own. The first was a psammoma in the region of the first dorsal segment; after removal of only six c. c. of spinal fluid a slight paresis of one lower extremity rapidly developed into a complete monoplegia. Operative removal of the tumor led to complete recovery. In the second case the patient was a young woman in whom there had not occurred any definite localizing symptoms to make the diagnosis of spinal tumor certain. Although many attempts were made to withdraw some spinal fluid for diagnosis none was obtained. Shortly after these attempts, within twenty-four hours, complete paraplegia of the lower extremities occurred with loss of bladder control. Again operative removal led to recovery, the tumor also being a psammoma. Upon operation it was found that the tumor had dammed all of the spinal fluid back above its site, accounting for the dry tapping. It is suggested that the attempts at withdrawal of fluid in some way altered the intradural pressure so that the compression produced by the tumor was increased. In this case the diagnosis which led to cure by operation would probably not have been made for many months if the puncture had not caused an increase in the symptoms. Newmark deduces from these observations that the practice of spinal puncture in suspected cases of tumor is not without considerable danger. In certain cases, although fraught with an element of danger, puncture may lead to the correct diagnosis and the early cure of a case which would otherwise be much more prolonged.

Uteramin in Gynecology, by Viktor Mandler.—Uteramin is the trade name of a preparation of parahydroxyphenylethylamine. It has been shown to have many of the pharmacological actions of ergot, of which it is one of the constituents, and Mandler has found it of use in controlling abnormal uterine hemorrhages. It may be administered by mouth or hypodermically, either in tablets or in solution. The action is fairly prompt, although in some cases benefit has not been apparent before at least a day. The preparation is of constant strength, permanent, nonirritant when injected subcutaneously; it has little taste, all of which make it preferable to galenical preparations of ergot.

Epifascial Injection of Neosalvarsan, by Hans Kern.—This method, first advocated by Wechselmann, consists in the location of the depot of the drug beneath the muscles and upon the fascia. Evidence that the point of the needle is in the proper position for such an injection is obtained through feeling a grating sensation when the needle is moved; the salt solution injected as a test returns easily through the needle, and the needle is freely movable on its long axis. For this type of injection, sal-

varsan is to be used dissolved in as little water as will hold it, 100 per cent. solution being usually employed. By this method of administration there is no local pain, and no marked infiltration ensues. Kern has found the method readily applicable in the treatment of children.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

October 29, 1914.

Treatment of Tetanus, by V. Czerny.—Only thirteen patients died of a total of twenty-eight receiving tetanus antitoxin. This is a striking reduction in the mortality compared with that of eighty to ninety per cent. in untreated cases. Amounts of from 100 to 500 antitoxic units were injected. Three cases were reported by another as having recovered under Baccelli's phenol injections, but Czerny calls attention to the fact that in all three the incubation period was long and that all were also injected with antitoxin. The same was true of three patients who received magnesium sulphate injections, although in these cases there was evidence that these injections greatly relieved the pain of the disease and tended to quiet the patients. The use of morphine, scopolamine, hydrated chloral, or paraldehyde is advocated as an adjunct in the treatment of the disease, but caution must be observed in their administration, as they are likely to add their depressant effects to that of the infection upon the respiratory centre. Intraspinal, endoneural, and intravenous injections of the antitoxin are recommended, and where there is little hope of saving an injured extremity, prompt amputation is advocated if it is the source of the infection.

Treatment of Tetanus with Magnesium Sulphate, by A. Falk.—Preceding the administration of magnesium sulphate the region was anesthetized by injection of novocaine solution so that the subsequent administration was quite painless. A thirty per cent. solution of magnesium sulphate was generally used, and it was found that single doses, subcutaneously, of less than three grams were without effect. From five to six grams gave good results in mild or moderately severe cases, and single doses of nine grams, or daily doses up to twenty grams never gave rise to dangerous symptoms. Even occasional administrations of twelve grams at a single dose did no harm. In severe cases these large doses could be used. Very small doses on the other hand seemed to increase the tetanic symptoms, appearing to act as stimulants. The effects of the magnesium sulphate injections were to lessen the spasms to such an extent that in severe cases the patient could take food an hour after the dose and could even sit up in bed. Unfortunately Falk does not make any statements as to the possible curative effects of these injections and does not state whether or not they were combined with the administration of effective doses of antitoxin.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

November 24, 1914.

Treatment of Erysipelas with Antidiphtheritic Serum, by Otto Polak.—Small initial doses do not help as much as larger ones. At least 4000 to 5000 units must be given as an initial dose. The fever falls by crisis within forty-eight hours and the red-

ness and the swelling of the skin disappear, the patient feeling better in general. If no improvement is observed within twenty-four hours, a second dose of 3000 units should be given. If the erysipelas is complicated by phlegmons, gangrene or pneumonia, the symptoms of erysipelas, swelling and redness of the skin, disappear after the injection of the serum, but the fever does not usually fall. This method of treatment does not prevent a recurrence. In severe cases better results are obtained if serum is given intravenously. No benefit is derived when given in combination with antistreptococcic serum. Other septic conditions due to streptococcic infection as puerperal sepsis, suppurative peritonitis following appendicitis, carbuncles and phlegmons are not influenced by the injection of antidiphtheritic serum. A comparison of cases treated with antidiphtheritic serum and cases treated otherwise shows that much better results were obtained with the former method.

Treatment of Convulsive Tic with Chloride of Calcium, by Rudolf Emmerich and Oskar Loew.—It has been shown that a lack of calcium salts increases the electrical irritability of the peripheral nervous system and that certain cases of increased irritability were successfully treated with calcium. This is of importance in the treatment of conditions associated with cramplike contractions of the muscles. Two cases of convulsive tic are reported in which the muscles of the head and neck were affected to a considerable degree, in one case the head being turned forty-five times in the period of a minute. Both these patients received about twelve to fifteen grains of pure crystallized calcium chloride three times a day. In addition they were told to eat freely of fresh vegetables and fruit. Both patients showed rapid and lasting improvement, and, as the cramplike contractions of the head and neck are most resistant to treatment, the results obtained were really gratifying. Disturbance of calcium metabolism is probably an etiological factor in the production of convulsive tic and myoclonia and possibly also plays an important role in the production of infantile rickets. It is likely that the function of the different cells depends upon the calcium content of their nuclei; a disturbance of this content gives rise to symptoms such as are observed in convulsive tic.

Complement Fixation in Variola, by Alfred Klein.—The best results were obtained when variola pustules were used as antigen. Cow lymph, serum of smallpox patients and extracts of organs of patients dead of variola were also used but the results were not so satisfactory. The conclusions reached from a number of investigations are that antibodies exist in the serum of patients suffering from variola and these antibodies can be demonstrated by the complement fixation test. The complement fixation reaction in variola is different from the serum reaction of syphilis. It is a true reaction between antigen and antibodies. In all probability the cause of variola is present in the antigen. All antigen, with the exception of the secretion from the variola pustules, is unreliable, and, in order to have the antigen as constant as possible, it is advised to use the crusts of the pocks.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

November 10, 1914.

Treatment of Infected Compound Fractures of the Femur, by E. Quénu.—Proper disinfection of these fractures, where a considerable time has elapsed between the injury and the initial treatment, has required free dissection of the soft tissues, in the author's experience, and in gangrene he strongly recommends the use of a stream of air heated to 600 or 800° C.

Surgical Intervention in the Treatment of Gun-shot Wounds of Nerves in the Extremities, by Walther.—Among 502 wounded soldiers under Walther's observation, no less than fifty-two presented injuries of nerve trunks or centres, and of these twenty-seven showed wounds of the nerves in the extremities. The surgical treatment of cases in which sharp pain persists during the period of wound repair is discussed. Where paralysis alone exists, without pain, the author makes it a rule not to operate until the wound has entirely healed, in order that the intervention may be conducted under aseptic conditions. In painful cases, however, experience has convinced him that, where the distress cannot be relieved by medical means, an operation is justified, not only because of the pain itself, but on account of the danger that increasing injury will be done to the nerve through contraction of cicatricial tissue. In each of the cases he operated in, extensive removal of any superficial cicatricial tissue, together with the deep lying indurated mass, was effected. Once exposed, the nerve was carefully freed from adherent cicatricial remnants, being meanwhile kept moist with normal saline solution. The most salient point in his technic is the interposition between the nerve and the surrounding injured tissues of layers of normal muscular tissue taken in so far as possible from the surrounding muscles. These layers are sutured to the tissues which would otherwise be in contact with the nerve, and preserve the latter from subsequent cicatricial compression. The operative skin wound, if it cannot be easily closed without tension, by simple suturing, is covered with a flap of skin transferred from the surrounding healthy tissues. This also has for its purpose to avoid subsequent pressure on the nerve. Lasting relief from pain was secured in the cases in which the foregoing procedure was carried out, though formication or mild pain was at times temporarily experienced in the period immediately following the operation, after the violent pain had ceased.

JOURNAL D'UROLOGIE.

June, 1914.

Hemostatic Value of Fulguration of Bladder Tumors, by E. Desnos.—The author has used Beer's method to stop the bleeding of bladder tumors. In two cases in which the bladder was filled with clots fulguration of the tumor absolutely controlled the hemorrhage. In one case where he could not, because of bleeding, clearly see the bladder tumor, he simply swept the electrode around the bladder and succeeded in stopping the hemorrhage which he believes always comes from the villus extremities of tumors.

Local Anesthesia in Prostatectomy, by F. Legueu.—The author adopts the technic of Reclus in anesthetizing the skin along the suprapubic incision. He then injects into the bladder ten to twenty cm. of one to 200 novocaine and adrenaline solution and eight to ten cm. into the bladder wall itself. The bladder is opened and two fingers of the left hand are introduced and the prostate is explored. To anesthetize the prostate, the author injects novocaine along the line of cleavage. For these prostatic injections long needles of various curves are used. The total quantity of anesthetic used is 0.60 to 0.80 gram. If the anesthetic is properly applied the operation is painless.

RIFORMA MEDICA.

November 21, 1914.

Action of Oxidasol on the Resisting Power of the Organism, by L. Ferrannini.—This preparation is a combination of manganese and nuclein in the form of a whitish yellow solid, odorless and tasteless, containing six per cent. manganese and 6.5 per cent. phosphorus. It is well tolerated either by mouth or hypodermically. It stimulates regenerative processes where nutrition and blood cell production are impaired. It also increases the activity of the leucocytes against infections and toxins, both of endogenous or exogenous nature. Experiments of Coronedi, Fornaca, and Cattaneo, and others, verified by the writer, seem to prove that this remedy is a hematinic, and that it raises the resisting power of the organism. It also seems to increase the elimination of purin bodies. Ferrannini has concerned himself with the action of the drug on the production of immunity, and has found that it reenforces the complementary hemolytic action of the blood serum.

Lymphocyte Leucemia, Leucanemia, and the Stage of Preleucemia, by C. Martelli.—In a series of cases of lymphocyte leucemia, leucanemia was also found with signs of pernicious anemia, macrocytes, microcytes, high hemoglobin index, and organic hemosiderosis. The cause of leucanemia is usually a septicemic process, and tuberculosis plays an important part in the etiology. Preleucemia is the name given to a blood condition brought about by intoxication or infection, in which there are variations in the leucocytes in the direction of leucemia. In all his twenty-four cases, including true leucemia and preleucemia, there was present either acute or chronic infection or intoxication, the predominant conditions being tuberculosis, syphilis, and malaria in the order named.

Experimental Work on the Pathogenesis of Gastric Ulcer, by R. Crescimone and B. Anglesio.—These authors tested the contention of Corica that true peptic ulcer could be experimentally produced in dogs by his method. This consisted in the daily subcutaneous injection of pyrodine, which brought about a state of anemia. The writers selected thirty-two dogs and divided them into two groups of sixteen each. To the first group they gave daily hypodermic injections of from 0.25 gram to 1.5 gram of pyrodine in aqueous solution per kilogram of body weight. This was continued until the death of the animal. In the second group they

practised bilateral section of the vagus nerve in addition to the injections. As a result of their experiments they found that the slow poisoning of the dogs by the drug produced a typical gastric ulcer in fifteen of the sixteen cases of the first group. They also found that the bilateral vagus resection greatly aggravated these lesions, which presented the macroscopic and microscopic characteristics of peptic ulcer as seen in its early stages in man. They conclude that the formation of such ulcers in great part is due to the diminution of the resistance of the tissues by the deficiency of anti-proteolytic ferments.

REVISTA DE MEDICINA Y CIRURGIA PRÁCTICAS.

November 28, 1914.

The Nature of Acute Mania, by P. Luengo.—Clinical observation shows that mania is fundamentally characterized, when established, by an excitability of the psychical and intellectual centres, and by an erethism of the psychomotor centres. The former state is responsible for the delirium, and the latter for the agitation of movement. These intellectual and motor disturbances have, as an underlying pathological condition, derangement of the circulation in both the brain and the meninges. There is also present an alteration in the biochemical composition of the blood serum, which in turn intoxicates the cerebral cortex. In the cortex are found the organs affected by the psychical processes especially the layer of pyramidal cells, which, according to Cajal, are endowed with the conduct of psychical life. In mania there is a lack of functional harmony between the central nuclei and the cortex. The incoherence of speech, and the extremely rapid change of subject are due to an energetic interfibrillary contraction which passes from neuron to neuron, so that the nervous impulse carrying mental images travels with extreme rapidity.

LANCET

December 5, 1914.

Leprosy Treated with Radium and Diathermia, by C. E. Iredell.—In this case, running an active course, a single exposure to radium for twenty-five minutes led to the complete disappearance of a leprome on the lower lip. Several exposures of the ulnar nerve to radium materially reduced the pain in the region of distribution of this nerve, but much better results were obtained in this respect by the employment of noncoagulating diathermia. This latter method of treatment also gave excellent results in the relief of the intestinal pain which was very severe and persistent in this case. Not only was the intestinal pain relieved for a considerable time after each diathermic treatment, but a most obstinate and painful form of constipation promptly gave way to normal easy evacuations within only a few hours of the treatment. Neither method of treatment, radium or diathermia, seems however to have been more than merely symptomatic, and the disease, though somewhat checked, shows no evidence so far of being cured.

Glycerin in Bromidrosis, by T. H. C. Benians.—This condition is usually very resistant to treatment by any means. Three mild cases were treated

by the author with application of pure glycerin to the feet before putting on the socks and shoes. In all three cases the condition was promptly cured in the course of three days. In two others, of severe type, the applications gave considerable relief, but a cure was not obtained. One of the theories offered to account for bromidrosis is that organisms are present on the feet which are capable by their action on protein matter of producing ammonia, indol, skatol, and other odoriferous decomposition products. It is well known that the addition of glycerin to cultures of indol producing bacteria will prevent the formation of this body and maintain an acid reaction of the medium. It is suggested that the application of glycerin to the feet in bromidrosis acts in a similar manner. Glycerin is capable of maintaining an acid reaction which prevents formation of ammonia and undue softening of the keratinous layer. The emollient effect of the glycerin also prevents cracking of the skin and gives great physical comfort.

BOSTON MEDICAL AND SURGICAL JOURNAL.

December 10, 1914.

Action of Lecithin upon Tubercle Bacilli and Their Relation to Experimental Tuberculosis, by Ernest Zueblin and Friedrich Proescher. Human, bovine and avian tubercle bacilli were mixed together with lecithin and their staining properties then investigated; the biological qualities of human and bovine tubercle bacilli after they had been treated with lecithin were tested on guineapigs. Human tubercle bacilli are affected more readily than bovine by lecithin; the effect is the more marked the higher the temperature at which they are kept and the longer the contact is maintained. The experiments on guineapigs, so far as they showed anything, seemed to indicate that the human tubercle bacilli were perhaps less virulent in these animals after mixed with lecithin, while the virulence of the bovine was less affected.

Variations in the Sensory Threshold for Faradic Stimulation in Psychopathic Subjects, by G. Philip Grabfield.—The new Martin test varied in the sensory threshold for faradic stimulation in 135 patients ranging from psychoneuroses to cases of coarse brain disorder. This threshold tends to be high, averaging 223 beta units as against 140 which is considered normal, and 175 which is thought to be definitely pathological. The average for alcoholic cases was 252, and among these the polyneuritic or Korsakoff cases ran highest. The threshold falls upon withdrawal of alcohol and convalescence, and the method may come to be of value in gauging progress toward recovery in the delirium tremens group. The threshold for paranoid forms of dementia præcox is normal, that for the catatonic and hebephrenic is pathologically high. The manic phase of manic depressive insanity shows a normal threshold, the depressive phase one pathologically high. The syphilitic group has a high average, but the threshold varies tremendously in different cases. Psychoneurotics seem to have normal thresholds, and this may be of immediate practical value diagnostically.

Lange Colloidal Gold Test in 135 Cerebrospinal Fluids, by H. C. Solomon and H. O. Koefod.—This test requires very small quantities of fluid,

is rapid, easy, and cheap, but must be done with great care. Typical and atypical reactions are obtained in paresis, and typical in cases that are not paretic. The reaction in tabes is quite different in tabes and is fairly characteristic of syphilis, yet the authors state that they are unable to offer any conclusion as to its value in the differentiation of cerebrospinal syphilis and paresis. It is of no certain value in congenital syphilis showing no other signs of involvement of the central nervous system, and nonsyphilitic cases give at times reactions in the so called syphilitic zone, hence such a reaction in a syphilitic does not necessarily argue involvement of the central nervous system, all other signs being negative. At times it is more valuable than any other test in the differentiation of tuberculous meningitis.

On the Systematic Control of Salvarsan Therapy Based on the Rapidity of Arsenic Excretion, by H. M. Adler.—Most of the arsenic is excreted within the first few hours after injection apparently without reference to the size of dose. Increased tolerance to salvarsan seems to run parallel to increased rapidity of excretion, and the cases that show untoward symptoms are those in which there is a delay in the excretion of the arsenic.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

December 12, 1914.

Mechanics of a Plaster of Paris Cast in Fixed Lateral Curvature of the Spine, by E. G. Abbott.—This paper was abstracted in our issue for July 4th, page 56. (See also page 1226.)

The Three Cardinal Clinical Signs of Fracture Into or Near Joints, by W. G. Stern.—This paper was abstracted in our issue for July 4th, page 55.

Relation of the Medical Sciences to Clinical Medicine, by F. S. Lee.—Condemnation is expressed of the distinction which has come to exist in the medical curriculum between the medical sciences and clinical subjects, and of the sharp break which occurs at the middle of the four years' course when the student drops his science and turns eagerly to the clinic and all that it is supposed to bring to him. Only one spirit ought to permeate the entire course—the spirit of untiring devotion to science. Those who teach the medical sciences have not done their whole duty if they have not produced the conviction that the sciences provide the key by which all that comes afterward may be unlocked; teachers of the clinical subjects have likewise failed if they do not hold to a rigid scientific ideal in imparting the details of practical medicine. Nor should this ideal be neglected during the following hospital internship. When this is completed, the young physician will find two paths to choose from, that of tradition and that of progress; to him medicine may be either a trade or a profession. The life will be fortunate of the man who feels irresistibly the call to the higher ideal.

Occupational Factors in Disease, and Suggestions for Their Elimination, by E. R. Hayhurst.—From a wide study of hospital and dispensary cases, of vital statistics, and of field investigations, it is found that occupied persons, other than agriculturists, suffer an enormous mortality, seventy-four per cent., from well recognized preventable and prematurely degenerative diseases. Among the other

conclusions reached are the following: 1. Occupational diseases exist because industrial health hazards exist. 2. From one fourth to one third of the medical afflictions of tradespeople are due in whole, or in great part, to industrial health hazards. 3. In institutions the vast majority of industrial diseases are lost sight of through failure to recognize the industrial relations of the patients, to make etiological diagnoses, and to classify properly in subsequent filing. A most important first remedy is a proper nomenclature for industrial relations to take the place of the word occupation. In a nomenclature propounded by the author the chief feature is the introduction of the term "industry department process," which renders a logical classification possible. It is also recommended that the powers and functions of the health governing body should be extended to the prompt investigation of all industrial complaints, and to the prompt remedying of them without the necessity of preliminary legislation against certain alleged responsible industries. Too much attention is usually given to alcohol, with a failure to appreciate that subjection to industrial health hazards in itself induces and promotes stimulation.

Continuous Painless Renal Hemorrhage and Its Treatment, by W. M. Spitzer.—The bleeding is due to passive congestion, since the changes found in the kidney of essential hematuria are identical with those in passive congestion; and the kidney is an organ so constructed that it must of necessity bleed in the presence of such congestion. Should the bleeding continue, the pathological changes in the kidney would be the same as in chronic interstitial nephritis. When passive congestion occurs in one kidney only, it is due to some interference with the outflow of blood, such as that resulting from twisting of the kidney on a short pedicle. Only when called for to save the patient's life, because of increasing secondary anemia, is operative interference warranted. Bisection of the kidney is contraindicated and also dangerous.

Prophylactic Vaccination against Epidemic Meningitis, by J. H. Black.—In April, 1912, the author, in conjunction with A. Sophian, conducted a series of experiments to determine, as well as laboratory methods would permit, the value of such vaccination. Eleven months later he repeated these experiments on the same subjects, to determine what immunity could be demonstrated after this time; the results of both series were published. To make this work as complete as possible, he undertook in May, 1914, twelve and twenty-four months from the second and first examinations, respectively, a repetition of his complement fixation studies; and his final conclusion is that experimental evidence warrants the conclusion that prophylactic vaccination is a measure of the greatest value in the control of epidemic meningitis.

MEDICAL RECORD.

December 12, 1914.

Management of the Pneumonia Patient, by S. Baruch.—The present teaching, to treat the patient, instead of the disease, is a great advance over the spoliative methods of the antiphlogistic period of medicine, and also over the happily brief antipyretic period. The author protests against over-

feeding, especially in croupous pneumonia, where the attack is usually ushered in suddenly in a healthy individual and is limited in duration. He prescribes from two to four ounces of ice water (not above 40° F.) every two hours; which results in diuresis. Pure air is vital; that such can be procured only out in the open is fallacious. In his practice the sashes of one or more windows are removed, and blinds, which may be kept more or less open as required, substituted. The temperature of the room should not be above 60° F. except when for any purpose the patient has to be exposed. As to purgatives, his preference is for calomel, from six to ten grains, dry in the mouth and washed down after rinsing; this destroys the pneumococci in the mouth and removes all fermenting or toxic material from the gastrointestinal tract. The dose is not repeated. While the coltar preparations are no longer dominant in pneumonia, he would not hesitate to order one dose of antipyrine (6 or 8 grains) in a case of insomnia with unyielding high temperature, to tide over the danger. For hyperpyrexia with nervous symptoms there is no procedure equal to a tub bath of 90° F. lasting half an hour; the patient being afterward wrapped in a linen sheet and allowed to dry in bed. For children a ten minute friction bath at 95° F., rapidly reduced to 80°, ordinarily answers all purposes. The only local application which he constantly uses is a wet compress at 60° F., applied around the chest every hour, after it has become warm. This is made of two or three thicknesses of old linen cut to fit the thorax from the nucha and clavicle to the last rib, and, after having been wrung out of water at the temperature named, it is spread upon a piece of flannel cut in the same shape, but one inch larger. The employment of a compress of this character probably affects the pulmonary circulation directly, while in the toxic forms of pneumonia the hourly stimulation of the central nervous system thus produced is evidenced by a brightening of the countenance and the disappearance of dullness of intellect. Its pronounced action in promoting excretion by the kidneys, in conjunction with the ingestion of small quantities of ice water, is enhanced by its intermittence. The antithermic effect of the compress may be considerably augmented by permitting a larger quantity of water to remain in the linen, though not sufficient to interfere with the patient's comfort by dripping and chilling. Moreover, cold applications to large cutaneous surfaces increase phagocytic action. There is clinical proof, extending over many years, to show that the management of the pneumonia patient as described results in a remarkably small mortality.

The Diathermic Treatment, by A. D. Rockwell.—The object of this paper is to call renewed attention to the simplicity as well as the very great value in pathological conditions of the high frequency current, and more especially of its use by the diathermic method. It is stated that there is no reason why every general practitioner should not have it as an ever ready and practical aid in his office work, and the assertion is made that the diathermic application of the high frequency current, simple as it is, is superior in general effect to every other manifestation of electricity. A striking illustration of

its action may be observed in its effects upon a person chilled by exposure to cold, or because of age or some toxic influence. Hands and feet become warm; the body perhaps uncomfortably so if the treatment is prolonged, and under the broad, flexible electrodes there is profuse perspiration. Such prompt and profound constitutional effects must hold important relations to many constitutional conditions. These effects are diathermic *through and through*, and the most positive influence is over the circulatory activities in the deep organs and tissues. Three cases are cited to show what an aid it sometimes is in affording relief in conditions of rather indefinite pathology, where ordinary methods have failed. The first is that of a male patient, aged thirty-eight years, who for a long time had suffered from frequent periodical attacks of severe pain through the eyes and frontal region, but whom glasses and other methods had failed to benefit. The second patient was a lady of fifty, who, after a slight attack of hemiplegia, had been troubled for years with distressing pains in the neck, arms, and legs. In the third case, the patient was a lady of seventy years, who for more than a year had suffered from severe and quite constant pain in the head, while nothing had been found to give her more than temporary relief.

LANCET-CLINIC.

December 12, 1914.

Nitrous Oxide-Oxygen Anesthesia in Surgery and Obstetrics, by Charles K. Teter.—Nitrous oxide when combined with oxygen and properly given is perhaps the safest anesthetic known. The administration is difficult because the nitrous oxide given must be from eighty to ninety-five per cent. pure, and the problem of asphyxia is constantly present. Anesthesia is rapidly induced and elimination is very rapid. Muscular tone is maintained to a greater degree than with ether or chloroform. The previous administration of narcotics assists greatly in the induction of anesthesia. Different drugs have been used for this purpose—morphine, morphine and atropine, scopolamine and pantopon. When two doses of any drug are given the first should be given an hour before operation, the second half an hour before operation. When pantopon is used there is less nausea and vomiting than when morphine is used. This is true both during and following the anesthesia. Pure oxygen must be used in combination with nitrous oxide, as atmospheric air does not contain sufficient oxygen to produce a satisfactorily deep anesthesia when used with nitrous oxide gas. It is important to obtain a definite and even flow of nitrous oxide gas and oxygen and the dose must be carefully measured. When the gases are administered warm they are twice as safe as when given under normal temperature and from three to five times as safe as when given cold. The time of induction of anesthesia is also decreased and the warm gases are more rapidly absorbed by the blood. Rebreathing of the gases causes no bad results, as there is practically no danger of carbon dioxide poisoning and there is not sufficient carbon dioxide to lower the tension of the nitrous oxide below that necessary to produce surgical anes-

thesia. Positive intrapulmonary pressure causes more profound anesthesia. The best working pressure is from four to six mm. Hg. This method of anesthesia is not suitable for children under five years of age, or for old people who show an extensive degree of arteriosclerosis and alcoholics. The ideal patients are the very ill, the debilitated, and those possessing low vitality. It has given excellent results in the practice of obstetrics, and there has been no cyanosis noted as when scopolamine and morphine have been used.

Mental Diseases and Arteriosclerosis, by Edward F. Leonard.—The causes that produce insanity are in a great many cases the same as those that produce arteriosclerosis, for instance, chronic alcoholism, overwork, interstitial nephritis, gout, diabetes, high blood pressure, syphilis, etc. The arteries of the brain are for the most part "straight" arteries, their axes being in a straight line with the blood stream. This subjects them to the high blood pressure and also to the direct blow of the cardiac systole, which two factors predispose to sclerosis. In some mental cases, there are pathological changes in the arteries: intoxication psychoses, involutional psychoses, paresis, epilepsy, especially senile, and dementia præcox. Two causes which are important in the production of arteriosclerosis are increased blood pressure and hereditary influences that induce degenerative changes in the vessels. Increased blood pressure may be the result of indiscretion in eating and drinking, of the action of bacterial toxins, metallic poisons, bacteria, alcohol, syphilis, and prolonged muscular efforts. Early symptoms are headache, insomnia, feeling of malaise, and giddiness. The patient may be irritable, show lack of control over emotions, and be unduly sentimental. Later, memory fails and new impressions cannot be retained. These patients should be treated at the very beginning of their symptoms to limit the progress of the disease.

Inflammation, Toxicosis, and Neurosis in the Pathogenesis of Neuralgias, by Tom A. Williams.—A neuralgia of the right side of the face was caused by an abscess at the root of the third molar tooth; after treatment of the abscess the patient's symptoms disappeared in three weeks. Another patient complained of neuralgia in the gum when taking hot or cold food and tenderness was present on pressure. The diagnosis of an inflammatory condition of the nerve endings was made, and when a protective ridge was pulled over the bare gum the patient was completely relieved. Another patient, whose work entailed control of other men, found that a severe neuralgia which was paroxysmal in nature caused a disturbance which interfered with his duties. He contemplated taking a vacation, as the work was becoming too severe for him in the condition in which he found himself. An unusually painful attack brought him to a dentist, where the tooth was extracted. An immediate disappearance of all the unpleasant symptoms occurred. This was probably a case of peripheral nagging and prevented the necessary harmonious working of the nervous system. At one time it was considered that irritation of nerve termini were a source of neurasthenia, hysteria, and neuroticism. Many turbinates have been shaved, appendages removed, and

errors of refraction corrected on this account. Many of these psychoneuroses have symptoms referable to the autonomic nerves, although originating psychically.

Proceedings of Societies.

JOINT PEDIATRIC MEETINGS.

Annual Joint Meeting of the New England Pediatric Society, the Philadelphia Pediatric Society, and the Pediatric Section of the New York Academy of Medicine, New York, November 5, 1914.

Dr. WILLIAM M. POLK, President of the New York Academy of Medicine, in the Chair.

Studies in Hemolytic Jaundice; the Effects of Splenectomy.—Dr. EDWARD B. KRUMBHAAR, of Philadelphia, described the experiments which Doctor Pearce, himself, and other colleagues had been carrying on during the past three years in the research laboratory of the University of Pennsylvania, and discussed the bearing of this experimental work on the clinical aspects of the various types of splenomegaly with anemia. They had first studied the relation of the spleen to hemolytic jaundice, but soon found themselves confronted with the broader problem of the relation of the spleen to blood formation and destruction in general. This study had brought out many explainable facts and some that were paradoxical. Their first experiments confirmed and elaborated the earlier observations of Banti and Joannovics, who had found that it was more difficult to produce jaundice by means of hemolytic serum in splenectomized than in normal dogs. Attempts to explain the cause of this phenomenon which was directly related to clinical splenectomy for the cure of various conditions associated with hemolytic jaundice, led them to study the blood changes following splenectomy. Anemia always developed, reaching its maximum about the third week and falling to normal in about ten months. Pearce, Karsner, and Peet found that the resistance of the red cells was increased after splenectomy, both to hypotonic salt solution and to immune serum. Austin found that the greatest resistance to jaundice occurred at the same time as the greatest anemia developed, and to test the connection between the two, gave hemolytic serum to animals made anemic in other ways. He, himself, had found this same resistance and had concluded that the phenomenon was partly due to the more resistant erythrocytes, and partly to the fact that less blood was destroyed because there was less present to be destroyed. Some authorities, in testing the blood forming powers of the spleen, by comparing the blood going to and that coming from it, believed they had found more red cells, white cells, and hemoglobin in the splenic vein. Their experiments along these lines had been negative, and it seemed that they must accept the theory that the red cells at least were formed only in the blood marrow. In seeking an explanation of the anemia following splenectomy, Asher and his pupils had attributed the increased anemia to the fact that increased amounts of iron were lost through the stools, but here, again, their experiments had failed to confirm such an ex-

planation. They had found, however, that injection of splenic extracts intraperitoneally had a marked temporary effect in raising the count of erythrocytes, hemoglobin, and leucocytes, owing presumably to stimulation of the bone marrow. A possible explanation of the anemia following splenectomy was therefore that the bone marrow was deprived of a stimulating hormone. Explanation of the later recovery from anemia might also be found in that the lymph nodes were found enlarged after splenectomy and presumably had taken over some of the function of the spleen. Although splenectomized dogs showed less tendency to jaundice when hemolytic agents were administered, nevertheless such agents caused a greater fall in blood counts, more lasting damage, and greater fragility of the red cells than in normal dogs. Apparently the lessened tendency to jaundice was connected in some way with the anemia caused by splenectomy, while the lessened power to recover from the hemolytic anemia must be attributed to a loss of some specific substance from the spleen. Banti had brought forth evidence of special hemolytic activity of the splenic extracts and of dissociated hemoglobin in the splenic vein, but their observations had failed to substantiate these findings. Joannovics and Pick had shown that chronic toluylenediamine poisoning caused fatty changes in the liver with liberation of unsaturated fatty acids, and Eppinger and King had shown that after splenectomy the amount of blood fat and cholesterol rose and the iodine number (combining value of the unsaturated fatty acids) of the blood dropped, indicating lessened degrees of hemolysis. In clinical conditions associated with blood destruction, they also had found an abnormally high iodine number, and this was reduced after the case had been improved by splenectomy. Hence, the unsaturated fatty acids were well known to be hemolytic agents, and the lessened blood destruction after splenectomy might thus be explained.

Doctor Krumbhaar then described the different types of primary splenomegaly with anemia, namely, Gaucher's, Banti's, and von Jaksch's, and the two types of hemolytic jaundice, the Hayem-Widal, or acquired form, and the Chauffard-Minkowski or congenital or hereditary form. A comparison of these conditions showed that Gaucher's disease had but little in common with the other types of splenic anemia, and though the negative character of the symptoms might cause it to be confounded with Banti's disease, pathological examination should admit of a differential diagnosis. Although the etiology of Banti's disease was unknown, evidence pointed to the close relationship of the spleen. One would not expect the removal of a large fibrotic organ to be attended with marked somatic changes, and it was precisely in the earlier stages of the disease that splenectomy had proved most beneficial. The anæmia infantum pseudoleuchæmica of von Jaksch was in all probability not an independent condition, but represented an atypical response of the infantile hemopoietic system to one or other of the primary diseases of the blood. The acquired and congenital types of hemolytic jaundice with splenomegaly possessed rather characteristic differences, and he considered it advisable to follow the Continental custom and consider them as independent con-

ditions. In the congenital type the resistance of the red blood cells to hypotonic salt solution was much diminished, and this furnished a simple differential test. (The author described the technic which they had used.) The symptoms of these types of hemolytic jaundice with splenomegaly were a chronic enlargement of the spleen existing with acholuric nonobstructive jaundice, and anemia, frequently paroxysmal in character and varying in intensity. Increased blood destruction was indicated by increased urobilin in the urine, and various characteristic changes were found in the blood. The red cells showed a diminished resistance to hypotonic salt solution; there was an increased number of reticulated cells with vital staining, and in the acquired form the phenomenon of autoagglutination of the red corpuscles. Patients having the congenital form were often more icteric than sick, while the acquired form was usually ushered in by a definite attack of illness, the anemia became more grave, and the patient was distinctly more anemic than jaundiced. The congenital form appeared to be more a congenital dystrophy of the hemopoietic system, rendering the red cells more easily destructible. The writer then discussed the morbid anatomy in hemolytic anemia, reviewed the various therapeutical measures that had been tried for the condition, all of which seemed to be ineffectual, and stated that splenectomy seemed to offer the most hope for improvement or cure and should be considered, with due regard to conservatism, in all diseases in which there was evidence of increased blood destruction referable to the spleen. In early Banti's disease and hemolytic jaundice, at least, the results had been excellent. In pernicious anemia, although improvement had followed in some cases, the value of splenectomy was more dubious, and this grave operation should be attempted only where the indications were clear and other methods had proved unavailable.

Acute Acid Intoxication in Infants and Children; Cases in Apparently Epidemic Form.—Dr. CARLETON R. METCALF, of Concord, N. H., presented a report of an epidemic of acute acid intoxication which occurred in Concord during the winter of 1913-14. There were in all 200 cases with nine fatalities. The tabulated report covered 100 of these cases. After considering such etiological factors as age, environment, milk, water, diet, neurotic temperament, the writer stated that none of these factors alone nor in combination accounted for the outbreak. The tabulated report showed the frequency of such symptoms as diarrhea, vomiting, wasting, retracted abdomen, abdominal pain, icterus, etc., and presented a description of the stools, vomitus, and urine. The treatment consisted chiefly in dietetic measures associated with the administration of soda and citrates. The author reviewed the theories in regard to the source of acetone bodies and their relation to autointoxication, and the bacteriological findings in the series.

Melituria in Infants Suffering from Nutritional Disorders.—Dr. OSCAR M. SCHLOSS, of New York, considered primarily the nature and significance of the reducing substance which commonly appeared in the urine of infants affected with nutritional disorders. The sugar which was used in

metabolism was carried by the general circulation, and obviously the sugar which appeared in the urine, was derived from the blood sugar. According to the results of recent work, the normal blood sugar in infants ranged from 0.07 to 0.11 per cent., figures which were practically identical with those obtained for adults. There was a tendency for the blood sugar to maintain a constant level, but striking changes might occur after the ingestion of carbohydrate food. There was often a definite increase in the blood sugar shortly after a meal, which reached its maximum in from one to one and one half hour and then decreased. This increase might be effected by starch as well as sugar, though the increase was slower and of less degree. Owing to this fact the blood for examination was withdrawn about three and one half hours after a meal. There was a direct relationship between increased blood sugar and melituria. As a rule a continued increase in blood sugar led to an excretion of sugar in the urine, although this effect might not be immediate. Often the melituria was preceded by the hyperglycemia for some time. A detailed consideration of the significance of increased blood sugar could be of little benefit since there were many essential factors still unknown or under discussion. It seemed safe, however, to assume that hyperglycemia meant a disturbance in the balance between mobilization and consumption of sugar, provided that the patient was afebrile and the diet normal. The detection of a reducing substance in the urine of infants affected with gastroenteric disorders was by no means a recent finding. Finkelstein and Meyer were led to attach great importance to the melituria in nutritional disorders. They divided the cases into two groups: 1. Those in which the appearance of lactose in the urine was considered to be indicative of an intestinal lesion through which lactose was absorbed before it was split by the inverting enzymes of the intestinal secretion. 2. Those cases in which galactose was found in the urine, and it was thought that the underlying cause was a diminished sugar tolerance, the liver probably being at fault.

Doctor Schloss's work consisted in the study of the blood and urine of 235 babies. The preliminary tests of the urine were made by the reagents of Benedict and Nylander, and if the reducing substance was present in sufficient quantity further tests were carried out to determine its nature. There were forty normal infants, whose blood sugar was normal and who were free from digestive disturbances, and none showed the presence of sugar in the urine. The remaining 195 cases represented nutritional disorders ranging from the milder disturbances to those of severe intoxication. For the sake of convenience the cases were roughly divided into three groups, mild, moderate, and severe. Doctor Schloss demonstrated by means of charts that there was an association between the increased blood sugar and the presence of sugar in the urine. As a rule the cases with melituria showed hyperglycemia. As to the nature of the sugar in the urine, in most instances the percentage ranged from 0.05 to 0.1 per cent. In such cases a determination of its nature with any degree of accuracy was im-

possible. In twenty-seven cases the urine at some time contained one per cent. or more of sugar, and tests made to determine its nature showed that it was usually galactose or dextrose. Lactose occurred, but not alone, being always associated with galactose.

The important facts brought out by this study were: Melituria was always accompanied by an increase in blood sugar and the sugar in the urine was not a monosaccharide. These results indicated that a gross lesion of the intestine was not a direct cause of the melituria, but that the direct cause was a lowered tolerance to sugar. Definitely to determine this tolerance, tests were made, the results of which showed conclusively that there was a lowered tolerance to sugar in the nutritional disorders.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Recreations of a Physician. By A. STUART M. CHISHOLM, Author of *The Independence of Chile*. New York and London: The Knickerbocker Press, 1914. Pp. vii-328.

Essays of a strictly literary nature by a medical man are so uncommon in our time and country that we are always disposed to deal leniently with volumes of this kind. Doctor Chisholm's contributions to our scanty stock of the higher literature, however, are not in need of charity; they boldly challenge attention in company with the best efforts of our essayists of the past three decades, not medical essayists only, but all who have tried this difficult genre. We are glad that these essays have been collected into a volume, for they were likely to escape the appreciative reader when they were buried among the mass of case reports and medical statistics of the average issue of a professional journal, much as they undoubtedly mingled the sweet with the useful. Those who have never marked the names of medical men in a directory of English literature will be astonished at the revelations in the second essay, *Physicians as Men of Letters*; it concludes with a noble tribute to Oliver Wendell Holmes, citing a passage from his works, by the way, which we once reproduced in the *JOURNAL* when discussing the various forms of quackery. Banquo inspires the writer to an amusing commentary on the absurd glosses which editors have seen fit to impose upon Shakspeare's text. The observations on the Inherent Spirit of Medicine may be commended to all intending students of our profession—and to some practitioners, whose high reputation lies exclusively in the mouths of the laity. We could go on praising the wit and wisdom of these essays, but we leave the pleasant task to other readers, sufficiently numerous we hope to induce Doctor Chisholm to continue in his inspired avocation.

The Salvarsan Treatment of Syphilis in Private Practice. With Some Account of the Modern Methods of Diagnosis. By GEORGE STOPPORD-TAYLOR, M.D., M.R.C.S., and ROBERT WILLIAM MACKENNA, M.A., M.D., B.Ch., Physician to the Liverpool Skin Hospital. New York: Rebman Company. Pp. 90.

This book is admirably compact, explicit, and sound in doctrine. The illustrations of cases before and after salvarsan should be of great value to the physician. Unfortunately the book is written from the point of view of the dermatologist, and therefore deals only in a very sketchy manner with the later and graver lesions of the disease.

The Medical Record Visiting List or Physicians' Diary for 1915. Newly Revised. New York: William Wood & Co., 1913. Prices, \$1.25, \$1.50, and \$2, for thirty, sixty, and ninety patients, respectively.)

This is one of the oldest and most serviceable of the visiting lists for physicians. The present issue is most hand-

somely bound, and is of convenient size. It contains the usual ruled pages for daily visits, consultations, obstetrical engagements, vaccinations, deaths, cash accounts, and addresses of patients, nurses, and others. Physicians who are not yet supplied are recommended to examine this visiting list.

Manual of the Diseases of the Eye. For Students and General Practitioners. By CHARLES H. MAY, M.D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York, 1890-1903; Attending Ophthalmic Surgeon to the Mt. Sinai Hospital, New York; Consulting Ophthalmologist to Bellevue Hospital, to the French Hospital, to the Red Cross Hospital, and to the Italian Hospital, New York. Eighth Edition, Revised. With 377 Original Illustrations Including 22 Plates, with 71 Colored Figures. New York: William Wood & Co., 1914. Pp. v-440. (Price, \$2.)

There is little new that can be said concerning so well known a book as this. It remains one of the best little books on the subject, and continues to enjoy an enviable reputation as a textbook for students.

Worry and Nervousness, or The Science of Self Mastery. By WILLIAM S. SADLER, M.D., Professor of Therapeutics, Post-Graduate Medical School of Chicago; Director of the Chicago Institute of Physiologic Therapeutics, etc. Illustrated. Chicago: A. C. McClurg & Co., 1914. Pp. xi-535. (Price, \$1.50.)

Part I of this work consists of a study of the nervous states. Sadler divides these into seven sorts of nervousness: 1. Chronic fear or common worry; 2, neurasthenoidia, or near neurasthenia; 3, neurasthenia, or nervous exhaustion; 4, psychasthenia, or true brain fog; 5, hysteria—the master imitator; 6, hypochondria, or the chronic blues; 7, simple melancholia. Among the things he discusses in connection with these are heredity, environment, the influence of physical health on the mind, the power of mind over the body, high pressure life, and the mission of suffering. Part II is devoted to treatment, dealing with the general hygiene of the nervous system, psychotherapy, therapeutic suggestion, educational therapeutics, recreation and relaxation, stimulants and narcotics, and what he terms cures by writing or elimination, study or substitution, rest or play, work or occupation, social service, and faith and prayer, concluding with a chapter on triumphant self mastery.

Interclinical Notes.

Some of the barbs which F. P. A., of the *New York Tribune*, shoots into the patent medicine interests are dipped in an acrid juice. In the *Tribune* for December 21st, he observes: "The pat. med. firms are beginning to write in. They say, some of them, that the crusades against their altruistic balms are waged by the American Medical Association, because, obviously, the use of pat. meds. hurts the physician's business. But does it? Does the use of opium, cocaine, and chloral injure the undertaker's trade?"

* * *

Papers which physicians will enjoy reading in the December *Popular Science Monthly*, are *The Cinchona Botanical Station*, by Duncan S. Johnson; *The Normal Child*, by Bird T. Baldwin; *Common Factors in Mental Health and Illness*, by F. Lyman Wells; while the more advanced mentally will be deeply interested in *A New Phase of an Old Conflict*, by Launcelot W. Andrews, which takes up an age long warfare about where Draper and Andrew Dickson White dropped it.

Meetings of Local Medical Societies.

MONDAY, December 28th.—Therapeutic Club, New York; Medical Society of the County of New York.

TUESDAY, December 29th.—Medical Society of the County of Chautauqua, N. Y. (annual).

SATURDAY, January 2d.—Benjamin Rush Medical Society, New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending December 9, 1914:

Bahrenburg, L. P. H., Surgeon. Leave of absence for three weeks from November 25, 1914, amended to read "eight days leave of absence from November 25, 1914." **Carter**, H. R., Senior Surgeon. Leave of absence for five days from November 30, 1914, amended to read "seven days' leave of absence from November 30, 1914." **Clark**, Taliaferre, Surgeon. Directed to proceed to the Garfield Memorial Hospital for the purpose of examining an alien undergoing treatment for ringworm of the scalp. **Cofer**, L. E., Assistant Surgeon General. Granted two days' leave of absence, December 9 and 10, 1914. **De Valin**, R., Passed Assistant Surgeon. Granted two weeks' leave of absence from December 28, 1914. **Duffy**, D. J., Assistant Surgeon. Relieved from duty at Manila, P. I., and directed to proceed to San Francisco, Cal., and report arrival to the Bureau of Medicine and Surgery, Washington, D. C. **Francis**, Edward, Surgeon. Granted one month's leave of absence from December 21, 1914. **Frost**, W. H., Passed Assistant Surgeon. Directed, on request of the State Board of Health of Tennessee, to proceed to Knoxville to make an investigation of the character of the raw and treated water used in that city, as well as other available surface water supplies; granted four days' leave of absence from December 9, 1914. **Harrington**, F. E., Assistant Epidemiologist. Directed to proceed to Hindman, Ky., for the purpose of investigating an outbreak of typhoid fever. **Roberts**, N., Passed Assistant Surgeon. Relieved from duty in plague eradication measures and directed to return to station at Marcus Hook, Pa. **Schereschewsky**, J. W., Surgeon. Directed to stop in Cincinnati, Ohio, en route to station, for conference. **Stiles**, C. W., Professor. Authorized to proceed to Kansas City, Mo., to address the Knife and Fork Club on some public health subject. **Thometz**, H. M., Assistant Surgeon. Relieved from duty on revenue-cutter *Manning*, and directed to proceed to the San Francisco Quarantine Station, Angel Island, Cal., for temporary duty; granted leave of absence from December 16, 1914, to January 3, 1915. **Wilbert**, M. I., Technical Assistant. Authorized to attend the meeting of the association for Advancement of Science to be held in Philadelphia, Pa., December 28, 1914, to January 2, 1915.

Boards Convened.

Board of medical officers convened to meet at Tacoma, Washington, for reexamination of alien woman certified for trachoma: Detail for the board: Surgeon B. J. Lloyd or Acting Assistant Surgeon F. R. Underwood, chairman; acting Assistant Surgeon F. J. Schug, recorder.

Board of medical officers convened to meet at the Marine Hospital, Mobile, Ala., for examination of detained alien. Detail for the board: Surgeon J. T. Burkhalter, chairman.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending December 19, 1914:

Bastion, Joseph E., Captain, Medical Corps. Granted one month and fifteen days' leave of absence, effective about December 20, 1914. **Bowen**, Albert S., Captain, Medical Corps. Upon arrival in the United States, ordered to proceed to the Presidio of Monterey, Cal., for assignment to duty. **Burket**, John A., Captain, Medical Corps. Upon arrival in the United States, ordered to proceed to Fort Logan, Colorado, for assignment to duty. **Duncan**, Arnott K., First Lieutenant, Medical Reserve Corps. Ordered to proceed to Fort Sam Houston, Texas, on January 1, 1915, for assignment to duty. **Graham**, George D., First Lieutenant, Medical Corps. Leave of absence extended ten days.

Hill, Felix R., Captain, Medical Corps. Granted three months' leave of absence. **Lay**, Harry R., First Lieutenant, Medical Reserve Corps. Resignation has been accepted by the President, to take effect December 15, 1914. **Mills**, Frederick H., First Lieutenant, Medical Reserve Corps. Upon the departure of the Ninety-first Company Coast Artillery from Jackson Barracks, Louisiana, ordered to proceed to Fort Sam Houston, Texas, for assignment to temporary duty. **Poust**, Luther R., First Lieutenant, Medical Corps. Granted two months and twenty-eight days' leave of absence, to take effect when his services can be spared. **Reynolds**, Royal, Captain, Medical Corps. Granted fifteen days' leave of absence, effective about December 23, 1914. **Ricker**, Charles D., First Lieutenant, Medical Reserve Corps. Ordered to proceed to Fort Sam Houston, Texas, on January 1, 1915, for assignment to duty. **Seaver**, Edwin P., Jr., First Lieutenant, Medical Corps. Ordered to report at Fort Rodman, Massachusetts, for assignment to duty on or about December 20, 1914. **Weed**, Mark D., Captain, Medical Corps. Granted seven days' leave of absence, effective about December 24, 1914.

Births, Marriages, and Deaths.

Married.

Crandon—Gill.—In New York, on Tuesday, December 15th, Dr. Le Roi Goddard Crandon, of Boston, and Mrs. Lucy E. Gill.

Died.

Albertson.—In Oswego, N. Y., on Sunday, December 6th, Dr. Charles Sibley Albertson, aged sixty-two years. **Baker**.—In Hyannis, Mass., on Saturday, December 12th, Dr. Chester Monroe Baker, aged thirty-nine years. **Barker**.—In Norway, Me., on Thursday, December 10th, Dr. F. N. Barker, aged fifty-four years. **Bealor**.—In Shamokin, Pa., on Friday, December 11th, Dr. John W. Bealor, aged sixty years. **Bowen**.—In Berlin, N. J., on Saturday, December 12th, Dr. Robert Bowen, aged eighty-seven years. **Bowser**.—In Reynoldsville, Pa., on Wednesday, December 9th, Dr. Addison Bowser. **Dehart**.—In White Plains, N. Y., on Sunday, December 13th, Dr. H. G. Dehart, aged sixty-five years. **Flood**.—In Haverhill, Mass., on Wednesday, December 16th, Dr. Thomas W. Flood, aged thirty-one years. **Foster**.—In Fond du Lac, Wis., on Thursday, December 10th, Dr. Frederick L. Foster, aged forty-one years. **Friedler**.—In New York, on Sunday, December 13th, Dr. Julius L. Friedler, aged fifty-two years. **Harrod**.—In Fort Wayne, Ind., on Tuesday, December 8th, Dr. John Harrod, aged fifty-three years. **Johns**.—In Muskogee, Okla., on Monday, December 7th, Dr. William C. Johns, aged forty years. **Layton**.—In St. Louis, Mo., on Wednesday, December 9th, Dr. William Layton, aged seventy-eight years. **Leonard**.—In Pasadena, Cal., on Thursday, November 26th, Dr. F. C. Leonard. **McLanahan**.—In Chambersburg, Pa., on Sunday, December 13th, Dr. Johnston McLanahan, aged seventy-one years. **Murphy**.—In Canton, Mass., on Wednesday, December 16th, Dr. Patrick W. Murphy, aged thirty-eight years. **O'Malley**.—In Wilkesbarre, Pa., on Friday, December 11th, Dr. Alexander P. O'Malley. **Perier**.—In Paris, France, on Sunday, December 13th, Dr. Charles Perier, aged seventy-eight years. **Reith**.—In Lancaster, Pa., on Wednesday, December 9th, Dr. John W. Reith, aged thirty-one years. **Rogers**.—In Bakersfield, Cal., on Sunday, December 6th, Dr. L. S. Rogers, aged seventy-nine years. **Smith**.—In Brookline, Mass., on Wednesday, December 16th, Dr. Winfield S. Smith, aged fifty-three years. **Trueheart**.—In San Antonio, Texas, on Tuesday, December 15th, Dr. Charles W. Trueheart, aged seventy-seven years. **Turkopp**.—In Columbus, Ohio, on Wednesday, December 9th, Dr. W. H. Turkopp, aged fifty-nine years. **Vermillion**.—In Little Rock, Ark., on Friday, December 11th, Dr. W. H. Vermillion, aged seventy years. **Washburne**.—In East Berkshire, Vt., on Monday, December 14th, Dr. E. L. Washburne, aged fifty years.

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